DEPARTMENT OF CHEMICAL ENGINEERING

ABOUT THE DEPARTMENT

PROFESSOR B. N. THORAT
B. Chem. Eng., M. Chem. Eng., Ph. D (Tech) D.H.S.T. (BITS)
Head, Department of Chemical Engineering
Professor of Chemical Engineering

This year the chemical engineering faculty members published **235** papers in International refereed journals, **7** book Chapters, **35** patents, presented **12** papers in National and International conferences and **31** invited lectures were delivered in industry, symposia, and workshops.

The faculty members of the Department received very prestigious awards and recognitions for their contributions to the profession.

Prof. G.D. Yadav honored Padma-Shree by President of India in 2016. Prof. B.N. Thorat was felicitated by NOCIL award for Excellence in Design of new Equipment and Process in 2015 and also awarded by UKaid-FICCI, Millennium Alliance Rs. 10 lakhs US Dollars in 2016. Prof. V.G. Gaikar joined as a Vice Chancellor in Dr Babasaheb Ambedkar Technological University, Lonere. Prof. S.S. Bhagwat awarded for INSA Best Teacher Award 2016. Prof. A.B. Pandit nominated as fellow of World Academy of Science 2015. Prof. P.K. Ghosh awarded by Honorary Fellow, Indian Institute of Chemical Engineers and Lifetime Achievement Award from Indian Chemical Council. Prof. M Lakshmi Kantam received Eminent Scientist Award – Catalysis Society of India. Prof. A.M. Lali was awarded as BIRAC Innovator Award 2016 by DBT & Chairman BIRAC, 2016 and he received UAA-ICT Distinguished Alumnus Awards in Academic, 2015. Prof. V.K. Rathod was awarded with Fellow of Maharashtra Academy of Sciences. Dr. P.R. Gogate felicitated by -Outstanding Professor Award given by Indian Specialty Chemicals Manufacturing Association.

In department 63 Ph.D. theses were submitted along with **40** Masters theses. The number of Ph.D. Candidates in the Department is **169** and the number of M. Chem. Engg. With M.Tech has reached to **73**, all with full scholarship from Department of Atomic Energy, Department of Biotechnology, CSIR, Department of Science and Technology, and several industry sponsored projects. Safety course conducted for all Master students. It covers Process safety, Fire safety, Bio safety and radiation safety which are taught by Eminent faculties. Every year Department is organising Summer Training and In-plant Training programmes for Undergraduate students.

This year also saw a very good placement for the Graduates of the Department. By the time of writing this report, we have placed **95%** of students in Industry through campus interviews with minimum salary of **4 lakh**, a maximum of **17.4 lakh** per annum. All these placements are in core manufacturing sectors of chemical industry. Amongst post-graduates also **85%** of the candidates have been placed in Industry and **15 %** students have enrolled for PhD program at the time of the report.

PROFESSOR B. N. THORAT
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Head, Department of Chemical Engineering
Professor of Chemical Engineering

FELLOWSHIPS/ MEMBERSHIPS OF PROFESSIONAL BODIES:

- President, World Forum for Crystallization, Filtration and Drying (WFCFD)
- Member, State Environment Appraisal Committee, MoEF, Maharashtra Govt.

HIGHLIGHTS OF RESEARCH WORK DONE AND ITS IMPART (MAXIMUM TWO SINGLE-SPACED PAGES WITH FIGURES/DIAGRAMS ETC.)

- Although considerable amount of techniques were developed to dewater waste activated sludge not many ETPs and CETPs in India are using them practically. The resources found in municipal wastewater treatment sludge, more recently called bio-solids, are rich in nutrients and energy along with some minor components. Therefore, on-site filtration experiments were carried out at the local CETPs. The consequences of several operational parameters such as effect of pressure, filtration media, coagulant addition, etc. were studied. The characteristic properties such as cake resistance, medium resistance, cake porosity, cake compressibility was also determined along with the elemental analysis of the cake.
- The plant Stevia is a natural sweetener which belongs to the Asteraceae family. The leaves of S. rebaudiana accumulate sweet-tasting diterpene glycosides, known as steviol glycosides. The present study establishes new method for extraction of glycosides from stevia leaves followed by clarification of extract by using flocculants and/or Ultra-filtration membrane, concentration of glycosides by nanofiltration obtaining high purity glycosides. This process will establish a "Green" method for clarification and isolation of high quality glycosides.
- Sodium Perborate (SPB) has been predominantly used in detergents. Since Sodium Percarbonate (SPC) can produce more active oxygen content compared to SPB, SPC can replace SPB in bleaching agents. Conventionally, SPC is synthesized using wet process involving multiple unit operations. The present study aims at synthesizing SPC using simple, dry process by minimizing unit operations.
- Cassava is the third most important staple crop for the world. With its drought resistant properties, it is considered as the crop for the future. Cassava is the root of the plant which is dried and converted to chips or flour form. Traditional processing is time consuming and takes 5-7 days for processing and produces poor quality product. CassavaTech is the dryer developed by ICT that carries processing in 8 hours and saves 95% energy as against electrical options. The project is being piloted in India and Kenya.
- Turmeric, traditionally known as Haldi, an important medicinal plant and spice, is produced by 15 lakh farmers on 5,00,000 acre of land. Traditional turmeric processing is laborious, consumes 30 days and costs Rs. 30,000/acre. The processing also leads to non-availability of the land for the next crop for considerable time period. HaldiTech is a novel technology developed during Ph.D. work that can process 10,000 kg of turmeric (produce of 1 acre) in 24 hrs with targeted Rs. 15,000 as against traditional process that takes 30 days and costs Rs. 30,000. HaldiTech

targets Rs. 1500 crore annual market of turmeric processing through agri-waste based novel drying technology.

- Jaggery is a traditional Indian sweetener but has been replaced by sugar in Indian household because of its hygroscopic nature. The importance of jaggery as a sweetening agent has increased recently because of its medicinal properties. Thus there is need to make jaggery available in free flowing powder form. This study analyses strategies for granulation of jaggery and difficulties encountered in upscaling of the process.
- Fish is considered to be one of the cheapest sources of animal proteins. However, fresh fish contain up to 80% water and is one of the most perishable foods. Drying is one of the oldest methods for preserving fish. Although open sun drying is a cheap method of preservation, the fish are likely to be contaminated by sand and dust and are thus expected to show a higher microbial content. The primary objective of this study is to address the issues in open sun drying by analyzing the microbial and biochemical quality of the sun dried fish and its comparison with other drying techniques.
- Slack coal, generated during the process of mining, transportation, handling and on exposure to the weather, can be utilized effectively by forming briquettes, which otherwise goes waste or sold at low price. Briquetting of slack coal involves binder, which is driving factor for economic consideration. In Present study, efforts are being made to develop cost effective binder or sustainable binding technique.

PUBLICATIONS (PEER REVIEWED) SO FAR : 75

- PATENTS: 10

CONFERENCE PROCEEDINGS/PAPERS: 93

SEMINARS/LECTURES/ ORATIONS DELIVERED: 04

PH.D.S AWARDED AS SINGLE/ CO-GUIDE : 24

MASTERS AWARDED AS SINGLE/ CO-GUIDE: 64

H-INDEX : 16
CITATIONS : 736

SUBJECTS TAUGHT DURING 2017-18 : Unit Operations, Perspective of society in Science and Technology

RESEARCH INTERESTS:
Drying Technology and Particle Handling, Process Development, Multiphase reactors, Industrial Crystallization and Filtration.

RESEARCH STUDENTS CURRENTLY WORKING :
P.D.F.- 00 RA - 00
Ph.D. (Tech.) – 05
Ph.D.(Sc) - 02
M.Tech. - 00
M.Chem.Eng - 03
M.Sc - 00
Others (if any) -

NUMBER OF RESEARCH PUBLICATIONS:
International- 03
National-
Peer-reviewed-
Conference proceeding- 03
Books-

NUMBER OF PATENTS:
International - 00
Indian - 00

NUMBER OF SPONSORED PROJECTS :
Government- 01 Private- 01

PROFESSIONAL ACTIVITIES (MEMBERSHIP OF IMPORTANT COMMITTEES):

- Organizer 12th International Workshop on Crystallization, Filtration and Drying. Theme: Drying and Granulation Technology, Feb 2018, Mumbai.
- Member, CAC Advisory committee, Maharashtra Pollution Control Board, July 2017 onward.
- Scientific member, Nordic Baltic Drying Conference, 2017
- Scientific member, International Drying Symposium, 2018
- Scientific member, Asia-Pacific Drying Conference, 2017
- DSIR Expert, 2017

SPECIAL AWARDS/ HONOURS:

- Gunther Oertel Startup Innovation Award for Microbutor Innovation, Covestro, (Former Bayer Material Science, Germany), 2017.
- USAID and IKP: Solar Conduction Dryer scale up in Bangladesh, 2017

PHOTOGRAPH (LABORATORY)

PanAsia Heat Pump Dryer

Labultima Spray Dryer

Labconco Freeze Dryer

Puschner Microwave Dryer

Brookfield Particle Flow Tester

Convective Hot Air Dryer

PROFESSOR SUNIL S. BHAGWAT

B. Chem .Engg., M. Chem. Engg., Ph.D. (Tech.)

Professor in Chemical Engineering

FELLOWSHIPS/ MEMBERSHIPS OF PROFESSIONAL BODIES:

- Indian Institute of Chemical Engineers - Life Member and Past Chairman of Mumbai Regional Center
- Oil Technologists Association of India - Life Member
- Society for Industrial Chemistry - Life Member
- Indian Society for Surface Science and Technology - Life Member, Hon Secy, Western India
- Maharashtra Academy of Sciences - Fellow (2008)
- Industrial and Engineering Chemistry, American Chemical Society - Former Member, Editorial Advisory Board
- Journal of Surface Science and Technology - Member, Editorial Board

HIGHLIGHTS OF RESEARCH WORK DONE AND ITS IMPACT (MAXIMUM TWO SINGLE-SPACED PAGES WITH FIGURES/DIAGRAMS ETC.): (given at the end of the document)

PUBLICATIONS (PEER REVIEWED) SO FAR: 70

PATENTS: 8

CONFERENCE PROCEEDINGS/PAPERS: 66

SEMINARS/LECTURES/ ORATIONS DELIVERED: >100

PH.D.S AWARDED AS SINGLE/ CO-GUIDE: 35

MASTERS AWARDED AS SINGLE/ CO-GUIDE: 75

H-INDEX: 15

CITATIONS: 678

SUBJECTS TAUGHT DURING 2017-18 :

Chemical Engineering Thermodynamics-I
Chemical Engineering Thermodynamics-II
Interfacial science and engineering

RESEARCH INTERESTS:
Energy and exergy analysis, Interfacial science and engineering, Computer process simulation

NUMBER OF RESEARCH STUDENTS CURRENTLY WORKING :
P.D.F.- RA-
Ph.D. (Tech.)- 05
Ph.D.(Sc)- 04
M.Tech.- 1
M.Chem.Eng- 05
M.Sc -
Others (if any) –

NUMBER OF RESEARCH PUBLICATIONS:
International-06 National- 00
Peer-reviewed-
Conference proceeding-
Books-

PATENTS:
International -
Indian -

SPONSORED PROJECTS :
Government- 01 Private- 01

PROFESSIONAL ACTIVITIES (MEMBERSHIP OF IMPORTANT COMMITTEES):

Expert member, NBA committee
Member, RRC, University of Mumbai
Member, Journal of Surface Science and technology

PHOTOGRAPH (LABORATORY)

1. Foaming apparatus
2. Stop flow instrument
3. Vertical Impinging Jet Method
4. Bottling setup
5. Maximum Bubble pressure apparatus
6. KRUSS G10 aGoniometer
7. KRUSS K11 Tensiometer

HIGHLIGHTS OF RESEARCH WORK DONE AND ITS IMPACT

In the area of thermodynamics, we have employed a novel technology for refrigeration that is a combination of Vapour Absorption Refrigeration system (VAR) & Vapour Compression Refrigeration system (VCR) called "COMBO VAR-VCR TECHNOLOGY". The combination has been optimized by the use of Exergy Engineering techniques such that an optimum use of both technologies results in maximum benefits. It reduces electrical energy consumption by using heat as an energy source. The heat can be obtained by solar collector or by agro waste through a boiler generating steam or by direct combustion of agro waste.

We are also studying the thermodynamic properties of

novel working fluids which can replace commercially available LiBr-water systems.

We are also working on process design of liquid-liquid bi-phasic reactions for styrene hypochlorination. Using hydrogen peroxide and hydrochloric acid as a source for hypochlorous acid in situ; the effect of key parameters such as temperature, volume fraction and initial concentration of precursors on reaction rate and chlorohydrin selectivity is being investigated. The results of this work can serve as a basis for continuous process design for styrene oxide manufacture which is the major precursor for phenyl ethyl alcohol.

In the area of interfacial science, we are working on the development and synthesis of novel surfactants. We have developed amidoamine based cationic surfactants. The introduction of amide group in cationic surfactants enhances its biodegradability while also reducing its eco-toxicity. Amido-amine based surfactants Gemini surfactants have also been developed and characterized.

We are also studying the behavior of mixed surfactant systems. We have analysed the mixture behavior of ionic surfactants with nonionics and analyzed their synergistic activity. We are also studying development of mathematical models to characterize the behavior of surfactant mixtures. Such models shall aid in a priori prediction of the properties of surfactant mixtures.

Surfactants have often been employed in petroleum processing in tertiary oil recovery where frequently water and oil form emulsions. The separation of such emulsions is crucial to the efficiency of the oil recovery process. We are studying the effect of chemical additives on demulsification of water in oil emulsions, the kinetics of the demulsification process and the separation efficiency of these demulsifiers using different types of surfactants. We are also working on the extraction and the purification of minor constituents/ phytonutrients from various vegetable oil refining waste, which have important potential applications in food, cosmetics and pharmaceutics among others.

PROFESSOR DR. VILAS GAJANAN GAIKAR

FNAE, FMASc, MIIChE, FMOTAI, MISSST, MAMIC
Ph.D.(Tech.)(1986); MChemEngg(1984), BChemEngg(1982)
Bharat Petroleum Distinguished Professor of Chemical Engineering (on leave)
Vice-Chancellor, Dr. BabasahebAmbedkar Technological University, Maharashtra, (from March 2nd, 2016)

PROFILE AND ACCOMPLISHMENTS SO FAR

- Fellow, Indian National Academy of Engineering
- Fellow, Maharashtra Academy of Sciences
- Member, Indian Institute of Chemical Engineers
- Fellow Member, Oil Technologists Association of India

HIGHLIGHTS OF RESEARCH WORK DONE AND ITS IMPACT (MAXIMUM TWO SINGLE-SPACED PAGES WITH FIGURES/DIAGRAMS ETC.):

Professor Vilas G. Gaikar, a fellow of Indian National Academy of Engineering, has made outstanding research contribution to Chemical Engineering Science that has been applied by many industries in India and abroad. His work on Dissociation extraction and dissociation extractive crystallization has been practiced in chemical industry where the other

conventional methods of separation have been either economically impractical or are difficult to employ. His process of reactive crystallization for m-/p-cresols was the first of its kind with extreme selectivity for separation of this most difficult-to-separate mixture.

Innovative approaches by synergizing theoretical developments with practical applications are hall marks of the work done by Professor Gaikar in academic research and as a consultant to several industrial concerns in the last two decades. He had been a consultant to a leading alcohol-based industry for development of many new extraction and purification processes for natural products as medicinal compounds or neutraceuticals. Many of these processes have been patented by the company and practiced for commercial production of the products. As a Chair Professor on a position created by Bharat Petroleum Corporation Ltd. in the Institute of Chemical Technology(ICT), he has developed newer and novel technologies for the company, most recently for upgradation of vacuum residue and waste water management . He had developed a large number of oleochemicals from castor oil that were manufactured and marketed by another industrial concern.

Professor Gaikar extended his work on reactive separations to complex distillation columns including reactive distillation, salt effect in distillation and complex heterogeneous azeotropic distillation column designs. In particular, he had analyzed and successfully showed economical operation for a multicomponent azeotropic distillation column involving acetic acid-water mixtures in India's leading petrochemical company.

In the last few years, his group has developed several reactive sorbents for heavy metal extraction with extreme selectivity towards desired metal ions, affinity adsorbents for a number of closely related organic compounds, functionalized sorbents for capture of carbon-dioxide and nanoparticle synthesis having potential applications in pharmaceutical and specialty chemical industries. Currently, his group is working on several specialty chemicals' synthetic reactions for development of continuous processes to improve selectivity to desired product and to minimize waste with energy integration.

In the area of Biofuels, biolubricants, biodiesel, thermochemical conversion of biomass, his group has attained several newer milestones and some of this work has been used at industrial and large scale applications. The thermal conversion of lignocellulosic biomass is being developed to establish biorefinery concept. Another offshoot of this work is establishing, 'Steam Pyrolysis' as a waste treatment technique for dealing with concentrated organic waste.

His contribution to the field of hydrotropy and complex mixtures with surfactants has been pioneering, especially considering that his contribution has come entirely from the work done in ICT, India. His work, for the first time, established sodium ibuprofen as an efficient hydrotrope and drug solubilizer which is now being used in several drug formulations. He has also developed several formulations of hydrotropes with surfactants for potential applications in drug and pesticide industries. His group has successfully developed aqueous solutions of hydrotropes based extraction process for natural products as an alternative to organic solvents that is also easily scalable to industrial operations. Recently his group has successfully conducted delignification using aqueous solutions of hydrotrope as a substitute for chemical conversion techniques. The aqueous solutions are also useful in conducting organic synthesis as safer media and provide ease of recovery of products. His work on biochemical applications, using organic solutions of reverse micelles, is also recognized as first of its type, mostly for enzyme and protein recovery by cell permeabilization and purification.

Apart from his industrial and corporate relations, Professor Gaikar was rated as the Best Teacher by University of Mumbai in 2002 and several times by the students of the Institute. He is known for his innovative and out-of-box ideas for promoting engineering and technical education in the country, and

inspiring young engineers to innovate. His originality in conceptualizing the Industry-Academia interaction in the form ´Young Innovator Choice Competition´ in ICT has brought young chemical engineers/ technologists from all corners of the country and several industries seeking innovative answers for their problem, on the same platform. This year, he conceptualized the idea of 'Innovation Networking' of engineering institutes in the State of Maharashtra and is spearheading the efforts of ICT in spreading the spirit of Innovation among young engineers

PUBLICATIONS (PEER REVIEWED) SO FAR: 186

PATENTS: 22

CONFERENCE PROCEEDINGS/PAPERS: 150+

SEMINARS/LECTURES/ ORATIONS DELIVERED: 350+

PH.D.S AWARDED AS SINGLE/ CO-GUIDE: 39

MASTERS AWARDED AS SINGLE/ CO-GUIDE: 78

H-INDEX: 32(Google Scholar)

CITATIONS: 3162(Google Scholar)

SUBJECTS TAUGHT DURING 2017-18: NIL

RESEARCH INTERESTS: Biodiesel and Thermochemical conversions of Biomass, Process Intensification by Microwave, Soft Condensed Matter, Reactive Adsorptive Separations and Molecular Design of Functionalized Polymers, Interfacial Science and Engineering, Clean Technology and Organic Synthesis in Aqueous Solutions, Synthesis of nanoparticles, photochemical reduction of CO2,

NUMBER OF RESEARCH STUDENTS CURRENTLY WORKING :
Ph.D. (Tech.) -3
Ph.D.(Sc) -4

NUMBER OF RESEARCH PUBLICATIONS :
International- 9(2018); 8(2017); 9(2016)

NUMBER OF PATENTS :
International - 06
Indian – 14 filed

NUMBER OF SPONSORED PROJECTS :
Government- 01
Private - 02

PROFESSIONAL ACTIVITIES (MEMBERSHIP OF IMPORTANT COMMITTEES):

- Chairman, Western Region, AICTE(2017-)
- Member, Core Committee for Technical Education, Government of Maharashtra(2018-)
- Chairman, Committee for Perspective plan of Polytechnic Education (2018)
- Member, RUSA Council, Government of Maharashtra
- Chairman, Western Regional Office, AICTE(2017-)
- Chairman, Committee for Start-up Initiative Policy for Higher Education (2017-18)
- Member, BPCL Start-up Initiative Committee (2017-)
- Member, Expert Committee for Research and Innovation, Maharashtra State Project Directorate, RUSA (GoI)(2016-)
- Member, Sectional Committee (Chem. Engg), Indian National Academy of Engineering, New Delhi (2017-)
- Member, Advisory Committee, UGC-CAS program in Chemical Engineering, CE Department, IISc (2018-)
- Member, National Program on Carbon Capture, Department of Science and Technology, GoI(2015-2018)
- Member, Selection Committee for Appointment of Faculty, IIT-Kharagpur and, Director, IIIT-Nagpur (2017-18)

Membership of Committees in the last five years

- Member, Executive Council, All India Technical Education Council (2017-18)
- Member, TASK Force, Bioenergy Sciences, Department of Biotechnology, Ministry of Science and Technology, GoI.(2014-2017)
- Member (co-opted), PAC-SERB, Department of Science and Technology (2016-2017)
- Member, TASK Force, Empowerment and Equity Opportunity for Excellence in Science, SERB, Ministry of Science and Technology, GoI.(2013-14)
- Member, Empowered

Board, RDCIS- SAIL Project for Waste Water management in Steel Industry (2011-2016)
- Coordinator, ICT-DAE Centre for Chemical Engineering Education and Research, (DAE, GoI) (2013-16)
- Institute Coordinator, Technical Education Improvement Quality Program (MHRD, GoI), ICT (2010-2016)
- Member, Various Selection Committees for Appointment of Faculty at Universities, IITs and Scientists.
- Coordinator, TEQIP Innovation Networking Centre at ICT, Maharashtra State (2014-2016)

SPECIAL AWARDS/HONOURS :

Distinguished Alumnus, ICT(2016)

PROFESSOR ARVIND M. LALI

Ph. D. Chem Engg

Professor (Chem. Engg.),

Head, DBT-ICT Centre for Energy Biosciences

SUBJECT TAUGHT:

Bioprocess simulation modeling & bioreactor design, Instrumentation & process control,
Adsorptive separations
Statisitical methods

RESEARCH INTERESTS: Bio-energy, biofuels & biomassto other chemicals, Purification of proteins, nucleic acids & synthetic APIs high value organic/ inorganic chemicals, Continuous chromatography, Modeling & adsorptive separations, & biotransformatics, bioreactor design,
Mixing & Dynamics of solid liquid Fluidized bed, Dynamics of gas-solid Circulating fluidized bed, Process Integration & intensification, Process development, characterization & scale up

NUMBER OF RESEARCH STUDENTS:

Ph.D. (guided) – 60 (so far),
Ongoing - 14,
Masters (guided) – 72 (so far)
Ongoing - 3

NUMBER OF RESEARCH PUBLICATIONS:

International – 72 (so far)

NUMBER OF PATENTS:

International – 23 (granted), 110 - (filed) (so far)
National – 3 (granted), 43 (filed) (so far)

PROFESSOR ANIRUDDHA BHALCHANDRA PANDIT

Ph.D. (Tech.), Department of Chemical Technology, University of Bombay (1980-1984) B. Tech. (Chemical Engineering), Institute of Technology, Banaras Hindu University (1975-1980)

Professor in Chemical Engineering

FELLOWSHIPS/ MEMBERSHIPS OF PROFESSIONAL BODIES:

FTWAS, J.C. Bose Fellow, F.A.Sc., F.N.A., F.N.A.E., F.N.A.Sc.

HIGHLIGHTS OF RESEARCH WORK DONE AND ITS IMPART (MAXIMUM TWO SINGLE-SPACED PAGES WITH FIGURES/ DIAGRAMS ETC.):

Prof. A. B. Pandit can be described as singularly responsible individual who proposed and promoted Hydrodynamic Cavitation based physico-chemical and biological transformations. His first publication in the area of hydrodynamic cavitation for Chemical Transformation was in 1992. He has subsequently published over 120 articles till date in the area of cavitation. He has applied this technique for a variety of applications from laboratory to industrial scale (mg to tonnes/day level). The range of applications include: (a) Biotechnology for intracelllulor enzyme recovery (b) Chemical Engineering and Technology for sonocrystallization, estrification of variety of compounds and nanoparticle synthesis. Successful technologies have also been developed for a social cause such as water disinfection for rural masses. A unique blend of theory, modeling, experiments and final implementation has resulted in a successful design and scale-up of cavitational reactors from lab to industrial scale. His insights into the fundamental understanding of Cavitational reactors (termed coined by him) has opened a gamut of possible applications of these reactors. His work in the area of effluent water treatment of biorefractory pollutants mineralization and/ or prevention of chemical less biofouling prevention in cooling tower circuits has been path breaking, The technology of Ballast water treatment proposed by him along with (National Institute of Oceonography and National Chemical Laboratory) CSIR labs has been well recognized by International Maritime Organization. This is likely to result into an independent sea water treatment technology testing facility, first time in India.

His current work in hand pump based water disinfection for rural India is revolutionary in nature and will be extremely useful in the developing countries as it has resulted into a modified hand-pump design giving in excess of 89% disinfection in one pass. His contribution to ICT ENERGY group has resulted into energy efficient processes for cooking, solar steam generation and efficient smokeless Solid Fuel Chullas (Stoves) designs.

He has developed novel designs for a variety of Cavitationally induced chemical, biological and physical transformations unit processes which are in successful commercial operations.

A unique scientific creative approach of using fundamental knowledge, coupled with simple, elegant experiments demonstrating Industrial and Social utility has been the hallmark of Prof. Pandit's contribution to Science and Technology. Prof. Pandit has authored over 339 (as per Scopus) publications, 6 books and over 17 chapters and has 17 patents with over 12952 citations (as per scopus webmedia) and H-Index 62. He is also on the Editorial board of several International Scientific Journals. He has successfully guided 40 PhD's and 70 Master's students in Engineering and Technology so far.

Figure 1: Anti solvent crystallization setup

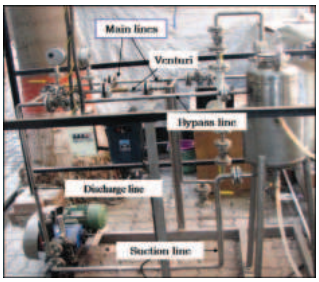


Figure 2: Hydrodynamic cavitation setup

Figure 3: Bio gas generation from food waste

PUBLICATIONS (PEER REVIEWED) SO FAR: 339 (as per Scopus)

PATENTS: 17

CONFERENCE PROCEEDINGS/PAPERS: 175

SEMINARS/LECTURES/ ORATIONS DELIVERED:205

PH.D.S AWARDED AS SINGLE/ CO-GUIDE: 42

MASTERS AWARDED AS SINGLE/ CO-GUIDE: 70

POST DOCTORAL FELLOWS SUPERVISED : 00

AWARDS/HONORS:

- National - 31
- International -01

H-INDEX : 62 (as per Scopus)
CITATIONS: 12952 (as per Scopus)

SUBJECTS TAUGHT DURING 2017-18:
Environmental Engineering and pollution control, Chemical Project Economics, Design of Multiphase Reactors

RESEARCH INTERESTS:
Physical and Chemical Processing applications of Cavitation phenomena, Sonochemistry, Ballast Water Treatment, Mixing in Mechanically agitated contactors: Experimental and CFD Investigations, Modeling of Stoves, Use of non-conventional energy sources, Synthesis of Nanomaterials Biotechnology: Protein modification, Cell disruption and Microbial fuel cell.

RESEARCH STUDENTS CURRENTLY WORKING:
P.D.F.-
RA- 04
Ph.D. (Tech.)-14
Ph.D.(Sc)- 03
M.Tech.- 02
M.Chem.Eng- 04
M.Sc- 00
Others (if any) -NA

RESEARCH PUBLICATIONS:
International- 27
National- 01
Peer-reviewed-
Conference proceeding-
Books-

PATENTS:
International- 00
Indian- 01

SPONSORED PROJECTS:
Government- 03
Private- 04

PROFESSIONAL ACTIVITIES (MEMBERSHIP OF IMPORTANT COMMITTEES):

- Dean (SA and HRD) and ICD
- Chairman, HyCa Technology Pvt. Ltd., Mumbai
- President, Land Research Institute (LRI)- Charitable Organization involved in Land Mass and Energy Conservation.
- Member, Board of Governors and Past President, UDCT Alumni Association

Membership of important Committees:
Member of DST-FIST, UGC-SAP, DST ChemEngg PAC, DST MOFPI PAC, Adjunct Professor at BITs Goa Campus

Membership of Editorial Boards with name of journal and agency:
Ultrasonics Sonochemistry (USS), Chemical and Biochemical Engineering, Chemical Engineering and Processing: Process Intensification, Industrial Engineering and Chemistry, Journal of Science Assam, Journal of Mustard Research Promotion Council.

SPECIAL AWARDS/HONOURS:

1. Fellow, The World Academy of Sciences (TWAS)
2. DST-Lockheed Martin-Tata Trusts, India Innovation Growth Programme (IIGP)2.0 Awards 2017

BRIEF CAREER PROFILE UPTO 200 WORDS

Prof. A. B. Pandit can be described as singularly responsible individual who proposed and promoted Hydrodynamic Cavitation based physico-chemical and biological transformations. Successful technologies have also been developed for a social cause such as water disinfection for rural masses. A unique blend of theory, modeling, experiments and final implementation has resulted in a successful design and scale-up of cavitational reactors from lab to industrial scale. His insights into the fundamental understanding of Cavitational reactors (termed coined by him) has opened a gamut of possible applications of these reactors. His current work in hand pump based water disinfection for rural India is revolutionary in nature and will be extremely useful in the developing countries as it has resulted into a modified hand-pump design giving in excess of 89% disinfection in one pass. His contribution to ICT ENERGY group has resulted into energy efficient processes for cooking, solar steam generation and efficient smokeless Solid Fuel Chullas (Stoves) designs.

A unique scientific creative approach of using fundamental knowledge, coupled with simple, elegant experiments demonstrating Industrial and Social utility has been the hallmark of Prof. Pandit's contribution to Science and Technology.

DR. ANAND VINAYAK PATWARDHAN

B. Chem. Eng. (UDCT, Mumbai, 1983), M. Chem. Eng. (UDCT, Mumbai, 1985), Ph.D. (Tech.) in Chem. Eng. (UDCT, Mumbai, 1988)

Professor in Chemical Engineering

FELLOWSHIPS/ MEMBERSHIPS OF PROFESSIONAL BODIES:

Life member of Indian Institute of Chemical Engineers

HIGHLIGHTS OF RESEARCH WORK DONE AND ITS IMPART (MAXIMUM TWO SINGLE-SPACED PAGES WITH FIGURES/DIAGRAMS ETC.):

Membrane separation (separation and recovery of organic chemicals and metals from organic and aqueous streams; pollution control; development of ceramic membranes)

- Separation of various metal ions from aqueous streams using supported liquid membrane
- Separation of metal ions like U, Nd, Pb, Co, Zn, Sr, Cs, and their mass transport parameters
- Separation of organic acids from aqueous stream using the flat sheet supported liquid membranes
- Scale-up from laboratory scale to industrial scale equipment
- Removal of sulphur compounds from various petroleum fractions
- Mathematical modelling of membrane separation phenomena
- Development of ceramic membranes for industrial applications
- Water recovery from effluents containing dyes, pesticides, surfactants. Water recovery from effluents from textile industry, and refineries.
- Development of grafted resins and membranes (extractants) for precious metals.

Green Technology (ionic liquids for solvent extraction and reactions; value-added chemicals from non-edible oils; greener organic chemical process development)

- Enantioselective synthesis, kinetic resolutions of

racemic mixtures, chiral molecular recognition, group transfer reactions using chiral auxiliaries / catalyst, synthetic organic chemistry for pharmaceutical aspects.

- Multiphase catalysis relies on the transfer of organic substrates into the catalyst phase or on catalysis at the phase boundary. Most organic substrates do not have sufficient solubility in the catalyst phase to give practical reaction rates in catalytic applications. The catalytic / solvent role of ionic liquids in such cases is being explored for some industrially relevant reactions.
- Epoxidation of edible and non-edible oils for industrially useful chemicals.
- Separation of C7 and C8 liquid mixtures with ionic liquids as extracting solvents.
- Friedel-Crafts alkylation of phenols using ionic liquids as catalysts has been successfully demonstrated at laboratory scale.

Bioprocess Technology (synthesis of chemicals and microbial colorants / pigments)

- Development of viable and efficient bioconversion process for the production of the L-ascorbic acid from inexpensive starting materials, such as, glucose.
- Development of analytical method for simultaneous quantitative estimation of L-ascorbic acid and 2- keto-L-gulonic acid.
- Effect of precursor addition on the production of L-ascorbic acid during fermentation.
- Effect of intracellular enzyme inhibitor on the yield of L-ascorbic acid.
- Production of natural colours or pigments by screening various microbes producing natural pigments / colours, and the development of a fermentation process for the same as the use of fermentation processes possess a number of advantages when compared to vegetable sources, including the possibility of continuous cultivation, and the rapid multiplication of microorganisms.

PUBLICATIONS (PEER REVIEWED) SO FAR: 64

PATENTS: 1

CONFERENCE PROCEEDINGS/PAPERS: 65

SEMINARS/LECTURES/ ORATIONS DELIVERED: 22

PH.D.S AWARDED AS SINGLE/ CO-GUIDE: 14 completed; 5 on-going

MASTERS AWARDED AS SINGLE/ CO-GUIDE: 48 completed; 2 on-going

H-INDEX: 20; i10

INDEX: 10;

CITATIONS : Scopus (1019); Google Scholar (1506)

SUBJECTS TAUGHT DURING 2017-18:

Separation Processes (CET-1402: T. Y. B. Chem. Eng.)

Transport Phenomena (CET-1105: S. Y. B. Tech.)

Process Engineering (CET-1505: Final Y. B. Chem. Eng.)

Advanced Mass Transfer (CET-2155: F. Y. M. Chem. Eng.)

SPECIFIC RESEARCH INTERESTS:

- Membrane separation (separation and recovery of organic chemicals and metals from organic and aqueous streams; pollution control; development of ceramic membranes for pollution control and recovery of valuable chemicals)
- Green Technology (ionic liquids for solvent extraction and reactions; value-added chemicals from non-edible oils; greener organic chemical process development

NUMBER OF RESEARCH STUDENTS CURRENTLY BEING SUPERVISED :

P.D.F.
RA
Ph.D. (Tech.): 5
Ph.D.(Science): 1
M.Tech.: M. Chem. Eng: 2
M.Sc: Other (if any) –
Undergraduate Summer Fellows (if any) - 2
Teacher summer Fellows (if any) -

NUMBER OF RESEARCH PUBLICATIONS:

National- 2
International- 1
(Peer-reviewed)- 3
Conference proceeding- 7
Books (if any) -
Number of Patents:
International -
Indian-

SPONSORED PROJECTS:
Government: 1;
Private: 1

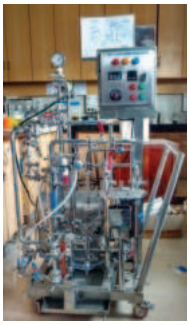
PROFESSIONAL ACTIVITIES:

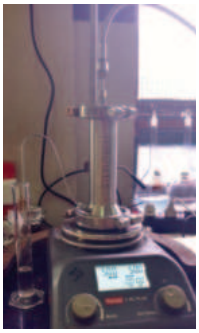
a) Membership of important Committees:
   - Member of the experts' panel formed by the DSIR (New Delhi) for accreditation of Research and Development units of various industries
   - Member of the reviewers' panel of Global Initiative of Academic Networks (GIAN), IIT Kharagpur

b) Membership of Editorial Boards with name of journal and agency:

SPECIAL AWARDS/ HONOURS /ACCOLADES:

PHOTOGRAPH (LABORATORY).





PROFESSOR ASHWIN W. PATWARDHAN

Ph. D.
Professor in Chemical Engineering

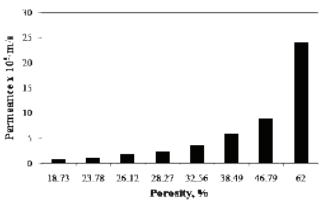
PROFILE AND ACCOMPLISHMENTS SO FAR

FELLOWSHIPS/ MEMBERSHIPS OF PROFESSIONAL BODIES:
FMASc

HIGHLIGHTS OF RESEARCH WORK DONE AND ITS IMPART (MAXIMUM TWO SINGLE-SPACED PAGES WITH FIGURES/DIAGRAMS ETC.):

Modelling of infusion kinetics

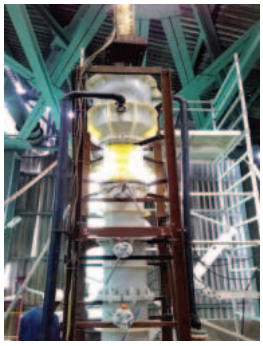
Mathematical model for infusion has been developed. The critical parameters namely, temperature, particle size, dipping frequency and size of bag were studied. The bag papers and the bed formed inside the bag affects the infusion rate. The bag paper parameters were quantified in terms of pore area distribution, pore size and porosity. With increase in porosity, permeance of components through the bag paper increases.



Scale up of liquid-liquid extraction columns

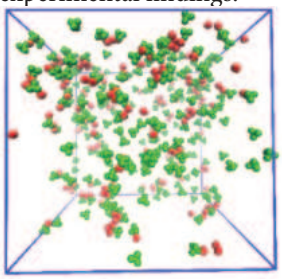
Hydrodynamic characteristics and mass transfer performance of asymmetric rotating impeller column (ARIC) was studied. Effect of operating parameters like impeller speed, phase velocities on drop size, hold up and mass transfer coefficient for a lab scale column were

evaluated. CFD simulations were carried out to study the hydrodynamics of ARIC. Based on experimental and CFD data, a pilot scale ARIC was designed and is in successful operation. The mass transfer performance of 12" column was found to be satisfactory. Hydrodynamic performance of ARIC and pulsed disc-doughnut column (PDDC) was compared in terms of drop size and holdup for equal power dissipated per unit volume (P/V).



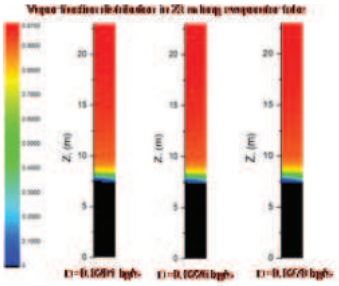
Recovery of Lithium from sea water bitterns by solvent extraction

Separation and concentration of lithium from seawater using solvent extraction has been investigated. The effects of aqueous phase pH, concentration of organic extractants, formation of third phase, presence of Na+ in aqueous phase, and organic to stripping agent phase ratios were analyzed. A significant enhancement in the value of partition coefficient (KD) was observed in the presence of basic media. To gain insights into the system, role of water in the extractant system consisting of tributyl phosphate (TBP) and di-(2-ethylhexyl)-phosphoric acid (D2EHPA) is investigated. Molecular dynamics simulations were carried out to get the atomistic insights into the system. The distribution coefficients of water in organic phases were calculated with the help of alchemical free energy transformations. The results showed good agreement with experimental findings.



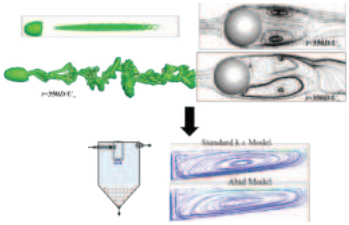
Thermal Hydraulics studies on boiling in vertical pipes

CFD simulation of air-water two-phase flow in vertical pipe has been carried out. Eulerian-Eulerian multiphase approach with k-ω SST turbulence model was used. The developed CFD model is well capable of predicting gas void fraction, interfacial area concentration, pressure drop, gas/liquid velocity and turbulent kinetic energy. Flow boiling phenomenon in vertical tube evaporator has great importance in process industries, steam generation power plants, air conditioners etc. CFD model is developed for prediction of pressure drop and thermal hydraulic characteristics in long vertical evaporator tube at high pressures. Axial distribution of heat transfer coefficient, heat flux, vapor fraction, fluid temperature has been studied. Developed model is capable to predict flow instabilities in evaporator tube.



Fluid dynamics studies in solid–liquid Separation

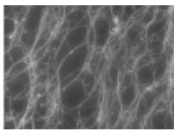
This project involves study of settling tanks from a fundamental and an application perspective using multiscale modeling approach wherein the bulk flow is studied using time averaged turbulence models while flow across isolated and hindered particles are studied using Direct Numerical Simulations. For prediction of the flow patterns, surface forces and turbulence characteristics, initially across single and then for multiple particles high resolution spatial and temporal DNS are performed. It has been observed that for the bulk flows, the standard k-ε turbulence model has been widely used to predict the transport phenomena in settling tanks. Low Re models have better predictability for laminar flow regions of settling tanks as compared to conventionally used standard k-ε models.



Synthesis of carbon nanostructures and their application

Selective synthesis of single-

walled carbon nanotubes (SWCNTs) with specific chirality has been performed using floating catalyst chemical vapour deposition (FC-CVD). Both metallic and semiconducting SWCNTs of high aspect ratio have been achieved using FC-CVD technique as shown in SEM micrographs. Boron doped carbon nanotubes (B-CNTs) using various boron and carbon precursors as shown in TEM micrograph, have been synthesized for hydrogen adsorption study. CNT Fibres have also been synthesized.



PUBLICATIONS (PEER REVIEWED) SO FAR: 100

PATENTS: ---

CONFERENCE PROCEEDINGS/PAPERS: 8

SEMINARS/LECTURES/ ORATIONS DELIVERED: ---

PH.D.S AWARDED AS SINGLE/ CO-GUIDE: 15(single)+4(co-guide)

MASTERS AWARDED AS SINGLE/ CO-GUIDE: 49 (single)

H-INDEX: 23,

CITATIONS: 1672

SUBJECTS TAUGHT DURING 2017-18: Momentum and Mass Transfer, Advanced Reaction Engineering, Material and Energy Balance Computations, Advanced Separation Processes

RESEARCH INTERESTS: Transport Phenomena, Computational Fluid Dynamics, Membrane Separations, Liquid – Liquid extraction, Thermal Hydraulics

RESEARCH STUDENTS CURRENTLY WORKING :
P.D.F.- 0 RA- 0
Ph.D. (Tech.)- 11
Ph.D.(Sc)- 0
M.Tech. - 0
M.Chem.Eng - 2
M.Sc - 0
Others (if any) - 0

RESEARCH PUBLICATIONS:
International- 11
National- 2
Peer-reviewed-
Conference proceeding- 8
Books- 0

PATENTS: International - 0
Indian - 0

SPONSORED PROJECTS:
Government- 3
Private- 1

PROFESSIONAL ACTIVITIES (MEMBERSHIP OF IMPORTANT COMMITTEES):

(i) Member Expert Panel for Revision of AICTE Model Curricula, April 2017

(ii) Examiner Ph. D. Thesis, HBNI, IGCAR, Kalpakkam, August 2017, February 2018, April 2018

(iii) Examiner Ph. D. Thesis, HBNI, BARC, October 2017

(iv) Member, Local Organizing Committee, Emerging Trends in Separation Science and Technology, SESTEC 2018, BITS Goa, May 23 – 26, 2018

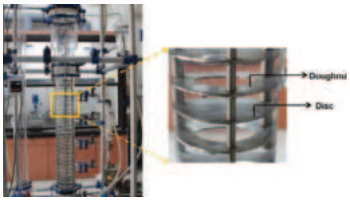
(v) Member, Technical Committee, Emerging Trends in Separation Science and Technology, SESTEC 2018, BITS Goa, May 23 – 26, 2018

(vi) Member, National Organizing Committee of 26th International Symposium on Chemical Reaction Engineering (ISCRE 26) and 9th Asia Pacific Chemical Reaction Engineering (APCRE 9)

(vii) Examiner Ph. D. Thesis, IIT Delhi, January 2018

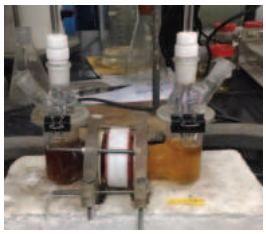
(viii) Examiner Ph. D. Thesis, ACSIR, NCL, April 2018

PHOTOGRAPH (LABORATORY) (WITH NAMES). *

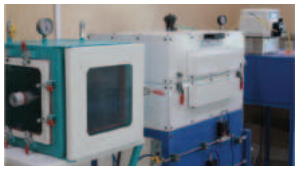


Liquid – Liquid Extraction Column

Thermal Hydraulic Studies on Boiling in Vertical Tubes



Membrane permeability Testing



Set-up for CNT Fibres

BRIEF CAREER PROFILE UPTO 200 WORDS:

The research work involves investigation of transport phenomena in multiphase processes by a combination of experimental investigations and rigorous Mathematical modeling, including Computational Fluid Dynamics (CFD). The work has helped to establish relationship between transport phenomena and performance of variety of gas – liquid and liquid – liquid processes on industrial scale. This has led to improved designs and scale-up procedures for many Chemical Process Industry Equipment and phenomena such as: gas inducing impellers, stirred tanks, jet and in-line mixers, gas entrainment from free liquid surfaces; variety of liquid – liquid contactors such as pump-mix mixer settlers, pulsed sieve plate columns, asymmetric rotating disc contactors; supported liquid membranes. The work has been published extensively in International Journals of repute.

PROFESSOR VIRENDRA K. RATHOD

Ph.D. (Tech), Institute of Chemical Technology, Mumbai
M.Chem, Institute of Chemical Technology, Mumbai
B.Tech, Nagpur
Professor in Chemical Engineering

MEMBERSHIP OF PROFESSIONAL BODIES:

Elected Fellowships:

Fellow of Maharashtra Academy of Sciences

Membership (Professional societies, institutes, associations, alumni associations, all by applications and not by election by peers):

- Member of IIChE,
- Member of UDCT alumina Association,
- Member of OTA,
- Member Board of studies Nagpur University,
- Member, Academic Counsel, Dr. BATU, Lonere, Maharashtra

OFFICE BEARER OF PROFESSIONAL BODIES, CONFERENCES, SYMPOSIA ETC.:

- Treasurer, Chemcon 2013,
- Member Technical Committee Chemcon 2013,
- Conveyor, Workshop and Training programme on Chemical Engineering Laboratory, 2011 and 2010
- Conveyor, workshop CO2 utilization and Green Chemistry, sponsored by DST, 2013
- Conveyor, Workshop on New vistas water treatment technologies sponsored by DST, 2013
- Member, organizing committee for "Chemcareers 2012" organized by ICT-Royal Society of Chemistry (RSC)" October 2012.
- Member, 2nd International Indo German Symposium on Green Chemistry and Catalysis for Sustainable Development, 2012.

- Member, Technical Committee, Asia Pacific Congress on Catalysis (APCAT 7)

HIGHLIGHTS OF RESEARCH WORK DONE AND ITS IMPART (MAXIMUM TWO SINGLE-SPACED PAGES WITH FIGURES/DIAGRAMS ETC.):

Studies in extraction and purification of bioactive molecule from natural sources

The interest in traditional medicines is growing substantially since several modern drugs are banned due to their increased side effects apart from being expensive. India has a rich array of registered and widely popular medicinal plants. Mangiferin is a major component of mango leaves and is an important natural drug with wide applications in pharmaceutical and other related industries. It shows antioxidant, antitumor and antiviral properties. The present work will involve use of novel extraction processes such as ultrasound assisted extraction (UAE), microwave assisted extraction (MAE) and adsorptive purification of the natural product. In (UAE) . Effect of various extraction process parameters such as extraction solvent, extraction time, temp, frequency on extraction yield will be studied. Most significant parameters would be find out and statistical optimization of most significant process parameters to get maximum yield.This study also aims towards understanding the kinetics and to develop the model for this extraction process under different parameters to predict extraction rate constant, initial extraction rate and equilibrium concentration. Final purification is carried out by adsorption chromatography.

Studies in enzyme immobilization

Enzyme immobilization onto solid carrier is one of the effective techniques which not only stabilizes enzymes under operational conditions but also allows easy recovery and reusability for multiple cycles . Generally, immobilization of enzyme on the carrier involves synthesis of functionalized carrier and covalent cross-linking of enzyme on its surface. Over the past decade, a number of nano-carriers have been prepared and used as a support for immobilization of enzyme. Among different types of carriers, magnetic nanoparticles (MNPs) are significantly used as a support due to their unique characteristics such as their tailored surface chemistry, unique physicochemical properties, biocompatibility, biodegradability. Also, magnetic nanoparticles allow easy, quick and efficient separation of enzyme from the reaction mixture by using external magnet. Pectinase was immobilized onto chitosan magnetic nanoparticles (CMNPs) by dextran polyaldehyde as a macromolecular cross-linking agent. The parameters like cross-linking concentration, time and CMNPs to enzyme ratio were optimized. Further, prepared magnetic pectinase nanobiocatalyst was characterized by FT-IR and XRD. The thermal kinetic studies for immobilized pectinase showed two folds improved thermal stability in the range as compared to free form. The Vmax and Km values of immobilized pectinase were found to be nearly equal to native form which indicated that conformational flexibility of pectinase was retained even after immobilization. Finally, magnetic pectinase nanobiocatalyst was employed for apple juice clarification which showed turbidity reduction upto 74% after 150 min treatment.

Hydrodynamics and Mass Transfer Studies in Pulsed Sieve-plate Extraction Column and Mixer-settler

The complex behavior of the hydrodynamics and mass transfer performance, leads to difficulties in the design and performance of pulsed sieve plate extraction column. Dynamics and mass transfer in a liquid-liquid extraction column are essentially determined by the behavior of the dispersed phase. It seems obvious that the changes in the characteristics such as hold-up, drop size, axial dispersion, flooding in the column have to be considered in order to describe conveniently the hydrodynamics of the column. Many empirical models for predicting the hydrodynamics in a liquid-liquid extraction column has been proposed and reviewed by various investigators.

The research work aims at the experimental study of the effect of operating and design variables for elucidation of

hydrodynamics of the pulse sieve plate extraction column using various types of plate and different column configuration and the description of a mathematical model and the different algorithms which would be developed for the simulation of extraction column. The Phase Reversal studies have been carried out in a Pulsed Sieve Plate extraction column 0.152 m in diameter.

Remotely operated Combined Air-lift Mixer-settler Unit will be studied in detail for its easiness of operation. Mixer-Settler provide good mixing and reasonably good phase separation performance but rather large hold-ups. Each mixer-settler unit provides a single stage of extraction. Mixer-settlers are used when a process requires longer residence times and when the solutions are easily separated by gravity. This research deals with the comparison of performance of the pulsed sieve plate extraction column with the mixer-settler and their effect on the column efficiency.

Studies in Water Treatment Technologies

Membrane technique is being used and well commercialized for the removal of fluoride from the ground water. Presently, membrane units are in operation in villages at domestic level, which generates fluoride free water and concentrated fluoride stream. Hence, it is proposed to carry out the comprehensive study on the removal of fluoride from concentrated retentate stream overcoming the drawback of membrane technology. Design of a complete process for purification of drinking water including calcium, magnesium and nitrate will be carried out as well. The various parameters i.e. concentration of lime, concentration of reactants, pH and contamination and effect of other ions present in feed which influences this separation are in progress. Based on optimized parameters of membrane filtration and precipitation techniques, a process will be designed which will also be tested by experimentation. The experimental data obtained after above mentioned experimentation will be analyzed on Ion Selective Meter and Particle Size Analyzer to develop a complete process for water treatment.

Studies in production and purification of a proteolytic enzyme Among the treatments of cardiovascular diseases, fibrinolytic agent is promising and highly effective therapy. In this proposed work, main emphasize is given to the production and purification of fibrinolytic enzyme from the bacterial culture. One factor at a time method was employed in the production of enzyme in submerged fermentation. In Bioreactor scale, effect of different operating parameters will be evaluated on the production of enzyme. Different purification technique will be used to achieve higher purity product in minimum time period and with less number of steps. Finally, molecular characterization of enzyme will be carried out to determine its molecular weight and other properties.

Hydrodynamics of Extraction Systems

Optimization of the hydrodynamic characteristics such as drop size, dispersed phase hold-up, flooding and axial dispersion in pulsed sieve plate column for water-kerosene system has been done with 0.76m diameter and 1m long pulsed sieve plate column. The optimized geometrical parameters are perforation diameter of 0.003m, plate spacing of 0.05m and fractional free area of 0.2. The optimized operating parameters are throughput of 0.013m/s at phase ratio (A/O) of 1:1 and pulsed velocity of 0.025m/s. At the optimized geometrical and operating parameters, Sauter mean Diameter (d32) attained was 0.0013m, dispersed phase hold-up (ϕ) obtained was 0.18 with throughput (Vcf + Vdf) of 0.013m/s. Continuous phase axial dispersion coefficient (E) was 6.56 $\times$10-4 m2/s. The design of pulsed sieve plate column in terms of diameter and height has been done. The equilibrium data is generated for 0.3M HNO3-TBP-dodecane system and the mass transfer study have been conducted for the removal of dissolved TBP from aqueous 0.3M HNO3 stream. NTU required was 1.52 and the HTU of 0.63 for optimized flow rate and other geometrical and operating conditions was calculated from the experimental results. For removal of dissolved TBP from 202 ppm to 5 ppm, the NTU required was 3.7 and

HTU was constant i.e.0.63m at constant set of geometrical as well as operating conditions. Thus the desired height of the column would be 2.3m. From experimental throughput data, the column diameter required for 100 kg/hr of 0.3M HNO3 feed was 0.085m.

Studies in liquid-liquid systems

Tri n-butyl phosphate (TBP) is the most frequently used solvent in liquid – liquid extraction for nuclear fuel reprocessing. But contact between TBP and aqueous solutions of nitric acid and/or heavy metal nitrates salts at elevated temperature can lead to violent reactions. Thus, there is a need for making development in solvent extraction process for removal of TBP from aqueous waste, so that it can be easily disposed off without creating any explosion havoc. The proposed research work involves studying the solubility of TBP in different concentrations of nitric acid under different conditions. The generation of equilibrium data for different concentrations of TBP and nitric acid will be helpful in calculating the number of theoretical stages in designing of the extraction column. This will be useful for maximum removal of TBP from the aqueous waste. Extraction of dissolved TBP in acidic aqueous solution was done by Normal Paraffin Hydrocarbon (NPH) solvent using air ejector mixer-settler. Analysis of very low level TBP in both organic and aqueous phase was done. TBP dissolved in organic media like dodecane and NPH was analyzed on Gas Chromatograph (GC) while that dissolved in aqueous media was analyzed on High Performance Liquid Chromatograph (HPLC). Physical properties like viscosity, density and interfacial tension of TBP-NPH-Nitric acid system were also studied.

Research Interest and Expertise:

Separation Processes, Process Intensification, Waste Water Treatment, Enzyme Modification and Treatment, Bio-separation, Nuclear reprocessing, Extraction of natural ingredients, Nanoparticles preparation, Biodiesel Manufacturing, Enzymatic Catalyzed Reactions

PUBLICATIONS (PEER REVIEWED) SO FAR: 140

PATENTS: 01

CONFERENCE PROCEEDINGS/PAPERS: -

SEMINARS/LECTURES/ ORATIONS DELIVERED: -

PH.D.S AWARDED AS SINGLE: 16

MASTERS AWARDED AS SINGLE: 75

POST DOCTORAL FELLOWS SUPERVISED: 01

AWARDS/HONORS:

National - 01

International – 57

H-INDEX: 24, CITATIONS:

SUBJECTS TAUGHT DURING 2017-18:

Heat Transfer, Advanced Heat transfer, Transport phenomena & separation process, advanced processes in perfume & flavour technology, Advance Multiphase engineering, Chemical Reaction Engineering

SPECIFIC RESEARCH INTERESTS:

Enzymatic Catalyzed Reactions, Separation Processes, Process Intensification, Waste Treatment, Enzyme Modification and Treatment, Bio-separation, Nuclear reprocessing, Extraction of natural ingredients, Biodiesel Manufacture

RESEARCH STUDENTS CURRENTLY BEING SUPERVISED:

P.D.F. - 3 RA -

Ph.D. (Tech.)-20

Ph.D.(Sc) - 7

M.Tech.- 7

M. Chem. Eng- 1

M.Sc- -

Other (if any) –

Undergraduate Summer Fellows (if any) -

Teacher summer Fellows (if any)-

RESEARCH PUBLICATIONS:

National -

International - 35

(Peer-reviewed) -

Conference proceeding -

Books

(if any) - 2

PATENTS:

International - 00

Indian - 00

SPONSORED PROJECTS :

Government- 02

Private- 08

PROFESSIONAL ACTIVITIES (MEMBERSHIP OF IMPORTANT COMMITTEES):-

SPEACIAL AWARDS AND HONORS : -

ANY OTHER RELEVANT ADDITIONAL INFORMATION.

Membership of Editorial Boards with name of journal and agency :

- Editorial board of Catalysis Green Chemistry and Engineering (Begell House Publication, USA)
- Guest editor for two special issues i.e. Journal of Chemical Sciences (Springer) and Chemical Records (Wiley).

DR. PARAG R. GOGATE

B. Chem. Eng., M. Chem. Eng., Ph.D. (Tech.)

Associate Professor in Chemical Engineering

PROFILE AND ACCOMPLISHMENTS SO FAR

FELLOWSHIPS/ MEMBERSHIPS OF PROFESSIONAL BODIES:

- Member, Indian Institute of Chemical Engineers, 2003
- Young Associate of Maharashtra Academy of Sciences, 2007
- Member, National Academy of Sciences, Allahabad, 2009
- Young Associate, Indian Academy of Sciences, Bangalore, 2009-2012
- Member, Indian Society for Technical Education, 2011
- Young Associate, Indian National Academy of Engineering, 2012
- Chartered Member, Institution of Chemical Engineers, UK, 2013
- Fellow, Maharashtra Academy of Sciences, 2014
- Member, Board of Governors & Honorary Secretary, UDCT Alumni Association, 2015-2017

HIGHLIGHTS OF RESEARCH WORK DONE AND ITS IMPART (MAXIMUM TWO SINGLE-SPACED PAGES WITH FIGURES/DIAGRAMS ETC.):

Dr. Gogate has developed engineering design and scale up strategies for cavitational reactors based on the methodical analysis of the bubble behaviour and its implications on the cavitational intensity. Cavitational reactors are based on the key concepts of process intensification including the use of newer energy sources such as ultrasound and fluid energy. The theoretical aspects have considered the different approaches to understand the non-linear bubble dynamics also considering the chemical reactions occurring inside the bubble. Also based on fundamental analysis, a scheme has been developed to predict the cavitational intensity in the reactor which can aid in obtaining optimum design for cavitational reactors. The work has resulted into establishing the optimum set of design and operating parameters for maximizing the cavitational effects for acoustic and hydrodynamic cavitation reactors and also formed the basis for new designs which can be functional at commercial scale operations.

The fundamental analysis has also been successfully transformed into pilot scale designs which are significantly more energy efficient as compared to the conventional designs. For the large-scale designs, Dr. Gogate has also performed the methodological analysis of the cavitational activity distributions based on the theoretical simulations and experimental mapping measurements to establish the enhanced activity. The successful design and application of pilot scale reactors operating on the basis of multiple frequency multiple transducer ultrasound irradiation can be considered as a significant achievement as this was the first such depiction in India and one of the few

worldwide. The work has also allowed commercial scale installations for cavitational reactors which has been lacking.

The main focus of the recent work has been on utilization of newer resources of energy for waste minimization, increasing the throughputs and converting the waste resources into useful products based on the application of the basic insights developed earlier. The process intensification studies with different industrially important applications such as chemical synthesis, wastewater treatment, crystallization and emulsification have clearly established the utility of cavitational reactors and have opened up many new areas of applications. The innovative work on using combined oxidation schemes for wastewater treatment/ water disinfection should help in achieving the dreams of a greener environment and also sustainable processing. It has been established and is under demonstration that new designs of cavitational reactors give about 50 to 400% intensification in the processing rates as compared to the conventional designs. The work on synthesis of nanomaterials has led to establishing the procedures for obtaining materials with desired characteristics especially in terms of the particle size and one patent application has been filed on this work with around 25 publications in international journals of high impact factor.

Dr. Gogate has also put forward and successfully established the utility of hydrodynamic cavitation reactors with much higher energy efficiencies as compared to sonochemical reactors. Dr. Gogate was one of the key researchers to start the research in this area, which has now been successfully implemented worldwide. Strategies for intensification of the cavitational activity based on the basic research work have also been successfully established with an objective of reducing the processing costs as well as enhancing the applicability of the cavitation phenomena. The mechanism of synergy for the combinatorial techniques of oxidation has been conclusively identified and this should help in achieving the intensification goals by using variable operation of the cavitational reactors especially for the wastewater treatment applications.

The fundamental work on intensification of enzyme activity due to the use of ultrasound has revealed that the application of ultrasound under optimized conditions results in about two fold increase in the activity of enzyme. This can be a major breakthrough in the area of enzymatic reactions which have been criticized for slow rates despite being Green processes with much higher selectivity. Thermodynamic studies with various enzymes indicated that there is a favorable change in the thermodynamic parameters due to the changes in the enzyme structure leading to enhanced reaction rates.

The research work has translated into commercial scale applications for two notable applications of improved crystallization (pharmaceutical industry applications) and wastewater treatment (oil and gas industry for recycle of water). The research work and the developed engineering strategies are expected to have a significant impact on the other applications of cavitational reactors in a variety of areas such as specialty chemical synthesis, Biotechnology, Polymer chemistry, extraction of natural products, atomization, enhanced oil recovery, textile industry for enhancing the efficacy of dyeing technique etc. with immense scope for commercial exploitation.

Dr. Gogate has been consultant to many industrial organizations including Ecosphere Technologies in USA in the area of Process Intensification, Process Improvement, Scale up and Design of process equipments. Dr. Gogate has completed so far 10 projects successfully and many companies have renewed the contracts showing the level of satisfaction. Dr. Gogate, in collaboration with Ecosphere Technologies, USA, has recently developed a hybrid advanced oxidation reactor which intensifies the treatment process by 5–20 times as compared to the use of individual approaches depending on the application in question. The Ozonix® reactor has been successfully used for processing of the recycled fluids at commercial sites on over 1200 oil and natural gas wells during hydraulic operations around the United States. Dr. Gogate is currently working on sponsored research projects worth over

1 Cr from DST in the field of intensification of chemical processing applications using cavitational reactors. Dr. Gogate is also working on collaborative projects with scientists from Portugal and Brazil.

The significance and exceptional quality of the research work is aptly reflected by the fact that the number of citations is remarkably high at around 10614 with an h-index of 58 as per scopus and over 14465 with h-index of above 66 as per google scholar. Dr. Gogate has also contributed 27 book chapters and has been also invited in collaboration with Prof. Pandit of the Institute of Chemical Technology to write two technology reports on Sonochemical Reactors and Hydrodynamic Cavitation Reactors as contribution to the European Roadmap of Process Intensification.

PUBLICATIONS (PEER REVIEWED) SO FAR: 274

PATENTS: 01

CONFERENCE PROCEEDINGS/PAPERS: 27

SEMINARS/LECTURES/ ORATIONS DELIVERED: 75

PHDS AWARDED AS SINGLE/ CO-GUIDE: 11

MASTERS AWARDED AS SINGLE/ CO-GUIDE: 34

H-INDEX: 66

CITATIONS: 14465 (as per google scholar)

SUBJECTS TAUGHT DURING 2017-18: Process Calculations, Cavitation for green processes, Chemical Reaction Engineering, Engineering applications of digital computers

RESEARCH INTERESTS: Sonochemistry, Hydrodynamic Cavitation, Process Intensification, Water and Wastewater Treatment, Enzymatic Reactions, Polymer Chemistry, Advanced Oxidation Processes

NUMBER OF RESEARCH STUDENTS CURRENTLY WORKING:

P.D.F.- Nil RA - 0
Ph.D. (Tech.) -13
Ph.D. (Sc) - 01
M. Tech.-07
M. Chem. Eng -05
M.Sc - Nil
Others (if any) -Nil

RESEARCH PUBLICATIONS:

International- 38
National- Nil
Conference presentations- Nil
Books Chapters- 02

PATENTS:

International - Nil, Indian - Nil

SPONSORED PROJECTS:

Government- 03
Private- 01

PROFESSIONAL ACTIVITIES (MEMBERSHIP OF IMPORTANT COMMITTEES):

- Member, Board of Governors & Honorary Secretary, UDCT Alumni Association
- Member, Editorial Board, Desalination and Water Treatment (Taylor & Francis), 2016- 2018
- Associate Editor, Chemical Engineering Processing, Process Intensification (Elsevier), 2016-2019
- Member, Executive committee, IIChE Mumbai Regional Center
- Member, Editorial board, Ultrasonics Sonochemistry (Elsevier), 2015-2018

SPECIAL AWARDS/HONOURS:

- Prof. M M Sharma award for Science and Technology given by Marathi Vidnyan Parishad, Mumbai, 2017
- Most Outstanding Faculty Research Award in the Chemical Engineering Discipline, Careers 360, 2018

PHOTOGRAPH (LABORATORY) (WITH NAMES). *

PRG Lab from Advanced centre

Equipment Name: Ultrasonic Reactors

Ultrasonic horn, Ultrasonic bath, Ultrasonic flow cell with varying frequency, power dissipation and operating capacities. Reactor setup based on constant temperature heating bath

Equipment name: SprayDryer

Spraymate PLC- Based Lab spray dryer with ultrasonic nozzle from Jay Instruments Systems PVT LTD.

BRIEF CAREER PROFILE UPTO 200 WORDS:

Dr. Parag Gogate is Associate Professor at Institute of

Chemical Institute, Mumbai and former Visiting Associate Professor at Purdue University, USA. He has received his Ph.D. in Chemical Engineering from ICT, Mumbai in 2002. His research interest includes Sonochemistry, Hydrodynamic Cavitation, Process Intensification, Water and Wastewater Treatment, Enzymatic Reactions and Polymer Chemistry. He was awarded Young Scientist/ Young Engineer awards of INAE, NASI, IASc, INSA & The SCEJ Award for Outstanding Asian Researcher and Engineer given by The Society of Chemical Engineers, Japan, 2013. He has also received the Maharashtra State National award for best research work done by teachers of Engineering Colleges, Indian Society for Technical Education, New Delhi, 2016 and the Most Outstanding Faculty Research Award in the Chemical Engineering Discipline, Careers 360, 2018. Dr Gogate has contributed extensively to publishing in journals of high repute with over 250 international journal publications along with over 14465 citations with h-index of above 66 as per google scholar as well as written 27 chapters in edited books. Dr Gogate has active consultancy projects with many national / international industries and also collaboratios with many research groups worldwide.

MRS. KUMUDINI V. MARATHE

B.E.(1981), M.Tech(1983)(Metallurgical engineering) VRCE, Nagpur

Associate Professor in Chemical Engineering

GENERAL RESEARCH INTEREST AND EXPERTISE: Membrane Separation, Water Treatment, Membrane Bioreactor, Arsenic & Fluoride Separation, Heavy Metal Separation, Process Intensification, Development of metal composites, Corrosion, Material failure analysis, Nano composites, Bioelectrochemical Membrane Reactor, LCA and Sustainability Studies

FELLOWSHIPS OF NATIONAL AND INTERNATIONAL ACADEMIES OF SCIENCE OR ENGINEERING (IF ANY):

FELLOWSHIPS/ MEMBERSHIPS OF PROFESSIONAL BODIES:

PUBLICATIONS (PEER REVIEWED) SO FAR: 34

PATENTS: 0

CONFERENCE PROCEEDINGS/PAPERS: 18

SEMINARS/LECTURES/ ORATIONS DELIVERED: 09

PH.D.S AWARDED AS SINGLE/ CO-GUIDE: 03

MASTERS AWARDED AS SINGLE/ CO-GUIDE: 30

POST DOCTORAL FELLOWS SUPERVISED: 0

AWARDS/HONORS

National -

International -

H-INDEX : 9,

CITATIONS: 534

HIGHLIGHTS OF RESEARCH WORK DONE AND IT'S IMPARTING (MAXIMUM TWO SINGLE-SPACED PAGES WITH FIGURES/DIAGRAMS ETC.):

Research scope mainly comprise of membrane based separation water treatment technologies. Membrane Modification and Recycle and reuse of Membrane in wastewater treatments are also being undertaken. Studies to provide a sustainable solution for concentrated fluoride stream in membrane separation were carried out. Study of separation of different ions and their effect on separation efficiencies is also carried out.

Extensive work in the field of Micellar-Enhanced ultra-filtration has been carried out where simultaneous and

selective separation of heavy metal ions such as cobalt, nickel, copper, chromium etc were considered from aqueous streams. Various aspects of membrane separation such as hydrodynamic studies, optimization, mathematical modelling, surfactant recovery, membrane fouling were considered in different studies.

Membrane Bioreactor for separation of pesticides, degradation of SDS surfactant and textile wastewater by controlled approach has been completed. Process intensification in Bio-Electrochemical Membrane Reactor has also been undertaken. Characterization of Wastewater and various Industrial Effluents (Textile, Distillery, Sugar Industry) has been completed. Pilot Plant trials for Catalytic Ozonation for Effluent Treatment are being undertaken.

Sustainability studies and comparison between different water treatment technologies was also carried out. Lifecycle assessment studies of different chemical processes and technologies pertaining to packaging, Manufacturing and Wastewater Treatment are being investigated.

Other studies include development of metal composites and nano-composites.

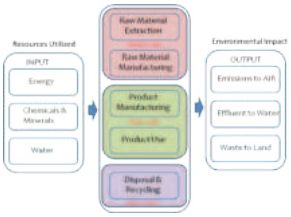


Figure 1: Lifecycle Assessment Methodology

Figure 2: Clockwise: 1. Ultrafiltration Dual Membrane Pilot Plant, 2. Catalytic Ozonation Setup, 3. Zeon 100 - Ozonator

TEN BEST / REPRESENTATIVE PUBLICATIONS / PATENTS:

RESEARCH STUDENTS CURRENTLY BEING SUPERVISED :

P.D.F.- 0 RA- 0
Ph.D. (Tech.)- 3
Ph.D.(Sc)- 0 M.Tech.-
M. Chem. Eng- 3
M.Sc- 0
Other (if any)– 0
Undergraduate Summer Fellows (if any) - 2
Teacher summer Fellows (if any)- 0

RESEARCH PUBLICATIONS:

National-
International- 34(Citation 534)
(Peer-reviewed)- 34(H Index 9)
Conference proceeding- 18
Books
(if any) -

PATENTS: 0

International - 0
Indian - 0

SPONSORED PROJECTS:

Government-
Private- 03

PROFESSIONAL ACTIVITIES (MEMBERSHIP OF IMPORTANT COMMITTEES):

MEMBERSHIP OF EDITORIAL BOARDS WITH NAME OF JOURNAL AND AGENCY:

Member scientific advisory committee SDEWES-2016 , 2017, 2018

SPECIAL AWARDS/ HONOURS / ACCOLADES :

ANY OTHER RELEVANT ADDITIONAL INFORMATION. *

Completed sponsored projects :

- AICTE : 2009-2011 Treatment of Industrial waste water by membrane separation process
- DST (WTI) : 2010-2014 Flouride removal form concentrated fluoride streams
- DST New Indigo NPP2 In collaboration with Spain and Finland 2013-2015 : Treatment of Industrial waste water for the removal of Flouride, Arsenic, API

Ongoing sponsored projects :

1. Konark Industries….2016-2019 Studies in membrane separation for waste water treatment
2. Reliance Industries Ltd… …2018-2022. Algal water separation methods.

DR. PRAKASH D. VAIDYA
B. E. (Chem. Eng.), M. Chem. Eng., Ph.D. (Tech.) in Chem. Eng.
Rashtriya Chemicals and Fertilizers
Associate Professor of Chemical Engineering

PROFILE AND ACCOMPLISHMENTS SO FAR

FELLOWSHIPS / MEMBERSHIPS OF PROFESSIONAL BODIES:

Life Member, Indian Institute of Chemical Engineers

HIGHLIGHTS OF RESEARCH WORK DONE AND ITS IMPACT (MAXIMUM TWO SINGLE-SPACED PAGES WITH FIGURES/DIAGRAMS ETC.):

- **Exploration of new absorbents for CO_2 capture**

  Reactive absorption is a useful CO_2 capturing technology for several chemical processes, e.g., ammonia production, natural gas processing, coal gasification and flue gas treatment. The development of new, efficient and easily regenerable solvents is desirable. In this work, several new absorbents such as amine blends, sterically hindered amines, polyamines and amino acid salts are explored.

- **Production of hydrogen by reforming of biomass surrogates**

  The demand for hydrogen in the chemical and energy industries is ever-increasing. It is commercially produced from steam methane reforming. However, it is now imperative to produce hydrogen from renewable resources. In this work, steam reforming of several biomass-derived oxygenates such as ethanol, glycerol, ethylene glycol, n-butanol and bio-oil for hydrogen production is studied. Besides, other processes such as aqueous-phase reforming and sorption-enhanced steam reforming are also investigated.

- **Treatment of industrial wastewater**

  The efficacy of catalytic wet air oxidation for treatment of industrial wastewaters (e.g., refinery spent caustic, bio-methanated distillery wastewater and wastewater contaminated with nitrogenous organic pollutants) is investigated. Besides, the destruction of chlorinated organic pollutants by aqueous-phase catalytic hydrodechlorination is also investigated.

- **Production of renewable diesel by hydrotreatment of non-edible vegetable oils**

  Renewable or bio-hydrogenated diesel (BHD) from catalytic hydrotreatment of non-edible vegetable oil represents a promising alternative to petroleum-based diesel. There are several advantages of using BHD, e.g., better product quality, avoidance of byproduct glycerol formation (unlike in biodiesel manufacturing), process flexibility and adaptability for wide variation in feedstock, possibility of the use of existing hydrotreatment units in petroleum refineries (and thus, low capital investment) and integration of renewable fluids in the refinery infrastructure. Therefore, BHD fuel has recently received extensive attention. In this work, the catalytic hydrotreatment of Karanja and Jatropha oil is investigated.

- **Catalytic hydrogenation**

  In this work, catalytic hydrogenation of biomass-derived organic substrates in the aqueous phase is investigated in a three-phase slurry reactor using heterogeneous Ru-based catalysts.

PUBLICATIONS (PEER REVIEWED) SO FAR: 73

PATENTS: 01

CONFERENCE

PROCEEDINGS/PAPERS: --

SEMINARS/LECTURES/ ORATIONS DELIVERED: --

PH.D.S AWARDED AS SINGLE/ CO-GUIDE: 18

MASTERS AWARDED AS SINGLE/ CO-GUIDE: 37

H-INDEX: 23
CITATIONS: 2120

SUBJECTS TAUGHT DURING 2017-18:

Chemical Reaction Engineering

Industrial & Engineering Chemistry Fuels Engineering

Design and Analysis of Experiments

RESEARCH INTERESTS:
Gas purification; Reforming; Wet oxidation; Hydrogenation

RESEARCH STUDENTS CURRENTLY WORKING :
P.D.F.- Nil RA – Nil
Ph.D. (Tech.)- 06
Ph.D.(Sci.) - 01
M.Tech. – 03
M. Chem. Eng - 02
M.Sc - Nil
Others (if any) - Nil

RESEARCH PUBLICATIONS:
International - 22
National- Nil
Peer-reviewed Conference proceeding- Nil
Books- Nil

PATENTS:
International - Nil
Indian - Nil

SPONSORED PROJECTS :
Government - Nil
Private - 01

PROFESSIONAL ACTIVITIES (MEMBERSHIP OF IMPORTANT COMMITTEES): Nil

SPECIAL AWARDS/HONORS: Nil

PHOTOGRAPH (LABORATORY) (WITH NAMES). *

Autoclave

Vapor-phase reactor

Closed-loop absorber-desorber setup for CO_2 capture using alkanolamines

Trickle-bed reactor for production of bio-hydrogenated diesel from non-edible vegetable oil

ANY OTHER RELEVANT ADDITIONAL INFORMATION: Nil

SHORT BIOGRAPHY:

Dr. Prakash D. Vaidya teaches chemical engineering at the Institute of Chemical Technology (ICT) in Mumbai. After earning his PhD from ICT in 2005, he worked as a postdoctoral fellow in the Universities of Porto (Portugal) and Dortmund (Germany). In 2007, he joined academia and started his career as a lecturer at ICT. Since 2015, he is working as RCF Associate Professor of Chemical Engineering. He is an expert in separation and reaction engineering. His research interests are improved H2 production from biomass surrogates and effective capture and chemical recycling of CO_2. He has worked on several funded projects related to sustainability.

DR. VISHWANATH H. DALVI

Ph.D. Chemical Engineering, The University of Texas at Austin
M.S., P.D. Eng., Process Design, University of Twente
B. Chem. Eng. University of Mumbai
R. A. Mashelkar Assistant Professor, Department of Chemical Engineering.

PROFILE AND ACCOMPLISHMENTS SO FAR:

HIGHLIGHTS OF RESEARCH WORK DONE AND ITS IMPART (MAXIMUM TWO SINGLE-SPACED PAGES WITH FIGURES/DIAGRAMS ETC.):
I am interested in developing sustainable solutions for providing clean-water, power and sanitation. To this end, my research follows three prongs: solar thermal technologies for power production, process development for non-membrane desalination technologies and development of advanced sanitation solutions. On the side, I am interested in applied thermodynamics especially for describing solvated systems.

PUBLICATIONS (PEER REVIEWED) SO FAR: 13

PATENTS: 5

MASTERS AWARDED AS SINGLE/ CO-GUIDE: 8

H-INDEX: 7
CITATIONS: 250

SUBJECTS TAUGHT DURING 2017-18:
Process Simulation Laboratory
Chemical Engineering Laboratory
Advanced Mass Transfer

RESEARCH INTERESTS:
Applied thermodynamics, Solar thermal energy, Molecular simulations

RESEARCH STUDENTS CURRENTLY WORKING : 10
P.D.F.- Nil
RA - Nil
Ph.D. (Tech.)– 5
Ph.D.(Sc)- 1
M.Tech.- Nil
M.Chem.Eng- 4
M.Sc- Nil
Others (if any)- Nil

RESEARCH PUBLICATIONS:
International- 13
Peer-reviewed- 13

PATENTS:
International - Nil
Indian - 5

SPONSORED PROJECTS :
Government- Nil
Private- Nil

PROFESSIONAL ACTIVITIES (MEMBERSHIP OF IMPORTANT COMMITTEES): None

DR. RATNESH D. JAIN

Ph. D. (Tech.) in Pharmaceutics
UGC Assistant Professor in Engineering

PROFILE AND ACCOMPLISHMENTS SO FAR

FELLOWSHIPS/ MEMBERSHIPS OF PROFESSIONAL BODIES:

- Member, European Respiratory Society, Switzerland
- Member, Young Scientist Committee, Controlled Release Society, USA
- Mentor, Mentor-Protégé Program, Member, Controlled Release Society, USA
- Member, Controlled Release Society- USA and Indian

Chapter

- Member, Association of Biotechnology Led Enterprises (ABLE), India
- Member, American College of Clinical Pharmacology, USA
- Member, Proteomics Society, India

HIGHLIGHTS OF RESEARCH WORK DONE AND ITS IMPART (MAXIMUM TWO SINGLE-SPACED PAGES WITH FIGURES/DIAGRAMS ETC.):

More than transmitting knowledge, teaching is about inspiring others to discover their purpose and potential. As a professor, I have the opportunity to impact the lives of not only undergraduate students but also various researchers conducting their Masters and PhD program. Thus, my teaching and research are mutually informing; I cannot imagine one without the other. All writing ultimately obtains meaning and value when read by others. Therefore, the classroom becomes a significant testing ground, a laboratory, for the experimental and interpretive explorations of the most salient disciplinary knowledge inquiries.

Teaching and research requires openness to change and accept challenges; therefore, I continually examine my teaching techniques and research experiments with ways to become a more effective educator by integrating technology, adapting practices to address the needs an increasingly diverse student population, understanding different learning styles, and incorporating various assessment strategies. I strive to create an active, collaborative learning environment filled with curiosity and inquiry in which all participants are both teachers and learners and where students can discover knowledge rather than be passive recipients. Developing dedicated skillset is one of the direction I feel can fulfil these requirements.

I have completed my masters research to understand advancement of nanotechnology in biomedical application. However, A job opportunity in industry created a change in my thought process. I realized that I should have more skill set to serve in industry at the same time my research acumen should be alive. My doctoral program was also focused on application of nanotechnology towards biomedical application, however my previous learning motivated me to take bigger challenges and I have worked on one of the least exploratory topic of brain delivery through nasal route. We have had no expert in this area that time in our country and with support of various researchers from across the discipline I have learnt to work in a team of diverse background. I have also learnt that convincing clinician or researcher from a different discipline was a great task. However, the collaboration resulted into some interesting findings towards migraine treatment and important publications. I have again revisited industry to consider my candidature towards industrial research however quickly realized that I am more open for greater challenges and enhanced learning. AvH foundation has given me opportunity to execute the challenging research on siRNA at HIPS, Germany and also provided me platform to interact with researchers of diverse background. The experience motivated me to start my own research group as my future objective. I have also learnt during my stay in Germany that Academia can push for creation of new industries and immense contribution academic can do for industry. After joining ICT, I have always tried to motivate and support students into this direction and also trying to shape my research for the immediate requirement of industry. The continuous feedback and response in continuously motivating me.

PUBLICATIONS (PEER REVIEWED) SO FAR: 38

PATENTS: 7

CONFERENCE PROCEEDINGS/PAPERS: 98

SEMINARS/LECTURES/ORATIONS DELIVERED: 6

PH.D.S AWARDED AS SINGLE/ CO-GUIDE: 1

MASTERS AWARDED AS SINGLE/ CO-GUIDE: 10

H-INDEX : 13

CITATIONS: 570

SUBJECTS TAUGHT DURING 2017-18:

Biomaterials (B. Chem. Engg.) Research Methodology (M. Pharm, M. Chem. Engg., PhD Sci/Tech.) Biological Sciences and Bioengineering (B. Chem. Engg.) Fermentation and Cell Culture Engineering (B.Chem Engg)

RESEARCH INTERESTS:
Characterization of proteins, biologics and biosimilars, Cell Culture engineering, Continuous process for polymeric/ metal nanoparticles synthesis; Synthesis and evaluation of biomaterials (Biodegradable polymers, proteins and nucleic acids) for drug delivery, cosmetic, biomedical and industrial applications; Material-Protein Interactions

RESEARCH STUDENTS CURRENTLY WORKING:
P.D.F.-
RA -
Ph.D. (Tech.) -11
Ph.D.(Sc) -3
M.Tech. -6
M.Chem.Eng -
M.Sc -
Others (if any) -

RESEARCH PUBLICATIONS:
International- 17
National-
Peer-reviewed-
Conference proceeding-
Books-

PATENTS:
International -
Indian - 7

SPONSORED PROJECTS :
Government- 9
Private- 12

PROFESSIONAL ACTIVITIES (MEMBERSHIP OF IMPORTANT COMMITTEES):

- Member, European Respiratory Society, Switzerland
- Member, Young Scientist Committee, Controlled Release Society, USA
- Mentor, Mentor-Protégé Program, Member, Controlled Release Society, USA
- Member, Controlled Release Society- USA and Indian Chapter
- Member, Association of Biotechnology Led Enterprises (ABLE), India
- Member, American College of Clinical Pharmacology, USA
- Member, Proteomics Society, India

SPECIAL AWARDS/HONOURS:

Sr. No.	Name of Award	Funding Agency	Year
International Awards, Fellowship and Recognition			
1	N. R. Kamath Book Award, for book entitled 'Nanoparticulate Drug Delivery: Perspectives on the Transition from Laboratory to Market', (Woodhead Publishing Series in Biomedicine), Woodhead Publishing (Elsevier)	Institute of Chemical Technology, Matunga, India	2014
2	DAE Young Scientist Award	DAE-BRNS, Govt. of India	2012
3	Young Associateship from Maharashtra Academy of Sciences for the contribution and Engineering and Technology	Maharashtra Academy of Sciences	2012
4	Ramalingaswami Fellowship	Department of Biotechnology, Govt. of India	March 2012
5	INSPIRE Faculty Fellowship	Department of Sciences and Yechnology and Indian National Sciences Academy, Govt. of India	June 2012
6	Ramanujan Fellowship	Department of Sciences and Technology, Govt. of India	August 2011
7	Alexander von Humboldt Postdoctoral Research Fellowship	Alexander von Humboldt Foundation, Germany	January 2011

8	DST-DFG (Govt. of India & Govt. of Germany) award to attend Meeting of Nobel Laureate and Young Researchers in Physiology and Medicine, Lindau, Germany	DST-DFG (Govt. of India & Govt. of Germany)	2007
9	Team Member of Indo-UK Biotechnology YES (Young Entrepreneurship Scheme)		October 24-26, 2007
Academic Awards			
1	Qualified GATE-2003 (Graduate Aptitude Test in Engineering) Percentile: 99.43, All India Rank:37		2003
2	Rajabhau Kulkarni Memorial Prize for 2nd rank during Bachelor of Pharmaceutical Sciences Course		2003
3	Junior Research Fellowship	University Grant Commission, India	August 2004
4	Senior Research Fellowship	Board of Research in Nuclear Science, Department of Atomic Energy, India	March 2007
5	Nomination for Best PG Student	Institute of Chemical Technology, Mumbai	2005, 2006, 2007
Research and Travel Awards			
1	First Best Poster Award	8th International Symposium of Controlled Release Society on Advances in Technology and Business Potential of NDDS, Ahmedabad	February 26-27, 2008
2	Dr. A. S. Nanivadekar First Best Poster Award	2nd International Conference on "Drug Discovery & Development-South Asian Perspective, Mumbai	October 4-5, 2008
3	Prizes for research awards	UDCT Alumni Association	2008
4	Best Poster Award (Second)	41st Annual Conference of Society of Nuclear Medicine	December 3-6, 2009
5	Travel Grant to attend and present poster in 35th Annual Meeting and exposition of the Controlled Release Society, New York, USA	CRS Indian Chapter	2008
6	Travel Grant to attend and present poster in 35th Annual Meeting and exposition of the Controlled Release Society, New York, USA, 2008	Sahajanand Medical Technologies	2008

GENERAL PUBLICATIONS:

- "Microfluidic technology for continuous synthesis of nanotherapeutics: The way forward?"Ganesh Gaikwad, Nikita Aware, PrachiBangde, Prajakta Dandekar, Ratnesh Jain. CuttingEdge Spinco Biotech Pvt. Ltd., Jaunary 2018
- Use as Pharmaceutical Ingredients, Anomitra Dey,

Saurabh Patil, Ratnesh Jain, Prajakta Dandekar. HPAPI: Use as Pharmaceutical Ingredients South Asis; Page 20, Volume1-15 December 2017

- Africa: Import-dependent for chemical & excipients. Anomitra Dey, Saurabh Patil, Ratnesh Jain, Prajakta Dandekar. Ingredients SouthAsia; Page 46, Volume 16-31, January 2017
- Quality norms, regulatory aspects for excipients. Saurabh Patil, Anomitra Dey, Prasad Pofali, Ratnesh Jain, Prajakta Dandekar. Ingredients South Asia, Page 57, Volume 16-31, October 2016

BRIEF CAREER PROFILE UPTO 200 WORDS

Dr. Ratnesh Jain joined Department of Chemical Engineering in 2012 as Ramamlingaswami Fellow (Equivalent to Assistant Professor) and He has joined on UGC Faculty Recharge programme from January 1, 2014 as UGC Assistant Professor. Dr. Ratnesh Jain has taught Research Methodology, Biological Sciences, Biomaterials, Fermentation and Cell Culture Engineering and recently he has started a course on Biopharmaceutical Engineering. Dr. Ratnesh Jain focused on research related to nanoparticle engineering, biomaterial engineering, green technology and biopharmaceutical engineering. He has credited for 49 publication including research publications, book chapters, books and review articles in his career so far. During his tenure, he has also applied for 8 patents and one of the design patent is granted. He has guided 2 PhD students (1 PhD degree Awarded, 1 Synopsis submitted). He is guiding 6 PhD student as guide and 7 PhD students as co-guide. He has guided 15 Masters students in the area of Bioprocess Technology, Chemical Engineering and Green Technology. He has received 12 extramural grants from various Govt. funding agencies and 15 grants from various industries. He is regularly organizing workshop focused on nanotechnology and biopharmaceuticals.

PROFESSOR DR. C. S. MATHPATI
B. Chem. Engg. M. Chem. Engg. Ph.D
Associate Professor

PROFILE AND ACCOMPLISHMENTS SO FAR

FELLOWSHIPS/ MEMBERSHIPS OF PROFESSIONAL BODIES:

Life Member, IIChE

HIGHLIGHTS OF RESEARCH WORK DONE AND ITS IMPART (MAXIMUM TWO SINGLE-SPACED PAGES WITH FIGURES/DIAGRAMS ETC.):

Research work comprises of the relative contribution of turbulent production, transport, dissipation terms estimated using the large eddy simulation results and comparison is made with the modeled terms in RANS models. A User Defined Function (UDF) had been written in a commercial software FLUENT, which calculate the exact terms of transport equations from the fluctuating components. CFD simulations had been carried out in various equipments (such as channel flow, Taylor-Couette flow, Jet

loop reactor, Stirred vessel with radial and axial flow impellers), bubble column with various spargers. In these equipments, the agreement of RANS based models with the experiments was poor for mean or turbulent quantities or both. These deviations could be attributed to the modeling assumptions such isotropic flow, scalar turbulent viscosity, neglecting higher terms in turbulent and pressure transport, redistribution of turbulent kinetic energy in all three directions. In order to eliminate some of these problems, modifications had been made to standard k-□ model in the literature. Some of these modifications (Launder Sharma low Reynolds number model, SST k-ω model and RNG k-□ model) had been tested in JLR using OpenFOAM software.

Recent work includes of corrosion and heat transfer studies of molten salt, flow assisted corrosion in various pipe fittings such as short elbows, long elbows, tee junctions etc., scale-up of photo bioreactors such as open raceway ponds, external lift- air lift reactor, studies in liquid-liquid extraction.

CFD modeling of fluidized bed of Li2TiO3 is done and validated with the experimental data reported in literature. The objective of the developed CFD model was to predict the minimum fluidization velocity of Geldart B class particles of different materials, of different sizes at different bed wall temperatures and with different fluidizing media, viz., air, helium etc.

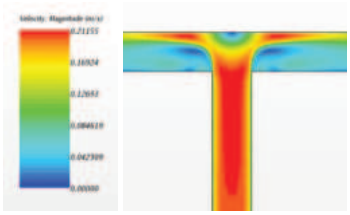


Figure 1: Tee junction dividing flow simulation

Figure 2: Molten salt flow loop

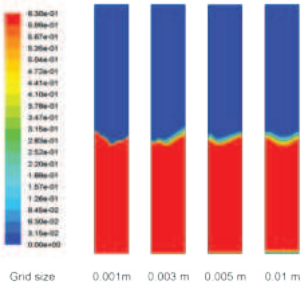


Figure 3: Contours of volume fraction of solids in Fluidized Bed

PUBLICATIONS (PEER REVIEWED) SO FAR: 26

PATENTS: 1

CONFERENCE PROCEEDINGS/PAPERS: 2

SEMINARS/LECTURES/ ORATIONS DELIVERED: 10

PH.D.S AWARDED AS SINGLE/ CO-GUIDE: 3

MASTERS AWARDED AS SINGLE/ CO-GUIDE: 13

H-INDEX : 9

CITATIONS: 344

SUBJECTS TAUGHT:

(1) Process Simulation Laboratory-II (Third Year Chemical Engineering, Sem-VI)
(2) Transport Phenomena (M Tech-BPT, Sem I)
(3) Bioreactor Design and Control (M Tech-BPT, Sem II)
(4) Application of Computational Fluid Dynamics in Chemical Engineering (MChem. Engg. Sem II)
(5) Process Simulation Laboratory-II (Third Year Chemical Engineering, Sem-VI)

RESEARCH INTERESTS:
Computational Fluid Dynamics, Multiphase Reactor Design, High temperature corrosion analysis

RESEARCH STUDENTS CURRENTLY WORKING:
P.D.F.- NIL RA - 1
Ph.D. (Tech.)- 14
Ph.D.(Sc) - NIL
M.Tech. -1
M.Chem.Eng -2
M.Sc - NIL
Others (if any) - NIL

RESEARCH PUBLICATIONS:
International- 3
National- 1
Peer-reviewed- 4
Conference proceeding-
Books-

PATENTS: NIL
International - NIL
Indian - NIL

SPONSORED PROJECTS:
Government- 4
Private- 2

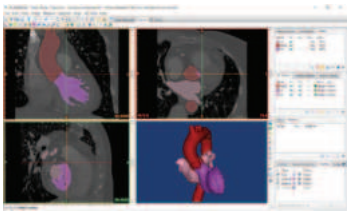
PROFESSIONAL ACTIVITIES (MEMBERSHIP OF IMPORTANT COMMITTEES):
Life Member, IIChE

SPECIAL AWARDS/ HONOURS: NIL

Experimental Set-up Design for Hydrodynamics Study

Lesser Doppler Anemometry

Particle Image Velocimetry Setup



Materialise MIMICS Software Belgium: For creation of 3D model (Application in Biomedical engineering)

DR. PARAG R. NEMADE

B. Chem. Eng., M. S., Ph. D.
UGC Assistant Professor

FELLOWSHIPS/ MEMBERSHIPS OF PROFESSIONAL BODIES:

- Member, Indian Membrane Society
- Member, Oil Technologists Association of India
- Member, Indian Institution of Chemical Engineers

HIGHLIGHTS OF RESEARCH WORK DONE AND ITS IMPART (MAXIMUM TWO SINGLE-SPACED PAGES WITH FIGURES/DIAGRAMS ETC.):

PUBLICATIONS (PEER REVIEWED) SO FAR: 16

PATENTS: 5 (filed)

CONFERENCE PROCEEDINGS/PAPERS:

SEMINARS/LECTURES/ ORATIONS DELIVERED: 2

PH.D.S AWARDED AS SINGLE/ CO-GUIDE: 03

MASTERS AWARDED AS SINGLE/ CO-GUIDE: 23

POST DOCTORAL FELLOWS SUPERVISED: 02

AWARDS/HONORS:
National - 1
International - 1

H-INDEX: 8
CITATIONS: 360

SUBJECTS TAUGHT DURING 2017-18:
Advanced Momentum Transfer, Nanotechnology, Advanced Membrane Separation Processes, Chemical Engineering Laboratory

SPECIFIC RESEARCH INTERESTS:
Membrane Separations, Catalysis, Sensors, Sustainability Engineering
Number of research students currently being supervised :
P.D.F.- 0 RA- 2
Ph.D. (Tech.)- 3
Ph.D.(Sc)- 2

M.Tech.- 5
M. Chem. Eng– 2
M.Sc- 0
Other (if any)– 0
Undergraduate Summer Fellows (if any) - 1 Teacher summer Fellows (if any)- 0

RESEARCH PUBLICATIONS:
National - International- 5
(Peer-reviewed)-
Conference proceeding- 4
Books (if any)- 0

PATENTS:
International -
Indian : 2 (filed)

SPONSORED PROJECTS:
Government- 2
Private:

PROFESSIONAL ACTIVITIES:

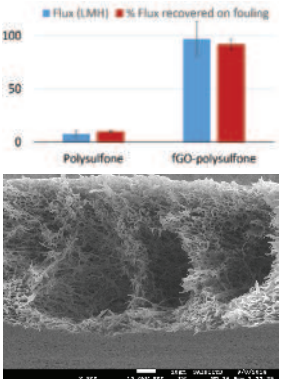
a) Membership of important Committees:
b) Membership of Editorial Boards with name of journal and agency:

SPECIAL AWARDS/ HONOURS / ACCOLADES :

ANY OTHER RELEVANT ADDITIONAL INFORMATION. *

Membranes

Many operations in oils industry are solvent based wherein the solvent is recovered, usually by distillation at lower pressures. These vacuum based distillations are quite sensitive to leakages and lead to off spec products. Our endeavour is to develop pervaporation based membrane processes to replace or reduce the reliance of industry on vacuum distillation. Further, with increasing efforts towards zero-discharge, efficient use and reuse of water is paramount. Use of membrane technologies such as ultrafiltration and reverse osmosis could significantly aid these efforts to reclaim water as well as carry out process separations more efficiently. The research focuses on developing new membranes for use in process liquids and gases separation including pervaporation, reverse osmosis, anti-fouling ultrafiltration membranes. Another focus of research in membranes is development of ultrathin barrier films for packaging applications. Currently, polymeric membranes are being developed using polymers such as polyethersulfone, polyvinylidene fluoride, cellulose acetate, etc. The membranes are then coated with high performance coating to achieve desired properties. The research is based both on developing better membranes and to improve the performance of the membranes with new coatings. We have developed high throughput antifouling membranes for protein separation and oil-water separations. Additionally, we are also in process of developing a low fouling high flux nanofiltration membrane.



Graphene and graphene oxide

We are looking to develop formulations with antioxidant, anti-ultraviolet nanoparticles for use in cosmetics, self-healing plastics etc. We also looking to develop thin barrier films using inorganic nanoparticles, platelets for long term storage of materials for improved packaging. Carbon nanomaterials are also been investigated in the development of high performance lubricants. We are also working on developing catalysts based on carbon nanomaterials. Some of the catalysts developed in our labs can carry out selective oxidation of benzylic alcohols to aldehydes without overoxidation to carboxlic acids, this route is not employed in the industry currently as further oxidation of products cannot be prevented in the processes currently used. Efforts are on to study the catalytic effect for other substrates such as fatty alcohols. We were able to replace Lewis acid catalyst used in antibiotics synthesis and perform the reaction at room temperature with high yields, with efforts being directed to carry out the reaction in absence of organic solvent.

Sensors

There is an acute need for simple sensors for detecting adulteration in everyday food stuffs such as milk, oils, ghee, water, etc. If the general populace is armed with awareness, knowledge and tools to identify pollution and adulteration, menace of pollution and adulteration can be tackled more effectively. Our focus is on developing facile techniques for detection

of adulteration, pollutants, and unwanted chemicals. Our efforts are currently focussed on developing a facile, inexpensive sensor for detection of arsenic and pesticides in ground water, detection of milk and oil adulteration for mass usage. We have developed a sensitive hydrazine, catechol (phenolics) as well as urea sensors.

PROFESSOR PUSHPITO KUMAR GHOSH

PhD (Chemistry), Princeton University, USA

K. V. Mariwala-J. B. Joshi Distinguished Professor of Chemical Engineering

PROFILE AND ACCOMPLISHMENTS SO FAR

FELLOWSHIPS/ MEMBERSHIPS OF PROFESSIONAL BODIES: Fellow, Indian Academy of Sciences

HIGHLIGHTS OF RESEARCH WORK DONE AND ITS IMPACT (MAXIMUM TWO SINGLE-SPACED PAGES WITH FIGURES/DIAGRAMS ETC.):

My research career began in a sense while I was carrying out an independent project for the National Science Talent Search Scholarship Exam. Subsequently, while I was pursuing my B. Sc. Degree at St. Stephen's College, Delhi, I attended during all three years the National Science Talent Search summer camp for scholarship holders. This too provided me good exposure to research problems of diverse nature. Thereafter, while I was pursuing my M.Sc. degree (1974-1976) in Chemistry at IIT Kanpur, my Master's thesis work carried out under the supervision of Professor Goverdhan Mehta led to an original publication on concerted reactions yielding cage-like organic compounds. I worked under the guidance of Professor Thomas G. Spiro at Princeton University and obtained my PhD degree in the area of dye-sensitized solar cells. I subsequently undertook post-doctoral research in the laboratories of Dr. Norman Sutin at Brookhaven National Laboratory and Dr. Allen J. Bard at University of Texas at Austin. During this period I contributed towards mechanistic studies of electron transfer processes related to water oxidation and development of a new class of modified electrodes. After serving briefly as lecturer at the University of Hyderabad during 1984, I moved to ICI's Alchemie Research Centre in 1985. I made several noteworthy contributions in the initial stage of my career there, most important among these being the development of a superior emulsion explosive composition and publications in Langmuir on the scientific understanding of concentrated emulsions. Another important contribution was the study of chiral recognition properties of natural clays which led to two important publications in the Journal of the American Chemical Society. I was deputed to ICI Specialties, UK in 1991 as Section Manager, Strategic Research and the group won the Market Focus Award in 1992 for several important initiatives under my leadership. I returned to India in 1993 as the Head of the Alchemie Research Centre (later christened as ICI India Research and Technology Centre). I directed a large number of international and national projects funded by different businesses of ICI (Specialty Chemicals, Paints, Acrylics, Polyurethanes, Explosives, etc.). I moved on from ICI in 1998 and joined as Visiting Scientist (Professor) at IIT Bombay. However, my stay there was short-lived as I took over as the Director of the CSIR-Central Salt & Marine Chemicals Research Institute (CSMCRI), Bhavnagar in

March 1999. After serving as Director there for over 15 years, I superannuated in May 2014. Significant achievements of CSMCRI under my leadership include: (1) inventions in mature technologies such as salt, potash, magnesia and bromine; (2) leadership in membrane technology; (3) radical innovations such as spherical salt, vegetable salt, animal-powered desalination, seaweed sap as agricultural nutrient, and engine worthy B100 biodiesel (several of these inventions have featured in prestigious magazines and newspapers such as Nature, New Scientist and The New York Times); (4) successful tie-ups with leading organizations such as Daimler Corporation, General Motors, US Department of Energy, Pepsi, HUL, TATA Chemicals, Gujarat Industries Commissionerate, SEWA, Barefoot College, etc. The Institute became a leader in knowhow transfers (51 licenses during my tenure), patents and research publications. The Institute also received much recognition for its contributions at grass roots level, particularly deployment of desalination and water purification units for the benefit of society, salt cluster development, and training on seaweed cultivation. I have so far secured 53 granted US patents from the inventions I helped to spark at CSMCRI. Many good publications also emerged out of the work and the H-index of my publications currently stands at 35. I have been serving at ICT Mumbai since April 2015. I continued my association with TIFAC, New Delhi as Chairman of Techvision 2030 (Water Sector). I led ICT's TEQIP-Innovation Network Project for a year and a half. Our own work under TEQIP covered important innovations in the area of water purification and forward osmosis (FO). The knowhow on a water purification device has been licensed and a recent technology on concentration of sugarcane juice through a practically feasible forward osmosis process was validated recently in a sugar processing unit and the industry has approved further work to be undertaken in this area. ONGC too is interested in supporting our FO initiative. Other important contributions include a field survey of Marathwada in the aftermath of the drought there. This, in turn, led to a large project (Rs 2 crore) being subsequently sanctioned by DST, New Delhi. Another important piece of research undertaken jointly with BARC, CSMCRI and C-MET is the study of contaminants (fluoride, uranium, arsenic) in phosphate fertilizers. The work has created awareness. Collaborations with industries have also begun. I have also been a research consultant to a few companies during this period besides being involved as Member of the Asian Paints Technology Council. I have contributed in many other ways through my role as Chairman/Member of important technical committees and National Missions. I also served as the coordinator of ICT-TEQIP Innovation Network programme during 2016-2017 and convener of the student entrepreneurship cell. I have also served as Emeritus Professor CSIR-AcSIR.

PUBLICATIONS (PEER REVIEWED) SO FAR: Over 100

PATENT: Over 75 unique inventions are covered by granted patents, of which US patents alone are 53.

CONFERENCE PROCEEDINGS/PAPERS: Over 25

SEMINARS/LECTURES/ORATIONS DELIVERED: 68 invited/keynote/plenary lectures during 2008-2018

PH.D.S AWARDED AS SINGLE/ CO-GUIDE: 10

MASTERS AWARDED AS SINGLE/ CO-GUIDE: 5

H-INDEX: 35
CITATIONS: 4924

SUBJECTS TAUGHT DURING 2016-17:

(1) Industrial Engineering Chemistry;
(2) Innovations in Chemical Technology;
(3) Renewable Energy Sources;
(4) Safety & Risk Management

SUBJECTS TAUGHT:

(1) Innovations in Chemical Technology;
(2) Safety & Risk Management

RESEARCH INTERESTS: Membrane and water purification; Forward Osmosis; Waste Water Recycle; Flue Gas Management; Detection of Contaminants in Fertilizers; Conversion of saturated fatty acids into Unsaturated Fatty Acids; Field Project in Latur

RESEARCH STUDENTS :
P.D.F.- 1
RA - 1
Ph.D. (Tech.) -
Ph.D.(Sc)-
M.Tech. - 1

M.Chem.Eng -
M.Sc -
Others (UGs/BTech) - 7

RESEARCH PUBLICATIONS:
International- 4 (2016-2017) and 3 (2017-2018)
National- 0
Conference proceeding- 1
Books-

PATENTS:
International -
Indian –

SPONSORED PROJECTS:
Government- 2
Private-

PROFESSIONAL ACTIVITIES (MEMBERSHIP OF IMPORTANT COMMITTEES):

- Chairman, Water Technology Initiative, Department of Science & Technology, GoI
- Chairman, Project Evaluation Committee, Bilateral Programmes in Clean Tech Sector, DST-GITA
- Member, Asian Paints Technology Council
- Member, Board of Directors, Barefoot College, Tilonia, Rajasthan
- Member, Expert Committee for Appraisal of programmes and projects undertaken by the Department of Biotechnology, GoI during the 12th Plan.
- Member, NRDC National Prize Award Committee
- Member, Advisory and Screening Committee of the Common Research & Technology Development Hubs Programme of DSIR
- Vice President, Materials Research Society of India (MRSI)
- Co-Chairman, CSIR Mission Mode Project on Sustainable Development through Catalysis

SPECIAL AWARDS/HONOURS:

- Lifetime Achievement Award, Indian Chemical Council
- Lifetime Achievement Award, Indian Desalination Association

Brief career profile upto 200 words :

Professor Pushpito Kumar Ghosh studied at Calcutta Boys' School and was a recipient of the prestigious National Science Talent Search Scholarship. He received his Bachelor's and Master's education in Chemistry at St. Stephen's College, Delhi and IIT Kanpur, respectively. He thereafter obtained his PhD from Princeton University (U.S.A). He presently holds the K. V. Mariwala-J. B. Joshi Distinguished Professor's chair at the Institute of Chemical Technology, Mumbai. He served from 1999 to 2014 as the Director of CSIR-CSMCRI, Bhavnagar, prior to which he functioned in senior R&D roles in ICI India and ICI plc during 1985 to 1998. He was also associated briefly with the University of Hyderabad and IIT Bombay.

COLLABORATORS – FACULTY, STUDENTS AND INDUSTRY PARTNERS IN RESEARCH PROJECTS

P. K. Ghosh, R. Bhansali and B. Honmane

N. Bagwe

L. Ramteke

Professor A. W. Patwardhan

Mr. R. Pathak (Uniqflux Membranes)

Dr. S. Srivastava (Godavari Biorefineries)

Shri S. Bagul

A. Iyer

Prof. S. S. Bhagwat

V. Prabhu

Prof. A. V. Patwardhan

P. Suryavanshi

E. Godbole

Prof. S. Raykar

Tejaswini Deshpande

Abhishek Dhand

Dr. D. D. Sarode

Sonam Sancheti

PROFESSOR JYESHTHARAJ B. JOSHI
B.Chem.Engg., Ph.D.(Tech)
J. C. Bose Fellow

FELLOWSHIPS/ MEMBERSHIPS OF PROFESSIONAL BODIES:

- Fellow, The World Academy of Sciences (TWAS),
- Fellow, Indian National Science Academy (INSA),
- Fellow of Indian Academy of Science (IASc),
- Hon. Fellow, Indian Institute of Chemical Engineers,
- Fellow, Maharashtra Academy of Sciences,
- Patron Fellow, Marathi Vidnyan Parishad

HIGHLIGHTS OF RESEARCH WORK DONE AND ITS IMPART (MAXIMUM TWO SINGLE-SPACED PAGES WITH FIGURES/DIAGRAMS ETC.):

- Professor Joshi has guided 90 Ph.D. thesis and 60 Masters thesis. He has published more than 511 papers in international cited journals and more than 60 state of the art reviews/ monographs/ book chapters. Specifically, he has co-authored (with Dr. L. K. Doraiswamy) a chapter on "Chemical Reaction Engineering: in new Chemical Engineers' Handbook and written a monograph on "Hydrodynamic Stability in Multiphase Reactors" in Advances in Chemical Engineering.
- Professor Joshi has more than 11447 citations and h-index of 54 (web of science).
- The Chem. Tech journal (published by ACS, USA upto 2002) through its editorial briefs (named heart-cut), has recommended the use of his procedures for the industrial design. Such a recommendation has been made five times which is a record by itself and is truly unique achievement.
- Professor Joshi has been able to enhance the productivity and selectivity of a number of manufacturing processes including those competitively offered on the global basis. He has invented a large number of novel designs, which are far superior in performance and less expensive in capital and operating costs. For all these developments, there has been a strong basis of fundamental sciences. His major contributions include: (i) novel designs of multiphase equipment (for hydrogenation, oxidation, ammonolysis, hydrohalogenation, halogenations, alkylation, etc.). (ii) He has improved productivity and selectivity of a large number of ongoing commercial operations resulting into 2 to 20 times enhancement in business.
- His analysis and modeling of probably most complex multiphase reaction (NOx absorption) has resulted into commercial designs of many plants with capacities in the range of 1 to 250 ton/day for selective manufacture of sodium nitrite and Process Intensification of nitric acid plants of capacities upto 700 tons/day. Extension of Professor Joshi's work in this area earned the British Oxygen Company the coveted Kirkpatric Award of Chemical Engineering, McGraw hill, 2002.
- No wonder because of his proven and exceptionally successful track record, Professor Joshi is most sought after academic consultant.
- Professor Joshi's leadership as Director (1999-2009) has brought total autonomous and subsequently separate University status to the Institute. He almost doubled the output of Ph.D. students, international publications, citation output per year. On the basis of publications per year, he brought the Department of Chemical

Engineering at a rank of 6th in the World (Survey carried out by Professor Sommerfield of Georgia Institute of Technology, USA.

- He brought the project funding almost 10 times and donation 2 times the funding per year given by the state government.
- During his tenure of 10 years, the external revenue generation (ERG) had a compounded growth of 25% per year. He created seven Endowment Chairs. He vastly improved the infrastructure and collected funds for the construction of about 40,000 m2 of laboratory space, student, and faculty housing.
- He has established two ultramodern research centers in the areas of bioenergy and atomic energy with research facilities for additional 130 Ph.D. and 60 Masters students.
- He also started a comprehensive mission of Process Intensification with a strong participation of industry. He also started a new academic program of management for the doctoral students which has been very well received by the industry and the national research laboratories.
- As a social responsibility, he has helped setting up ten small-scale commercial plants.
- In India 125 billion dollar/ year worth energy is used for household cooking: 50% of this energy is in commercial from (LPG, NG, Coal, kerosene) and 50% noncommercial solid fuels. The thermal efficiency of commercial fuel in conventional cooking practice is 10 to 25%. Professor Joshi and co-workers have developed new designs of cookers (with capacities catering to 5 to 2000 persons) with thermal efficiency in the range of 65-75%. He has also developed new designs of stoves (for solid noncommercial fuels) having thermal efficiency in the range of 40 to 50% as compared with conventional practice of 10 to 20%. Both the technologies have been licensed. This invention is useful for the entire developing world. The technology of continuous cooking has also been transferred to society.
- Professor Joshi has been very active in prompting science awareness in society. He has also motivated school and junior college students for selecting "research" as profession. For these two purposes, he (with the help of about 60 Ph.D. students in the institute) had held 200 workshops attending about 100,000 participants every year.
- Professor Joshi is passionate about and has solved a large number of pollution problems and converted the liabilities into assets. In majority of cases, there have been innovative technologies.
- Currently, is a president of Marathi Vidnyan Parishad which has been active in improving scientific temper of the society.

PUBLICATIONS (PEER REVIEWED) SOFAR: 511

PATENTS: 5

CONFERENCE PROCEEDINGS/PAPERS: 38

SEMINARS/LECTURES/ ORATIONS DELIVERED : 110

PH.D.S AWARDED AS SINGLE/ CO-GUIDE: 90

MASTERS AWARDED AS SINGLE/ CO-GUIDE: 60

H-INDEX: 54

CITATIONS:11447

Based on Web of Science (alsources)

SUBJECTS TAUGHT DURING 2017-18:

a) Multiphase Reactor Engineering (M.Chem Engg)
b) Multiphase Reactor Design (T.Y.B.Chem Engg)

RESEARCH INTERESTS:

Fluid Mechanics, Multiphase Reactor Design, Computational Fluid Dynamics, Atomic Energy, Solar Energy, Bio-Energy

RESEARCH STUDENTS CURRENTLY WORKING :18

P.D.F.-2 RA - 2
Ph.D. (Tech.) -13
Ph.D.(Sc) -NIL
M.Tech. -1
M.Chem.Eng -NIL
M.Sc - NIL
Others (if any) -NIL

RESEARCH PUBLICATIONS:

International- 486
National- 25
Peer-reviewed-470
Conference proceeding- 38
Books-9 (Book Chapters)

PATENTS:

International -1
Indian -4

SPONSORED PROJECTS:
Government- 2
Private- 3

PROFESSIONAL ACTIVITIES (MEMBERSHIP OF IMPORTANT COMMITTEES):
Coal Cleaning Initiative, DST, Government of India
Chairman Science Advisory Committee, CSIR-IICT Hyderabad

SPECIAL AWARDS/HONORS:
Fellow, Indian National Academy of Engineers (INAE)

PHOTOGRAPH (LABORATORY) (WITH NAMES). *

Particle Image Velocimetry Setup

Laser Doppler Anemometry

PROFESSOR LAKSHMI KANTAM MANNEPALLI

Ph.D. (Chemistry) Science
DR. B. P. Godrej Professor of Green Chemistry and Sustainability Engineering

PROFILE AND ACCOMPLISHMENTS SO FAR

FELLOWSHIPS/ MEMBERSHIPS OF PROFESSIONAL BODIES:

- Dr. B. P. Godrej Distinguished Professor
- Member, Board of Governors, IIT-Hyderabad.
- Member, Standing Committee for Promoting Women in Science
- Member, RAC- DRDO
- Member, Scientific Advisory Committee (SAC) on Hydrocarbons of MoP&NG
- Member, DST-PAC (Inorganic and Physical Chemistry)
- Member, Selection Committee, Raja Ramanna Fellowship Scheme, DAE, India
- Member, DST-FIST

HIGHLIGHTS OF RESEARCH WORK DONE AND ITS IMPART (MAXIMUM TWO SINGLE-SPACED PAGES WITH FIGURES/DIAGRAMS ETC.):
Annexure I

PUBLICATIONS (PEER REVIEWED) SO FAR:
333

PATENTS: 52

CONFERENCE PROCEEDINGS/PAPERS:
25

SEMINARS/LECTURES/ ORATIONS DELIVERED: 35

PH.D.S AWARDED AS SINGLE/ CO-GUIDE: 41

MASTERS AWARDED AS SINGLE/ CO-GUIDE: -

H-INDEX: 60
CITATIONS: 12463

SUBJECTS TAUGHT DURING 2017-18:
M. Tech. Green Technology: Nanomaterials- Fundamentals and Applications

RESEARCH INTERESTS :
Catalysis, Process chemistry, Nanomaterials

RESEARCH STUDENTS CURRENTLY WORKING:
P.D.F.- 5
RA - 2
Ph.D. (Tech.) -
Ph.D.(Sc) - 01
M.Tech. -1
M.Chem.Eng -2

M.Sc -
Others (if any) -

RESEARCH PUBLICATIONS:
International- 13
National-
Peer-reviewed-
Conference proceeding- 3
Books- 0

PATENTS:
International -
Indian -

SPONSORED PROJECTS :
Government-
Private- 4

PROFESSIONAL ACTIVITIES (MEMBERSHIP OF IMPORTANT COMMITTEES):

- Dr. B. P. Godrej Distinguished Professor
- Independent Board of Directors- Indo Amines Ltd.
- Member, Board of Governors, IIT-Hyderabad.
- Member, Standing Committee for Promoting Women in Science
- Member, RAC- DRDO
- Member, Scientific Advisory Committee (SAC) on Hydrocarbons of MoP&NG
- Member, DST-PAC
- Member, Selection Committee, Raja Ramanna Fellowship Scheme, DAE, India

SPECIAL AWARDS/HONOURS:

- Fellow -The World Academy of Sciences, Italy (2018)

NONTEACHING STAFF PHOTO

U. A. Sathe
Jr. Engineer

S. M. Mane
Sr. Tech. Assistant

M. S. Harkar
Sr. Tech. Assistant

P. P. Bhole
Lab Assistant

L. E. Sawant
Lab Assistant

R. B. Mohite
Lab Assistant

V. A. Bhambid
Lab Assistant

Mrs. A. G. Pawshe
Lab Attendant

Shri. Samudra Prashant
Lab Attendant

Shri. S. K. Sawant
Lab Attendant

Ms. Smita Waghmare
Clerk

LIST OF ENDOWMENT: (2017-2018)

Sr. No.	Date	Name of Faculty	Title	Endowment
1	18.07 2017	Prof. Amol V. Janorkar Biomedical Materials Science, School of Dentistry University of Mississippi Medical Centre, Jackson, MS, USA	Multifunctional Biopolymer Coatings and Scaffolds for Tissue Engineering and Drug Delivery	Golden Jubilee Visiting Fellowship
2	2.08.2017	Prof. Doraiswami Ramkrishna H.C. Peffer Distinguished Professor, Purdue University West Lafayette, USA	Modeling Transfer of Antibiotics Resistance among Bacterial Species	Dr. Balwant S. Joshi Distinguished Visiting Professorship in Chemical Engineering/ Chemical Technology/Applied Chemistry
3	07.08.2017	Professor Upal Ghosh	Associate Editor, Environmental Toxicology and Chemistry ,Department of Chemical, Biochemical, and Environmental Engineering, University of Maryland Baltimore County Technology Research Center. Rm 257 5200 Westland Blvd Baltimore, MD 21227	Golden Jubilee Visiting Fellowship
4	14.08 2017	Professor Rajesh Shende Associate Professor of Chemical Engineering Department of Chemical and Biological Engineering South Dakota School of Mines and Technology Rapid City, South Dakota 57701	Advanced Nanomaterials for Hydrogen and Biofuels Production	Professor Rajesh Shende

5	21.11. 2017	Prof. Reinaldo Giudici	Head of Department, Department of Chemical Engineering, University of Sao Paulo, Sao-Paulo, Brazil-05508-900	
6	06.01.2018	Dr. Subhas K. Sikdar USEPA, Cincinnati, OH 45237 Jackson, MS, USA	Cleaner Technologies: Roles of Industry, Government, and Academia	Dr. G.P. Kane Visiting Professorship in Chemical Engineering
7	30.01.2018	Dr. Mohan Karmarkar Consultant Group Manager-SHEQ at Jacobs Engineering UK Ltd	Design & Safety	Golden Jubilee Visiting Fellowship
8	03.05.2018	Dr. Deepak Jain Zoetis Pharmaceutical Research Pvt. Ltd.	"Quality by Design in Pharmaceutical Industry: Concepts and Examples highlighting the role of Chemical Engineers	K.J. Somaiya Visiting Professorship

B. CHEM. ENGG. SEMINAR 2017-18

Sr. No.	Roll No.	Name of student	Topic	Guide
1	14CHE1001	Ashwin Rajesh Turkar	Dry anaerobic digestion	Prof. S.S. Bhagwat
2	14CHE1005	Tandale Akash Sandeep	Global trends in Utilization of petroleum products	Prof. S.S. Bhagwat
3	14CHE1048	Lewis Nikita Gerald	Bioplastics	Prof. S.S. Bhagwat
4	14CHE1060	Vyom Thakker	Agricultural Micronutrients	Prof. S.S. Bhagwat
5	14CHE1080	Jhaveri Dhruv Amit	Bio pesticides	Prof. S.S. Bhagwat
6	14CHE1083	Iyer Krishna Rajaram	Reinforcement learning algorithms.	Dr. V.H. Dalvi
7	14CHE1006	Iralwad Saiprasad Suresh	Piston Engines as Chemical Reactors	Dr. V.H. Dalvi
8	14CHE1012	Aman Jayesh Jain	Slurry fuels: Manufacture and Applications	Dr. V.H. Dalvi
9	14CHE1026	Kalode Sanket Prakash	Superhydrophobic Coatings	Dr. V.H. Dalvi
10	14CHE1075	Talati Ishita Chirag	Regenerative Heat Exchangers	Dr. V.H. Dalvi

11	14CHE1085	Chheda Saumil Praphool	Intensified production routes for Maleic anhydride from Levulinic acid based on novel catalysts and ultrasound	Dr. P. R. Gogate
12	14CHE1002	Shantanu Sunil Malani	Improved treatment processes for effluents containing phenol and formaldehyde from resin processing plants	Dr. P. R. Gogate
13	14CHE1031	Bhanushali Paras Vasant	Intensified conversion of sustainable biomass to Levulinic acid based on ultrasound and ionic liquids	Dr. P. R. Gogate
14	14CHE1040	Kumbhar Gouree Vijaykumar	Improvements in camphor production from pinene	Dr. P. R. Gogate
15	14CHE1076	Waghela Karan Vijay	Recent advances in ultrasound assisted production of micro/ nanospheres	Dr. P. R. Gogate
16	14CHE1023	Raiesaah Murtuzza	Micro-reactor based processes for homogenous crystal synthesis	Dr. R.D. Jains
17	14CHE1028	Gaikwad Sanika Ravindra	Circular dichroism for aggregation of recombinant protein	Dr. R.D. Jain
18	14CHE1049	Labdhi Kiran Haria	Single use technology for biopharmaceutical production	Dr. R.D. Jain
19	14CHE1051	Walendra Jay Naresh	Sedimentation velocity and sedimentation equilibrium based ultracentrifugation for studying monoclonal antibody aggregation	Dr. R.D. Jain
20	14CHE1084	Iyer Gaurav Murali	Spray Drying of monoclonal antibodies	Dr. R.D. Jain
21	14CHE1030	Shah Parth Rajesh	Synthesis of Cyclohexyl amine from Cyclohexanol	Prof. Lakshmi Kantam
22	14CHE1032	Subudhi Abhijeet Surendra	Recent development in Synthesis of Benzyl amine from Benzyl alcohol	Prof. Lakshmi Kantam
23	13CHE1078	Ghotane Simran Jaydeep Mohini	Morpholine	Prof. Lakshmi Kantam
24	14CHE1072	Sawant Kaustubh Jaywant	Direct routes to chemicals from cellulose	Prof. A. M. Lali
25	14CHE1054	Vidhisha Nakhwa	Designing Hosts for large scale enzyme production	Prof. A. M. Lali
26	14CHE1070	Shinde Dhanashree Rajendra	Design of Silos for solids	Prof. A. M. Lali

27	14CHE1077	Gupta Pratik Jaiprakash	Cofactor engineering for in vitro synthesis	Prof. A. M. Lali
28	14CHE1081	Mohite Premkumar Ashwin	Slurry flows	Prof. A. M. Lali
29	14CHE1016	Mehta Harshit Shailesh	Structure property relationship in composite materials	Mrs. K.V. Marathe
30	14CHE1007	Gujar Akshata Sanjiv	Flocculation and separation of algae during harvesting and dewatering in algae to oil manufacture	Mrs. K.V. Marathe
31	14CHE1019	Patil Kajal Sunil	Genetically modified algae	Mrs. K.V. Marathe
32	14CHE1037	Sitapure Niranjan Arvind	Magnetorheological fluids	Mrs. K.V. Marathe
33	15CHE4025	Rane Nilesh Vijay Vaijayanti	organometallics in agriculture and their impact on ground water and soil quality.	Mrs. K.V. Marathe
34	14CHE1073	Rampalliwar Shubham Vilasrao	Photobioreactor design for algal biomass cultivation	Dr. C.S. Mathpati
35	14CHE1015	Harmalkar Ameya Uddhav	Applications of static mixers in multiphase systems	Dr. C.S. Mathpati
36	14CHE1022	Pandere Chetan Nitin	Hydrocyclone design for solid-liquid separation	Dr. C.S. Mathpati
37	14CHE1041	Jagtap Nipun Jaikrishna	CFD simulations of Venturi scrubbers	Dr. C.S. Mathpati
38	14CHE1066	M.Iswarya	Heat transfer in agitated vessels using single/multiple axial and radial flow impellers	Dr. C.S. Mathpati
39	14CHE1071	Aman Sandeep Shah	Natural Esters as dielectric media	Dr. P. R. Nemade
40	14CHE1025	Mair Kanishk Sanjay	Sensors for detection of phenolic compounds	Dr. P. R. Nemade
41	14CHE1052	Nair Rajiv Ranjit	Photocatalytic water splitting	Dr. P. R. Nemade
42	14CHE1059	Jaybhaye Ameet Balaji	Life cycle analysis of capacitive desalination	Dr. P. R. Nemade
43	14CHE1074	Srinidhi Suresh	Hydrazine sensors	Dr. P. R. Nemade
44	14CHE1058	Rao Shraavya	Strategies for Municipal Solid waste management	Prof. A. B. Pandit
45	14CHE1008	Ankita Subhash Hadke	State of art of "Microbial fuel Cell"	Prof. A. B. Pandit
46	14CHE1035	Thakker Ankit Udit	Role of proteins/enzymes in metabolic pathways	Prof. A. B. Pandit

47	14CHE1043	Kshirsagar Vikrant	Review of technologies for domestic potable water treatment	Prof. A. B. Pandit
48	14CHE1068	Sandesh Ram Honmane	High temperature Thermal insulation opportunity in Chemical Engineering	Prof. A. B. Pandit
49	14CHE1055	Morankar Ankita Rajendra	Thermodynamic aspects of membranes and membrane separation	Prof. A.V. Patwardhan
50	14CHE1018	Veer Shubham Vijay	Critical review of mosquito repellents and their action mechanisms	Prof. A.V. Patwardhan
51	14CHE1024	Kasad Meheryar Rohinton	Refinery effluents and their abatement methods	Prof. A.V. Patwardhan
52	14CHE1079	Ayushi Arun Mehta	Effluents containing pesticides and their abatement methods	Prof. A.V. Patwardhan
53	14CHE1057	Shirke Raj Shantaram	CFD Modeling of clarifiers	Prof. A. W. Patwardhan
54	14CHE1014	Butte Shivani Shivkumar	CFD Modeling of Gas-Liquid Separators	Prof. A. W. Patwardhan
55	14CHE1042	Ashima Chopra	Gas Dispersion in Non-Newtonian Fluids	Prof. A. W. Patwardhan
56	14CHE1046	Kavishvar Durgesh Prasad	Materials for Hydrogen Storage	Prof. A. W. Patwardhan
57	14CHE1053	Nayak Brijesh Deepak	Cybernetic Modeling for Fermenter Design	Prof. A. W. Patwardhan
58	14CHE1034	Joshi Anuj Sanjiv	Engineering aspects of Continuous enzymatic reactions	Prof. V.K. Rathod
59	14CHE1027	O. Nilesh Varadan	Microwave and its role in chemical synthesis	Prof. V.K. Rathod
60	14CHE1036	Kulkarni Akshaya Anil	Kinetics and thermodynamics of liquid liquid extraction	Prof. V.K. Rathod
61	14CHE1050	Patange Anushree Ravindra	Design aspects of agitated thin film evaporators	Prof. V.K. Rathod
62	14CHE1013	Hase Mangesh Sudhakar	Biologicals verses Biosimilars: Indian Perspective	Prof. B. N. Thorat
63	14CHE1003	Chavan Lahu Dnyaneshwar	Drying of ETP sludge using low grade heat	Prof. B. N. Thorat
64	14CHE1033	Sabnis Rushant Satej	Recovery of Barium sulphate from brime sludge	Prof. B. N. Thorat
65	14CHE1056	Varma Himani Raju	Modular distillation column for recovery of DMD (25%) from effluent stream	Prof. B. N. Thorat

66	14CHE1044	Shirpurkar Sachin Shyam	Recent advances in intensified distillation	Dr. P. D. Vaidya
67	14CHE1010	Vora Parth Sunil	Nitrogen removal from oil	Dr. P. D. Vaidya
68	14CHE1021	Awate Shubham Sukumar	Pre-treatment of lignocellulosic biomass with hot water	Dr. P. D. Vaidya
69	14CHE1039	Vashodia Mansi Rajinder	Evolution of pyrolysis reactors	Dr. P. D. Vaidya
70	14CHE1082	Khetan Vidhi Sundeep Rachna	State-of-art of CO2 methanation	Dr. P. D. Vaidya
71	14CHE1047	Asrani Soham Sunjay	Synthesis of cerium oxide nanoparticles for biological and medicals applications.	Prof. G.D.Yadav
72	14CHE1011	Dhand Abhishek Pawankumar	Electricity generation from refractory compounds using photo fuel cells	Prof. G.D.Yadav
73	14CHE1029	Purohit Dixeet Gaurang	Tandem catalysis for the synthesis of pharmaceutical compounds	Prof. G.D.Yadav
74	14CHE1038	Gogate Chinmay Vishwas	Separation of enantiomers on industrial scale.	Prof. G.D.Yadav

B. CHEM. ENGG. HOME PAPER 2017-18

Sr. No.	Roll. No.	Name of Student	Topic	Guide
1	14CHE1079	Ayushi Arun Mehta	Design a plant for 25 TPD of toluene diiocynate	Prof. A.B. Pandit
2	14CHE1013	Hase Mangesh Sudhakar	Design a plant for 10 TPD of hydorxy ethyl cellulose	Prof. A.B. Pandit
3	14CHE1024	Kasad Meheryar Rohinton	Design a plant for 10 TPD of precipated silica from Rice husk ash	Prof. A.B. Pandit
4	14CHE1037	Sitapure Niranjan Arvind	Design a plant for deflouridiation of potable water at 100CMD	Prof. A.B. Pandit
5	14CHE1018	Veer Shubham Vijay	Design a plant for 1 TPD of Grease grade Zinc molybadte	Prof. A.B. Pandit
6	14CHE1071	Aman Sandeep Shah	Design a plant for production of 100 TPD methanol from municipal solid waste	Prof. A.M. Lali

7	14CHE1036	Kulkarni Akshaya Anil	Design a plant for production of separating a 100 TPD mixture of acetic acid, butyric acid and propionic acid	Prof. A.M. Lali
8	14CHE1064	Dande Meghana Ravindra	Design a plant for production of 100TPD ammonia from agricultural residue	Prof. A.M. Lali
9	14CHE1076	Waghela Karan Vijay	Design a plant for production of 10TPD of ethyl DHA from fish oil	Prof. A.M. Lali
10	14CHE1073	Rampalliwar Shubham Vilasrao	Design a plant for production of 10 TPD of ethyl maltol	Prof. A.M. Lali
11	14CHE1042	Ashima Chopra	Design a plant to manufacture Allyl Alcohol	Prof. A.V. Patwardhan
12	14CHE1014	Butte Shivani Shivkumar	Design a plant to manufacture Fatty amides	Prof. A.V. Patwardhan
13	14CHE1046	Kavishvar Durgesh Prasad	Design a plant to Manufacture sultone	Prof. A.V. Patwardhan
14	14CHE1053	Nayak Brijesh Deepak	Design a plant to manufacture Acrylamide	Prof. A.V. Patwardhan
15	14CHE1072	Sawant Kaustubh Jaywant	Design a plant to Manufacture Ferrous Gluconate	Prof. A.V. Patwardhan
16	14CHE1034	Joshi Anuj Sanjiv	Design a plant to separate 1 TPD of lithium from sea water	Prof. A.W. Patwardhan
17	14CHE1027	O. Nilesh Varadan	Design a plant to manufacture propylene oxide	Prof. A.W. Patwardhan
18	14CHE1019	Patil Kajal Sunil	Design a plant to manufacture zinc diethyldithiocarbamate	Prof. A.W. Patwardhan
19	14CHE1002	Shantanu Sunil Malani	Design a plant to manufacture 5 TPD 4 methyl thiazole	Prof. A.W. Patwardhan
20	14CHE1032	Subudhi Abhijeet Surendra	Design a plant for treatment of 10000 lithium ion batteries	Prof. A.W. Patwardhan
21	14CHE1021	Awate Shubham Sukumar	Design a plant to manufacture 4-chloro ethyl aceto acetate	Prof. B.N. Thorat

22	14CHE1082	Khetan Vidhi Sundeep Rachna	Design a plant to manufacture bromo chloro propane	Prof. B.N. Thorat
23	14CHE1044	Shirpurkar Sachin Shyam	Design a plant to manufacture Cycohexan diacetc acid	Prof. B.N. Thorat
24	14CHE1039	Vashodia Mansi Rajinder	Design a plant to manufacture 2-chloro ethoxy ethanol	Prof. B.N. Thorat
25	14CHE1010	Vora Parth Sunil	Design a plant to manufacture N-Methyl Pyrroline	Prof. B.N. Thorat
26	14CHE1020	Gondaliya Akash Madhav	Desigan a plant to manufacture 50 MTM of Tranexamic acid	Prof. B.N. Thorat
27	14CHE1059	Jaybhaye Ameet Balaji	Design a coal gasification plant for syngas production using duel bed gasifier technology	Prof. C.S. Mathpati
28	14CHE1025	Mair Kanishk Sanjay	Design a nuclear power plant for hydrogen production and power generation using molten salt nuclear reactor technology based on sulphur iodine cycle	Dr. C.S. Mathpati
29	14CHE1052	Nair Rajiv Ranjit	Design a plant to manufacture polymeric microsphere for flow visualization application	Dr. C.S. Mathpati
30	14CHE1085	Chheda Saumil Praphool	Design a plant to manufacture Diphenyl oxide	Dr. C.S. Mathpati
31	14CHE1074	Srinidhi Suresh	Design a plant to manufacture Risedronic acid	Dr. C.S. Mathpati
32	14CHE1001	Ashwin Rajesh Turkar	Design a plant to make 5 TPD of isophorone diamine	Prof. G.D. Yadav
33	14CHE1080	Jhaveri Dhruv Amit	Design a plant to make 1000 TPA of N-methyl piperazine	Prof. G.D. Yadav
34	14CHE1048	Lewis Nikita Gerald	Design a plant for manufacture of 10 TPD of 1,3-butane diol using a green process	Prof. G.D. Yadav
35	14CHE1005	Tandale Akash Sandeep	Design a plant to make 10 TPD of isobutyraldehyde using a green process	Prof. G.D. Yadav

36	14CHE1060	Vyom Thakker	Design a plant for manufacture of 10 TPD of p-octyl phenol using a green process	Prof. G.D. Yadav
37	14CHE1015	Harmalkar Ameya Uddhav	Process design of a coker unit refinaery	Mrs. K.V. Marathe
38	14CHE1041	Jagtap Nipun Jaikrishna	Process design of a solid waste to manure in a big housing complex	Mrs. K.V. Marathe
39	14CHE1066	M.Iswarya	Design a plant to manufacture sulphuric acid from steel industry gas emissions	Mrs. K.V. Marathe
40	14CHE1050	Patange Anushree Ravindra	Process design of Algae to oil unit	Mrs. K.V. Marathe
41	13CHE1078	Ghotane Simran Jaydeep Mohini	Process design of syngas reformer to produce NG	Mrs. K.V. Marathe
42	14CHE1007	Gujar Akshata Sanjiv	Design a plant to manufacture benzoic acid from toluene	Prof. Lakshmi Kantam
43	14CHE1016	Mehta Harshit Shailesh	Design a plant to manufacture Phthalonitrile from ortho-xylene	Prof. Lakshmi Kantam
44	14CHE1022	Pandere Chetan Nitin	Design a plant to manufacture 2-methylpyridine	Prof. Lakshmi Kantam
45	14CHE1056	Varma Himani Raju	Design a plant to separate 2-Chloro-5-nitrobenzoic acid and 2-Chloro-3-nitrobenzoic acid	Prof. Lakshmi Kantam
46	14CHE1047	Asrani Soham Sunjay	Design a plant to manufacture Acetoin	Dr. P.D. Vaidya
47	14CHE1011	Dhand Abhishek Pawankumar	Design a plant to manufacture Triacetin	Dr. P.D. Vaidya
48	14CHE1038	Gogate Chinmay Vishwas	Design a plant to manufacture methyl lactate	Dr. P.D. Vaidya
49	14CHE1029	Purohit Dixeet Gaurang	Design a plant to manufacture dimethoxyethane	Dr. P.D. Vaidya
50	14CHE1068	Sandesh Ram Honmane	Design a plant to manufacture Cyrene	Dr. P.D. Vaidya
51	14CHE1077	Gupta Pratik Jaiprakash	Design a plant to manufacture Michler's hydrol	Dr. P.R. Gogate

52	14CHE1030	Shah Parth Rajesh	Design a plant to manufacture penta ester gum	Dr. P.R. Gogate
53	14CHE1084	Iyer Gaurav Murali	Design a plant to manufacture 2 Ethyl 2 methyl butanoic acid	Dr. P.R. Gogate
54	14CHE1057	Shirke Raj Shantaram	Design a plant to manufacture 3,5 di amino benzoic acid	Dr. P.R. Gogate
55	14CHE1081	Mohite Premkumar Ashwin	Design a plant to manufacture Sulphamethoxazole	Dr. P.R. Gogate
56	14CHE1008	Ankita Subhash Hadke	Design a plant to manufacture propylene glycol	Dr. P.R. Nemade
57	14CHE1031	Bhanushali Paras Vasant	Design a plant to manufacture 100 TPA of 1-(3-aminopropyl)-3-methylimidazolium bromide	Dr. P.R. Nemade
58	14CHE1043	Kshirsagar Vikrant	Design a plant to manufacture 10000 TPA Sodium dodecylbenzene sulfonate	Dr. P.R. Nemade
59	14CHE1058	Rao Shraavya	Design a plant to manufacture 100 TPA of 3,4-Dihydro-2H-pyran	Dr. P.R. Nemade
60	14CHE1035	Thakker Ankit Udit	Design a plant to manufacture 1000 TPA of Dihydroxyacetone phosphate	Dr. P.R. Nemade
61	14CHE1012	Aman Jayesh Jain	Design a plant to manufacture vitamin C	Prof. S.S. Bhagwat
62	14CHE1006	Iralwad Saiprasad Suresh	Design a plant to manufacture sulfamide	Prof. S.S. Bhagwat
63	14CHE1083	Iyer Krishna Rajaram	Design a plant to manufacture Dimethyl glycine	Prof. S.S. Bhagwat
64	14CHE1026	Kalode Sanket Prakash	Design a plant to manufacture sulpho-cholorinated paraffin wax	Prof. S.S. Bhagwat
65	14CHE1075	Talati Ishita Chirag	Design a plant to manufacture sebacic acid	Prof. S.S. Bhagwat

66	14CHE1028	Gaikwad Sanika Ravindra	Use the exhaust steam of the steam engine to drive a vapour absorption refrigeration cycle which will have to be sized appropriately	Dr. V.H. Dalvi
67	14CHE1040	Kumbhar Gouree Vijaykumar	Design a steam raising system to generate medium pressure (16-20 bar) superheated steam using the sensible heat stored in the heat storage tanks	Dr. V.H. Dalvi
68	14CHE1049	Labdhi Kiran Haria	Design a piston steam engine to convert the medium pressure steam to work and to exhaust steam at near ambient pressures or as dictated by downstream processes	Dr. V.H. Dalvi
69	14CHE1023	Raiesaah Murtuzza	Design a Solar Thermal collection and storage system capable of generating enough steam to generate 100 kW of electricity on a 24 hour basis using solar collectors developed at ICT-Mumbai[2] with sensible heat storage	Dr. V.H. Dalvi
70	14CHE1051	Walendra Jay Naresh	Use the reject heat from the vapour absorption refrigeration cycle to drive an evaporator of either milk, sugar or salt: preferably all three	Dr. V.H. Dalvi
71	14CHE1003	Chavan Lahu Dnyaneshwar	Design a plant to manufacture hydroquinone from phenol	Prof. V.K. Rathod
72	14CHE1055	Morankar Ankita Rajendra	Design plant to produce pure Eclipta alba from licorice root	Prof. V.K. Rathod
73	14CHE1033	Sabnis Rushant Satej	Design a plant to produce metmorphin hydrochloride	Prof. V.K. Rathod

RESEARCH PROJECT

PH.D. (TECH)

No.	Research Scholar	Previous Institution	Project	Supervisor
1	Tidke Vaibhav B.	ICT, Mumbai	Techno-commercial evaluation of sustainable technologies	Prof. B.N. Thorat
2	Rajput Shailendrasingh P.	ICT, Mumbai	Studies on development of fuel briquettes	Prof. B.N. Thorat
3	Shete Rahul T.	ICT, Mumbai	Stevia Processing	Prof. B.N. Thorat
4	Bhadange Yogesh	ICT, Mumbai	Sustainable Technologies	Prof. B.N. Thorat
5	Pankaj Sinhmar	AISSMS, Pune	VOC analysis	Prof. B.N. Thorat
6	Anand Chavan	ICT, Mumbai	Modeling, simulation and Exergy study of dryers	Prof. B.N. Thorat
7	Shilpa Haramkar	S.G.B.A.U. Amravati	Dewatering waste activated sludge	Prof. B.N. Thorat
8	Kalpana Mahalle	UDCT, Jalgaon	Study of absorption cycle for power and refrigeration	Prof.S.S. Bhagwat
9	Rahul Patil	ICT, Mumbai	Thermodynamics of Power Cycle	Prof.S.S. Bhagwat
10	Akshaya Chavan	ICT, Mumbai	Studies in Interfacial science	Prof.S.S. Bhagwat
11	Rahul Kamble	BATU, Lonere	Process intensification for the production of aromatic compounds	Prof.S.S. Bhagwat
12	Amol Gore	UDCT, Jalgaon	Extraction of phytonutrients from vegetable oils	Prof.S.S. Bhagwat
13	Sawant Vishal M.	UDC	Design and Process Intensification of Novel Extractants for Selective Separation of MetalIons	Prof. V.G. Gaikar
14	Labrath Yogita	ICT	"Process intensification of extraction and isolation of natural products."	Prof. V.G. Gaikar
15	Rathi Noopur	ICT	Engineering aspects of synthesis of nanoparticles and pharmaceutical cocrystals in microreactor and continuous reactors.	Prof. V.G. Gaikar
16	Gabhane Suchita T.	LIT	In situ Photocatalytic system for CO2 conversion to valuable fuel	Prof. V.G. Gaikar
17	Syed Tanweer Ahmed	LIT	Tea Components solubilization in water and thermodynamic studies of solubilization	Prof. V.G. Gaikar

18	Kabade Ketan Balkrishna	ICT	Development of additive for use in Delayed Coker Unit (DCU) to improve liquid yield	Prof. V.G. Gaikar
19	Bhoje Rutuja Sanjay	Dr. B.A.T.U	Design of in Situ Photocatalytic Systems for CO 2 Conversion into Useful OrganicMaterials Using CdS Nanoparticles on the New Polymeric CO 2 Specific Adsorbentsand/graphene Supports	Prof. V.G. Gaikar
20	Chatake Vikram S	LIT	Catalytic conversion of Biomass.	Prof. V.G. Gaikar
21	Pawar Pratik R.	UICT, NMU, Jalgaon	Continuous cultivation of thrastochytrides for microbial oil production	Prof. A.M. Lali
22	Chakraborty Moushmi	LIT, Nagpur	Valorisation of lignin to value added products	Prof. A.M. Lali
23	Savvashe Prashant	ICT, Mumbai	Photobioreactor design for optimum growth and nutrient uptake of algae	Prof. A.M. Lali
24	Subramanian Sunu	A.C. Tech. Campus, Anna University Chennai	Continuous Chromatographic Separation of Value-added products from Natural sources	Prof. A.M. Lali
25	Vasishta Ayush	SRM University, Chennai	Process scale up and reaction engineering for production of FDCA from biomass derived sugars	Prof. A.M. Lali
26	Mahale Jyoti	Indian Institute of Technology Kanpur	Novel routes to green C4 products from 2,3 butanediol	Prof. A.M. Lali
27	Patil Mahendra	Institute of Chemical Technology, Jalgaon.	Continuous chromatographic separation of compounds using Simulated Moving Bed Chromatography	Prof. A.M. Lali
28	Ketan Desai	LIT Nagpur	Sustainable processes for the development of keratin hydrolysate for the use as fertilizer, animal feed and pet food	Prof.A.B.Pandit
29	Yogesh Urunkar	LIT Nagpur	Thermal efficiency improvements in solid fuel burning device	Prof.A.B.Pandit
30	Zakir Hussain	UDCT Jalgaon	Modeling and simulation of solid fuel burning devices	Prof.A.B.Pandit

31	Chandrakant Bhogle	UDCT Jalgaon	Depolymerisation of Post-consumer Poly(Ethylene Terepthalate) into value added products using cavitation phenomenon	Prof.A.B.Pandit
32	Chandrakant Holkar	ICT Mumbai	Development of sustainable processes for green environment	Prof.A.B.Pandit
33	Amruta Badnore	UDCT Jalgaon	Synthesis of inorganic nanoparticle using cavitation technique	Prof.A.B.Pandit
34	Nilesh Rane	UDCT Jalgaon	Regeneration of sodium cold trap using surrogate system	Prof.A.B.Pandit
35	Sarjerao Doltade	AISSMS COE Pune	Development of CFD model to study the regeneration behavior of cold trap including passive heat transfer or surrogate system	Prof.A.B.Pandit
36	Gaurav Dastane	ICT Mumbai	Design of Cavitating Devices	Prof.A.B.Pandit
37	Mayur Ladole	UDCT Jalgaon	Synthesis of Magnetic Nano supports for enzyme immobilization to study Biochemical transformations	Prof.A.B.Pandit
38	Rutuja Kamble	TKIET Kolhapur	Novel methods to avoid the biofouling in Membrane Bioreactor (MBR)	Prof.A.B.Pandit
39	Rahul Kulkarni	ICT Mumbai	Design of cavitating devices for nanoemulsion	Prof.A.B.Pandit
40	Priyanka Patil	ICT Mumbai	CFD and experiments with packed bed catalytic systems	Prof.A.B.Pandit
41	Ashish Yadav	ICT Mumbai	Microbial enzyme based natural fiber (Ramie) finishing: an ecofriendly approach	Prof.A.B.Pandit
42	Chaudhari, Swapnil R. (Chemical Engineering)	ICT, Mumbai	Studies in advanced membrane separation processes	Prof. A.V. Patwardhan
43	Rajput, Swapnil (Chemical Engineering)	ICT, Mumbai	Development of grafted resins and membranes (extractants) for precious metals	Prof. A.V. Patwardhan
44	Thombre, Nitin V. (Chemical Engineering)	I. S. M., Dhanbad	Studies in wastewater treatment using membranes separation	Prof. A.V. Patwardhan
45	Bapat Deepak	ICT	Thermodynamics of Extraction System	Prof. A.W.Patwardhan

46	Yadav Manishkumar (Co-supervised)	IIT Gandhinagar	Synthesis and Characterization of Carbon NanoTubes and Fibres	Prof. A.W.Patwardhan
47	Lote Dhiraj	IIT Guwahati	Studies on Extraction Processes	Prof. A.W.Patwardhan
48	Tiwari Shashank (Co-supervised)	NIT Bhopal	DNS of Flow Patterns in Multi-Particle Systems	Prof. A.W.Patwardhan
49	Mali Chaitanya	BATU	Modeling of Two Phase Flow Instability in Vertical Tube Boiling Evaporators	Prof. A.W.Patwardhan
50	Hendre Nilesh	NIT Trichy	CFD Modeling of Assymetric RDC	Prof. A.W.Patwardhan
51	Dhekne Pallavee	BATU	Modeling of Infusion and Leaching Processes	Prof. A.W.Patwardhan
52	Ganjare Amol	ICT	Design Aspects of Gravity Settlers	Prof. A.W.Patwardhan
53	Hinge Shruti	ICT	CFD Modeling of Gas-Liquid Stirred Tanks Reactors and Fermenters	Prof. A.W.Patwardhan
54	Sawant Shrilekha (Co-Guide)	ICT	Synthesis and modification of carbon nanotubes: Experimentation and applications	Prof. A.W.Patwardhan
55	Biranje Pratiksha (Co-Guide)	ICT	Synthesis and Application of Graphene	Prof. A.W.Patwardhan
56	Rao Priyanka	Bharati Vidyapeeth's College of Pharmacy	Study of Extraction and Downstream Processing of biomolecules of medicinal value from natural source	Prof. V. K. Rathod
57	Pandhare Dhanashree	Institute of Chemical Technology	Studies in biocatalysis	Prof. V. K. Rathod
58	Khan Nishat	Institute of Chemical Technology	Studies in enzyme catalyzed reactions	Prof. V. K. Rathod
59	Rathod Wadilal	Dr. BATU, Lonere -Raigad	Process Intensification studies using spinning disc reactor	Prof. V. K. Rathod
60	Pawar Shweta	DR. D. Y. Patil University, Navi Mumbai.	Fermentative production of a biomolecule.	Prof. V. K. Rathod
61	Chavan Revati	Institute of Chemical Technology	Extraction of proteins from oil seeds	Prof. V. K. Rathod

62	Bhagwat Komal	Institute of Chemical Technology	Extraction of medicinally important compounds from natural sources	Prof. V. K. Rathod
63	Lanjekar Kavita	Institute of Chemical Technology	Extraction of biomolecules from natural sources	Prof. V. K. Rathod
64	Tomke Prerna	Institute of Chemical Technology	Studies in enzyme catalyzed reactions	Prof. V. K. Rathod
65	Nadar Shamraja	Institute of Chemical Technology	Studies in enzyme immobilization	Prof. V. K. Rathod
66	Girish N	Institute of Chemical Technology	Studies in enzyme catalyzed reaction	Prof. V. K. Rathod
67	Gharat Neha	Institute of Chemical Technology	Modeling studies in extraction of natural products	Prof. V. K. Rathod
68	Patil Sujata	Institute of Chemical Technology	Extraction and purification of curcumin from turmeric	Prof. V. K. Rathod
69	Shewale Sandip	TKIET, Warnanagar	Process intensification of extraction and purification if natural ingredients from herbs	Prof. V. K. Rathod
70	Aarti M	JNEC, Aurangabad	Studies in enzymatic a catalysed reactions	Prof. V. K. Rathod
71	Sose Meera	Pravara Rural Engineering College	Prcoess intensification studies in enzyme catalyzed reaction	Prof. V. K. Rathod
72	Katyayini .T	Vellore Institute of Technology, Vellore	Studies in biomolecule extraction	Prof. V. K. Rathod
73	Tadkar Pravin	Institute of Chemical Technology	Process intensification in chemical engineering reactions	Prof. V. K. Rathod
74	Satao Nitin	Tatyasaheb Kore Institute of Engineering and Technology, Kolhapur	Prcoess intensification studies in enzyme catalyzed reaction	Prof. V.K Rathod
75	A. Ingole		Studies in enzyme catalyzed reaction	Prof. V.K Rathod

76	Bhandari Praveen	Institute of Chemical Technology, Mumbai	Intensified Industrial wastewater treatment	Dr.P.R. Gogate
77	Joshi Saurabh	Institute of Chemical Technology, Mumbai	Improvements in biofuel synthesis from sustainable resources	Dr.P.R. Gogate
78	More Nishant	Dr. Babasaheb Ambedkar Technological University, Lonere	Improvements in emulsification and oil processing using cavitational reactors	Dr.P.R. Gogate
79	Avare Sudesh	Dr. Babasaheb Ambedkar Technological University, Lonere	Improved oxidation treatment schemes for industrial effluent treatment	Dr.P.R. Gogate
80	Jain Suyog Nandlal	UDCT, NMU, Jalgaon	Improved adsorption processes for removal of dyes from wastewater	Dr.P.R. Gogate
81	Thanekar Pooja	Institute of Chemical Technology, Mumbai	Combined Oxidation Processes Based on Hydrodynamic Cavitation for Treatment of Waste Water Containing Pesticides and Emerging Contaminates	Dr.P.R. Gogate
82	Khaire Rajeshree	Institute of Chemical Technology, Mumbai	Intensif ied Recovery Of Valuable Products From Whey Using Ultrasound	Dr.P.R. Gogate
83	Sabnis Sarvesh	Institute of Chemical Technology, Mumbai	Improved separations and cleaning using ultrasound	Dr.P.R. Gogate
84	Sinhmar Pankaj	AISSMS, Pune	Intensification of chemical processing using cavitational reactors	Dr.P.R. Gogate
85	Vinod Pakhale	ICT, Mumbai	Improved water and wastewater treatment using combination approaches	Dr.P.R. Gogate
86	Sudhir Gandhi	LIT, Nagpur	Intensified production of biofuels from sustainable biomass sources	Dr.P.R. Gogate
87	Banakar Vikram	ICT, Jalgaon	Improved process for CaSO4 Crystallization in concentrated brine using ultrasound	Dr.P.R. Gogate

88	Moholkar Chaitanya	AISSMS College of Engineering, Pune	CFD of Improved process for CaSO4 Crystallization in concentrated brine using ultrasound	Dr.P.R. Gogate
89	Pranav Nakhate	ICT, Mumbai	Process Intensification Studies of Bioelectrochemical Membrane Reactor	Mrs. K.V. Marathe
90	Hrushikesh Patil	ICT, Mumbai	Recycle and Reuse of Membrane in Wastewater Treatment	Mrs. K.V. Marathe
91	Mrs. Joseph Elizabeth	ICT, Mumbai	Studies in reactive absorption of CO2 by alkanolamines	Dr. P. D. Vaidya
92	Bhosale Ghanshyam	ICT, Mumbai	Multiphase reactor design for wastewater treatment	Dr. P. D. Vaidya
93	Ms. Barge Aditi	ICT, Mumbai	Studies in water purification	Dr. P. D. Vaidya
94	Patil Mayurkumar	UICT, Jalgaon	Discovery of novel absorbents for enhanced CO_2 capture	Dr. P. D. Vaidya
95	Bhoite Ganesh M.	ICT, Mumbai	Pretreatment of biomethanated distillery waste by catalytic wet air oxidation to enhance further biomethanation	Dr. P. D. Vaidya
96	Ghungrud Swapnil	UICT, Jalgaon	Studies in sorption enhanced reforming	Dr. P. D. Vaidya
97	Shinde Tukaram	LIT, Nagpur	A novel meshfree Lagrangian-Eulerian hybrid method for computational fluid dynamics using Voronoi tessellation.	Dr.V.H.Dalvi
98	Panda Mihir	ICT, Mumbai	CFD modeling of thermal solar receivers and thermal energy storage	Dr.V.H.Dalvi/ Prof.J.B. Joshi
99	Yerudkar Aditi	VIT, Pune	Design and optimization of the central receiver tower solar field	Dr.V.H.Dalvi
100	Bapat Deepak	ICT, Mumbai	Thermodynamics of extraction systems	Dr.V.H.Dalvi / Prof. A. W. Patwardhan
101	Pofali Prasad	RMS College of Pharmacy, Bhanpura, Bhopal	Development and evaluation of Nanoplex for nucleic acid delivery	Dr. Ratnesh Jain
102	Ghodke Sharwari	Institute of Chemical Technology, Mumbai	Synthesis of Cyclodextrin based polymer for delivery of therapeutic actives	Dr. Ratnesh Jain
103	Dey Anomitra	Dr. D.Y. Patil University, Mumbai	Cellular and computational studies for nucleic acid-polymer complexes	Dr. Ratnesh Jain

104	Patil Saurabh	R.C. Patel Institute of Pharmaceutical Education and Research, Shirpur	Excipient Development for Pharmaceutical Dosage Forms	Dr. Ratnesh Jain
105	Rohra Nanda	Institute of Chemical Technology, Mumbai	Development of sustainable process for recombinant protein formulation	Dr. Ratnesh Jain
106	Gaikwad Ganesh	University Institute of Chemical Technology, North Maharashtra, Jalgaon	Topic Approval Pending	Dr. Ratnesh Jain
107	Pandit Ashish	Bharti Vidyapeeth College of Pharmacy, Navi Mumbai	Novel drug delivery systems of Chitosan oligomer developed using green approaches	Dr. Ratnesh Jain
108	Saldanha Marianne	Kings College, UK	Topic Approval Pending	Dr. Ratnesh Jain
109	Honmane Bharat	Institute of Chemical Technology, Mumbai	Topic Approval Pending	Dr. Ratnesh Jain (Co-PI)
110	Yadav Satyajeet	Bharti Vidyapeeth College of Engineering, Pune	Topic Approval Pending	Dr. Ratnesh Jain (Co-PI)
111	Shekhar Sawant	BATU, Lonere	Computational and Experimental Studies in Scale-Up of Multiphase Reactor	Dr.C.S.Mathpati
112	Achyut Pakhre	ICT, Mumbai	Role of Fluid Mechanics and Supersaturation Fields on the Size Distribution and Morphology of Crystals	Dr.C.S.Mathpati
113	Sandeep Gosavi	ICT, Mumbai	Computational and Experimental Study of Fluidization Phenomena	Dr.C.S.Mathpati

114	Bhavesh Gajbhiye	ICT, Mumbai	Transport Phenomena at Solid-Fluid and Fluid-Fluid Interface: Computational Fluid Dynamics and Flow Visualization	Dr.C.S.Mathpati
115	Yogesh Urankar	LIT, Nagpur	Thermal Efficiency Improvement in Solid Fuel Burning Device	Dr.C.S.Mathpati
116	Harshawardhan Kulkarni	CMS, Pune	Computational techniques for corrosion erosion problems	Dr.C.S.Mathpati
117	Sourabh Agarwal	Current institute: HBNI-IGCAR	Development of simulation code for the molten salt electrorefining of spent nuclear fuel	Dr.C.S.Mathpati
118	Shivanand Teli	LIT Nagpur	Study of transport phenomena in multiphase reactor design by using computational tool	Dr.C.S.Mathpati
119	Niraj Kulkarni	NIT Surat	Computational and Experimental Study of Fluidization Phenomena	Dr.C.S.Mathpati
120	Naresh Hanchate	ICT Mumbai	Experimental and Computational studies of gas solid systems	Dr.C.S.Mathpati
121	Shrikant Mete	BATU, Lonere	Batch Scheduling and optimal control of energy integrated networks	Dr.C.S.Mathpati
122	Parikshit Shahane	LIT, Nagpur	Robust design of mixed mode of heat integration in batch systems.	Dr.C.S.Mathpati
123	Prachi Dwidmuthe	UDCT Jalgaon	Computational study of blood flow in human body	Dr.C.S.Mathpati
124	Sushil Chaudhari	NMU, Jalgaon	Development of metal oxide catalyst for environmental applications	Dr. P.R. Nemade
125	Rahul Zambare	NMU, Jalgaon	Development of graphene oxide based materials for separations	Dr. P.R. Nemade
126	Aniket Waval	Mumbai University	Studies in crystallization for continuous synthesis of nanoparticles	Dr. P.R. Nemade
127	Shivkumar Bale	LSU, USA	Turbulence	Prof.J.B.Joshi
128	Anita Sharma	ICT Mumbai	Pyrolysis	Prof.J.B.Joshi

Ph.D. (SCIENCE)

No.	Research Scholar	Previous Institution	Project	Supervisor
129	Nagwekar Nupur N.	Mumbai University	Biochemical and Microbiological Analysis of Dried Agricultural and Marine Food Products	Prof. B.N. Thorat
130	Priyanka Jadhav	Mumbai University	Resistant Starch	Prof. B.N. Thorat
131	Lokhande Kumudini	University of Mumbai	Synthesis and Characterization of surfactants derived from natural sources	Prof.S.S. Bhagwat
132	Kedar Vaibhav	Bhavan's College	Application of surfactant solution in petroleum industry	Prof.S.S. Bhagwat
133	Kotian Prashant	University of Mumbai	Mixed surfactant systems	Prof.S.S. Bhagwat
134	Parab Pallavi	R. N. Ruia college	Thermodynamics of Phase equilibria relevant for absorption cycles	Prof.S.S. Bhagwat
135	Dubhashe Yogeshwar	UDC	Process intensification of Nitrogen Heterocycles	Prof. V.G. Gaikar
136	M K MuffidahK	Kerala	Synthesis and characterization of nanoparticles using alumina membrane as template.	Prof. V.G. Gaikar
137	Hiware Suwarna	S.S.G.M College	Green synthesis of organic specialty chemicals in aqueous solutions	Prof. V.G. Gaikar
138	Barkule Angad Babasaheb	Dr. B.A.M.U.	Selection and Regeneration of potential ionic liquid for hydro processing feed stocks	Prof. V.G. Gaikar
139	Asodekar Bhupal	University of Mumbai	Isolation of cellulose from lignocellulosic feedstock and its catalytic conversion to platform chemicals	Prof. A.M. Lali
140	Upadhyay Priya	St. Xaviers College, Mumbai	Engineering Pseudomonas sp. for the biosynthesis of aromatic compounds from lignocellulosic biomass hydrolysate	Prof. A.M. Lali
141	More Pooja	The Institute of Science, Mumbai	Anaerobic acidogenesis for production of volatile fatty acids from waste streams.	Prof. A.M. Lali
142	Pandey Preeti	Savitribai Phule Pune University, Pune	Semiconductor based photocatalytic solar water splitting for hydrogen production	Prof. A.M. Lali

143	Ukarde Tejas	Savitribai Phule University Pune,Pune	Designing Catalytic Thermo Liquefaction of Polymeric Municipal Solid Waste	Prof. A.M. Lali
144	Chavan Aniket	The Institute Of Science. Fort. Mumbai.	Thermophilic Anaerobic Digestion for improved biogas production from waste hydrolysis.	Prof. A.M. Lali
145	Gupta Vaishali	Kalinga University, Raipur	Characterization of silver nanoparticles and identification of isolated strain producing silver nanoparticles	Prof. A.M. Lali
146	Abha Sahu	UDCT Jalgaon	Ultrasonication-assisted synthesis of eco-friendly nano chelating agent/composites for waste water treatment	Prof. A.B. Pandit
147	Nilesh Jadhav	PVPCollege, Loni	Eco-friendly technologies for the synthesis of organic and inorganic materials	Prof. A.B. Pandit
148	Sneha Tambat	TKIT, Kolhapur	Synthesis of MOF based Photocayalyst	Prof. A.B. Pandit
149	Choughule Yogesh K. (Chemistry)	Institute of Science, Mumbai	Studies in organic reaction systems for chiral discrimination processes	Prof. A.V. Patwardhan
150	Kulkarni Ketan S. (Chemistry)	G. J. College, Ratnagiri, Mumbai University	Studies in ceramic membrane synthesis and applications	Prof. A.V. Patwardhan
151	Sonar Manjeshwari	Ruia College	Studies in extraction of biomolecules from natural sources	Prof. V. K. Rathod
152	Gupta Anil Kumar	VES college of Arts,Science and Commerce	Studies in biodiesel production	Prof. V. K. Rathod
153	Gawas Sarita Deepak	Mumbai University Sub-Centre , Ratnagiri	Studies in Process Intensification in Enzyme catalyzed Reaction.	Prof. V. K. Rathod
154	Yadav Suraj	University of Pune,Pune	Studies in synthesis and applications of heterogeneous catalyst	Prof. V. K. Rathod
155	Jaiswal Kajal	Institute of Chemical Technology	Studies in Enzyme Catalysis	Prof. V. K. Rathod
156	Kamble Paresh	University of Mumbai	Separation of hydrocatechol and hydroquinone from reaction mixture	Prof. V. K. Rathod

157	Patole Shubhangi	D.D.N Bhole College, Bhusawal	Esterification of Palm Fatty acids distillate	Prof. V. K. Rathod
158	More Snehal	Institute of Chemical Technology, Mumbai	Improved Synthesis of Structured Triacylglycerols and their Applications	Dr.P.R.Gogate
159	Babu Prabijna S.S.	IIT Bombay, Mumbai	CO2 utilization via RWGS reaction	Dr. P. D. Vaidya
160	Ghoderao Pradnya	Savitribai Phule Pune University, Pune	The study of four and five parameter cubic equations of state	Dr.V.H.Dalvi/ Prof.Mohan Narayan
161	Pant Tejal	Hislop College's School of Biotechnology, Nagpur	Development of in vitro 3D lung model for biomedical application.	Dr. Ratnesh Jain (co-Guide)
162	Deokuliar Aanshu	Pondicherry University, Pondicherry	Understanding the cellular uptake behavior of polymeric nanoparticles	Dr. Ratnesh Jain (co-Guide)
163	Gupta Kritika	P.G.T.D Molecular Biology & Genetic Engineering, Nagpur	Development of Stable Cell line for Production of Recombinant Monoclonal Antibody	Dr. Ratnesh Jain (co-Guide)
164	Kiran Dhopte	Swami Ramanand Teerth Marathwada University, Nanded	Application of Graphene oxide as catalyst as well as catalyst support for various organic transformations	Dr. P.R. Nemade
165	Jyoti Ambre	Mumbai University	Environmental applications of graphene oxide and functionalized graphene oxide	Dr. P.R. Nemade
166	Shyam Sunder Gupta	ICT	Catalytic conversion of biomass to chemicals	Prof. M. Lakshmi Kantam
167	Deshmukh Gunjan P	Phd. Science	Hydroxylation of Phenol	Prof. M Lakshmi Kantam
168	Nagaraju .N	Phd. Science	Synthesis of Benzyl amine and Cyclohexyl amine	Prof. M Lakshmi Kantam
169	Jayaram	Phd. Science	Syntheis of Terpene derivatives	Prof. M Lakshmi Kantam

M. TECH. / M.CHEM. ENG.

No.	Research Scholar	Previous Institution	Project	Supervisor
1	Purvesh Kore	AISSMS, Pune	Studies on the drying and fluidization of algal slurry	Professor B.N. Thorat
2	Nikhil Shinde	BATU, Lonere	Effect of particle size, shape and its distribution on filtration characteristics	Professor B.N. Thorat

3	Akash Kubade	LIT, Nagpur	Reaction engineering approach for modeling of solar drying	Professor B.N. Thorat
4	Chauhan Nandini	Government engineering college, Ujjain	Process design for epoxidation of aromatic derivatives for production of commodity chemicals	Prof.S.S. Bhagwat
5	Bhutkar Siddhant	Sinhgad college, Pune	Intensifying epoxidation by continuous process design	Prof.S.S. Bhagwat
6	Halwai Govind	NIT Agartala	Integration of heat based vapor absorption refrigeration system in dairy industry	Prof.S.S. Bhagwat
7	Shah Deepkumar	Vishwakarma government engineering college, Chandkheda, Ahmedabad	Study of bleach activators for laundry detergents	Prof.S.S. Bhagwat
8	Kaur Viveka	BIET, Jhansi	Study of binary working fluid for heat based vapour absorption refrigeration cycle	Prof.S.S. Bhagwat
9	Bhabad Mahadev	Amrutvahini College of Pharmacy, Sangamner Dist A. Nagar	Combined C5&C6 sugar fermentation to ethanol using genetically modified yeast	Prof. A.M. Lali
10	Narjary Dorothy	NIT Jaipur	Production of Lactic acid	Prof. A.M. Lali
11	Krishnan Anjali	Government Engineering College,Thrissur, Kerala	Biogas production and Design of Anaerobic Digester.	Prof. A.M. Lali
12	Sagar Gupta	MNIT Jaipur	Modelling of asymmetric collapse of cavity	Prof.A.B.Pandit
13	Mrunal Rajendra Ingawale	KIT's college of engineering, Kolhapur	Fermentative production of pectinase from Bacillus sp MCC 2138 and it's application in degumming of ramie fiber	Prof.A.B.Pandit
14	Khushboo	Dr.SSB UICET, PANJAB UNIVERSITY, CHANDIGARH	Design of a continuous Washing system for guar gum	Prof.A.B.Pandit

15	Sumedh Devi	KK WIEER, Nashik	Optimization of thermodynamic cycles	Prof.A.B.Pandit
16	Viraj Khasgivale	MET Bandra	Enzymatic modification of guar-gum	Prof.A.B.Pandit
17	Susheel Yadav	Shivarirao Jondhale, Dombivali	Filling of hairline crack in concrete block	Prof.A.B.Pandit
18	Chakraborty Aakash	Manipal Institute of Technology, Manipal Udupi, Karnataka	Studies in water recovery from dye-containing aqueous effluents using membrane separation	Prof.A.V. Patwardhan
19	Gulia Rohit	Din Bandhu Chhoturam University of Science & Tech., Haryana	Studies in water recovery from dye-containing aqueous effluents using membrane separation	Prof.A.V. Patwardhan
20	Venkat Vaishali	Sastra University	Hydrodynamics of Asymmetric Rotary Agitated Columns and Pulsed Disc-Doughnut Columns	Prof.A.W. Patwardhan
21	Ramani Sudha	Banasthali University	Recovery of Lithium from Seawater Bitterns by Solvent Extraction	Prof.A.W. Patwardhan
22	Ravi Kumar	Seth Jai Parkash Mukand Lal Institute of Engineering and Technology	Design of Stirred Reactors	Prof.A.W. Patwardhan
23	Epili Gurunath	D. J. Sanghvi College of Engineering, Mumbai	Assymetric Rotating Disc Contactors	Prof.A.W. Patwardhan
24	Maurya Shefali	Laccase amino acid hybrid nanoflower preparation	MGM College of Engineering	Prof. V. K. Rathod
25	More Chandrashekhar	Separation of catechol and hydroquinone	Government College of Engineering	Prof. V. K. Rathod
26	Sampath Smrithi	Novel extraction of flavors from H. indicus	SRM University, Chennai	Prof. V. K. Rathod
27	Lohi Vaishnavi	Fermentatative production of bioflavoring agent	KIT College of Engineering	Prof. V. K. Rathod

28	Narote Ketan	Fermentatative production of sorbitol	Jawharlal Nehru Engineering College	Prof. V. K. Rathod
29	Khandare Ramrao	Extarction of sweet lime oil using novel techniques	Queens college of Food Technology	Prof. V. K. Rathod
30	Leena Vaidya	Biomineralization of enzyme with MOF and its application	SIES College, Mumbai	Prof. V. K. Rathod
31	Chaudhari Prasad	MGM college of Engineering & Technology,pune	Recovery of PGMs from secondary spent material sources	Dr.P.R. Gogate
32	Kashyap Shubham	DCRUST, Murthal	Study of non-edible oils for biodiesel production by interesterification with ultrasonic assistance	Dr.P.R. Gogate
33	Sanaik Ketki	Dr. Babasaheb Ambedkar Technological University, Lonere	Cavitation assisted process intensification of heterogeneous reactions	Dr.P.R. Gogate
34	Oke Amogh	Vivekananda Education Society's College of Pharmacy, Mumbai	Stabilization of waste water and sludge	Dr.P.R. Gogate
35	Gadhekar Amit	Anuradha Engineering college, chikli, maharashtra	Cleaning of fouled membrane using cavitation	Dr.P.R. Gogate
36	Upasani Aditya	Vishwakarma Institute of Technology, Pune	Particle size reduction using ultrasound	Dr.P.R. Gogate
37	Thakur Smruti	LIT, Nagpur	Ultrasound Assisted catalysis synthesis and it's application	Dr.P.R. Gogate
38	Lokhande Priyanka	MGM College of Engineering and Technology	Levulinic acid production from sugarcane residue	Dr.P.R. Gogate
39	Shinde Pankaj	Gharda Institute of Technology	Development and scale up of advance waste water technologies	Dr.P.R. Gogate
40	Salunkhe Susmita	K.M Kundanani College of Pharmacy, Mumbai	Improved Synthesis of microspheres using cavitational reactors with focus on health care application	Dr.P.R. Gogate

41	Utekar Pooja	Ideal College of pharmacy and Research, Mumbai	Intensification of enzymatic reactions using Ultrasound	Dr.P.R. Gogate
42	Bagul Nikhil	Datta Meghe College of Engineering, Airoli	Catalytic hydrogenation of biomass-derived oxygenates	Dr. P. D. Vaidya
43	Sawant Varada	Gharda Institute of Technology, Mumbai University	Catalytic hydro-dechlorination of chloro-organics	Dr. P. D. Vaidya
44	Mhatre Tejesh	Mahatma Gandhi mission's college of engineering and Technology, Kamothe	Wet air oxidation for wastewater treatment	Dr. P. D. Vaidya
45	Mhatre Nikhil	Datta Meghe College of Engineering, Airoli	Reactive absorption of carbon dioxide into new absorbents	Dr. P. D. Vaidya
46	Sujith VS	Government Engineering College, Thrissur	Hydrotreatment of non-edible vegetable oils to produce green diesel	Dr. P. D. Vaidya
47	Nair Mamta	Government Engineering College, Thrissur, Kerala	Preparation and Characterization of Solar Selective Surfaces	Dr.V.H.Dalvi
48	Gupta Shivani	Institute of engineering and science,IPS Academy,Indore	Characterisation of novel solar thermal systems	Dr.V.H.Dalvi
49	Parasnis Mruganka	Maharashtra Institute of Pharmacy	Generation of Stable cell line secreting Recombinant antibody	Dr. Ratnesh Jain
50	Rawat Shivam	Sagar Institute of Research Technology and Science	Improvising Monoclonal Antibody titre by feed optimization of hybridoma cell line	Dr. Ratnesh Jain
51	Mahajan Tushar	MGM,CET, Mumbai	Green Alternatives for synthesis of N,N,N-trimethyl chitosan	Dr. Ratnesh Jain
52	Nikam Prajakta	Department of Technology Shivaji University, Kohlapur	Development of Chitosan Films for food Packaging application	Dr. Ratnesh Jain
53	Mergu Akshay	Maharashtra Institute of Pharmacy	Analysis of Charge Variant of mAb	Dr. Ratnesh Jain

54	Bawane Vikas	Government College of Pharmacy, Amravati, Maharashtra	"Feed Optimization Of CHO Clone For Better Glycosylation"	Dr. Ratnesh Jain
55	Maheshwari Gulshan	NIT suratlhkal	Energy spectra and CFD analysis of pump sump systems	Dr.C.S.Mathpati
56	Akshita Mogaveera	Datta Meghe College of Engineering, Airoli	Electro activation of carbon di oxide	Dr. P.R. Nemade
57	Chirag Bhor	Bharti Vidyapeeth College of Engineering, Kolhapur	Biodegradable membranes	Dr. P.R. Nemade
58	Romil Shendre	Kolhapur Institute of Technology	Extraction of papain from pineapple wastes	Dr. P.R. Nemade
59	Pratap Mune	KIT College of Engineering, Kolhapur	Lipase based biosensors	Dr. P.R. Nemade
60	Sahil Sankhe	MGM College, Navi Mumbai	Extraction of Kokum fat	Dr. P.R. Nemade
61	Shahista Khan	Datta Moghe College of Enigneering, Airoli	Conversion of carbon di oxide to formaldehyde	Dr. P.R. Nemade
62	Rutuja Bhalinge	MGM college of Engineering and Technology, Navi Mumbai	Rapid destruction of emerging pollutants from wastewaters	Dr. P.R. Nemade
63	Kanchana Ramesh	AISSMS, Pune	Development of superhydrophobic surfaces for oil-water separations	Dr. P.R. Nemade
64	Kapil Palaspagar	Bhartiya Vidhyapith College of Engg., Navi Mumbai, Kharghar	Extraction of curcumin from unblanched turmeric	Dr. P.R. Nemade
65	Kanchan Drugkar	Maharashtra Institute of Technology, Pune	Synthesis of Group V lunbricant base stocks	Dr. P.R. Nemade
66	Pooja Garg	Punjab University	Quest for innovative solution to the problem of SOx formation during roasting of spent catalyst	Prof. P.K. Ghosh

67	Vaibhav Thool	Dr.Babasaheb Ambedkar Technological University, Lonere	Studies on the selective absorption of CO_2 from industrial flue gas and feasibility of using waste heat in flue gas for CO_2 regeneration	Prof. P.K. Ghosh
68	Shubham Chandak	SKB College of Pharmacy, Nagpur	Waste Water Treatment of Pharmaceutical Effluent	Prof. P.K. Ghosh
69	Vishal Patil	Dr.Babasaheb Ambedkar Technological University, Lonere	Degradation of wastewater from laundry processing containing residual surfactants	Prof. P.K. Ghosh
70	Aadil Bharucha	Sarvajanik College of Engg. & Technology, Surat	Solvent extraction studies of aqueous Li+/ Co2+ relevant to Li and Co recycle from Li- ion battery	Prof. P.K. Ghosh
71	Rituparna Ghosh (HBNI)	University of Calcutta	Absorption of NOx	Prof. J.B. Joshi
72	Vishwakarma Rakhi S.	ICT Mumbai	C-H activation by heterogeneous catalyst	Prof.M. Lakshmi Kantam
73	Tembhekar Kashish V.	ICT Mumbai	Catalytic synthesis of FDCA from HMF	Prof.M. Lakshmi Kantam

DETAILS OF POST-GRADUATE STUDENTS WHO PASSED OUT:

MASTERS

Sr. No.	Name	Course/College	Title	Supervisor
1	Govind Thombre	M.Chem.Engg.	Fundamentals of Cake Filtration	Prof.B.N.Thorat
2	Arvind Sikarwar	M.Chem.Engg	Modeling of Solar Conduction Dryer	Prof.B.N.Thorat
3	Sawant ShrilekhaVijaysinh	M.Tech.	Aqueous solutions based synthesis	Prof. V.G. Gaikar
4	Sonparote Harshit Sudhir	M.Chem.Engg.	Catalytic upgrading of biomass to diesel.	Prof. V.G. Gaikar
5	Vamanan Vijayalakshmi	M.Tech.	Continuous enzymatic conversion of 5-hydroxymethylfurfural (HMF) to Furan-2, 5-dicarboxylic acid (FDCA).	Prof. V.G. Gaikar
6	Datar Shreerang D.	M.Tech.	Intensification of catalytic reaction for synthesis of Benzothiazoleby using microwave	Prof. V.G. Gaikar

7	Pokhriyal Prashant	M.Tech BPT	Flux analysis and kinetic modeling of microbial systems for biochemical production	Prof. A. M. Lali
8	Gotmare Akshay	M.Chem Engg.	Catalytic upgradation of biocrude oil for enhancing its blendability in transport fuel	Prof. A.M. Lali
9	Dhivya S	M.Tech. (BPT)	Purification of biomolecules by polyelectrolyte precipitation and membrane separations	Prof. A. M. Lali
10	Juneja Ranjana	M.Chem. Engg	Forward osmosis for concentration of biomolecules	Prof. A. M. Lali
11	Subash G.	M.Chem Engg.	Modeling and Simulation of cavitating flow in converging-diverging nozzles	Prof. A.B.Pandit
12	Shruti P. Hinge	M.Chem Engg.	Nanoparticle synthesis using unconventional source of energy	Prof. A.B.Pandit
13	Sagar Shah	M.Chem Engg.	Fermentative Production of Polyhydroxybutyrate	Prof. A.B.Pandit
14	Harsh Thakkar	M.Chem Engg.	Simulation and experimental validation of various cavitating device	Prof. A.B.Pandit
15	Anagha Hunoor	M.Chem Engg.	Harnessing energy from wastewater by use of microbial fuel cell	Prof. A.B.Pandit
16	Jayesh Mevada	M.Chem Engg.	Modified methods for cell disruption and purification of biomolecules	Prof. A.B.Pandit
17	Gupta Radhish	M. Chem. Engg.	Studies in water recovery from dye-containing aqueous effluents using membrane separation	Prof. A.V.Patwardhan
18	Ratrey Geetanjali	M. Chem. Engg.	Studies in water recovery from dye-containing aqueous effluents using membrane separation	Prof. A.V.Patwardhan
19	Ekhande Shankesh B.	M. Chem. Engg.	Studies in water recovery from pesticide-containing aqueous effluents using membrane separation	Prof. A.V.Patwardhan

20	Muley Saurabh	M. Chem. Engg.	Synthesis of dendrimers and polymer-inclusion membranes for metal recovery from wastewater	Prof. A.V.Patwardhan
21	Vaishali V.	M. Chem. Engg.	Hydrodynamics of Asymmetric Rotary Agitated Columns and Pulsed Disc-Doughnut Columns	Prof. A.W. Patwardhan
22	Sudha R.	M. Chem. Engg.	Recovery of Lithium from Seawater Bitterns by Solvent Extraction	Prof. A.W. Patwardhan
23	Akshat Jalan	M. Chem Engg	Studies in liquid liquid extraction	Prof.V.K.Rathod
24	Akshada Thorat	M.Tech	Production and purification of biomolecule	Prof.V.K.Rathod
25	Manali Behare	M.Tech	Fermentative production of B-glucosidase from A. niger	Prof.V.K.Rathod
26	Nilambari	M.Tech	Process intensification of downstream processing of biomolecule	Prof.V.K.Rathod
27	Rohini Pawar	M.Tech	Extraction of enzymes of commercial value	Prof.V.K.Rathod
28	Dhara Parikh	M.Tech	Studies in enzyme catalysed reactions	Prof.V.K.Rathod
29	Tejaswini Prabhuzantye	MTech BPT	Ultrasound assisted enhanced recovery of whey proteins	Dr. P.R. Gogate
30	Santosh Kasar	MTech Green Tech	Improvements in liquid liquid reactions using cavitational reactors	Dr. P.R. Gogate
31	Rohini Ambati	M Chem. Engg.	Ultrasound Assisted Synthesis of Photocatalyst and its subsequent application in Dye Degradation	Dr. P.R. Gogate
32	Leena Patil	M Chem. Engg.	Ultrasound assisted synthesis of stable oil in milk emulsion: study of operating parameters and scale-up aspects	Dr. P.R. Gogate
33	Rucha Patil	MTech BPT	Intensification of Enzymatic hydrolysis of Cellulose using Ultrasonication	Dr. P.R. Gogate

34	Monica Diwathe	MTech Green Tech.	Intensification of phase transfer catalyzed reaction using irradiation	Dr. P.R. Gogate
35	Akshay Hatewar	M Chem Engg	Membrane Modification for Laundry waste water treatment	Mrs. K.V. Marathe
36	Sakhare Swati	MChem Engg	Exploration of new absorbents for improved CO2 capture	Dr. P.D. Vaidya
37	Belsare Makrand	MChem Engg	Hydrotreatment of karanja oil over Ruthenium-based catalyst	Dr. P.D. Vaidya
38	Kumbhare Nikhita	MTech (Green Tech)	Thermodynamic analysis of steam reforming of biomass-derived oxygenates	Dr. P.D. Vaidya
39	Girnale Shrirekh	M.tech BPT	Insulin Aggregation Kinetic Studies	Dr.R.D.Jain
40	Holkar Akshay	M.Tech Green Tech	Detection of Cholesterol using Biosensor	Dr.R.D.Jain
41	Kingar Gayatri	Mtech Pharma	Chitosan Production from Aspergillus niger	Dr.R.D.Jain

Ph.D (TECH/SCI.)

Sr. No.	Name	Course	Title	Supervisor
42	Swapnil Pakhale	Ph.D. Tech.	Bioprocessing and purification of biomolecules from Serratia marcescens	Prof.S.S. Bhagwat
43	Desai Shobha	Ph.D. Sci.	Study of Phase equilibria in surfactant solutions	Prof.S.S. Bhagwat
44	Ahire Manisha	Ph.D. Sci.	Interfacial Science for greener synthesis methods	Prof.S.S. Bhagwat
45	Sawant Vishal M.	Ph.D. (Tech)	Design and Process Intensification of Novel Extractants for Selective Separation of MetalIons	Prof. V.G. Gaikar
46	Koli Aditya	Ph.D. (Tech.)	Production of Valuable Chemicals from carbohydrates	Prof. V.G. Gaikar
47	Dabir Tasneem	Ph.D.(Sci.)	Thermodynamic studies of extraction and purification of phytochemicals from plant extract	Prof. V.G. Gaikar

48	Patil Parmeshwar	Ph.D. (Sci.)	Designing Biomass Deconstruction: Process Scale and High Throughput Analytical Scale	Prof. A.M. Lali
49	Kavadia Monali	Ph.D. (Sci.)	Lipase mediated synthesis of designer lipids	Prof. A.M. Lali
50	Degweker Gautam	Ph.D. (Tech.)	Design of high productivity fermentation systems	Prof. A.M. Lali
51	Rao S. P. Poornima	Ph.D. (Sci.)	Improved production of acetic acid by Escherichia coli and Moorella thermoacetica	Prof. A.M. Lali
52	Patil Mallikarjun	Ph.D (Sci.)	Recovery and transformation of lignin to value added product	Prof. A.M. Lali
53	Bellary Suveera	Ph.D (Sci.)	Designing microbial conversion of lignin	Prof. A. M. Lali
54	Singh Nitesh Kumar	Ph.D (Sci.)	Isolation, characterization and valorization of phenolic compounds from lignocellulosic biomass	Prof. A.M. Lali
55	Dargode Priyanka	Ph.D (Sci.)	Consortium design for improved anaerobic digestion	Prof. A.M. Lali
56	Gore Suhas	Ph.D (Sci.)	Improved biogas production from complex substrates	Prof. A.M. Lali
57	Bajwa Singh Arjun	Ph.D. (Tech.)	Engineering of corynebacterium glutamicum for the production of L-amino acids	Prof.A.M. Lali
58	Pillai Vijita	Ph.D. (Sci.)	Production of organic acids and cobalamin using Propionibacterium	Prof.A.M. Lali
59	Krishnan Archana R.	Ph.D. (Sci.)	Designing a microbial cell factory for IPP pathway engineering	Prof.A.M. Lali
60	Sawant Sonal	Ph.D. (Sci.)	Engineering microbial host strains for heterologous production of value added chemicals	Prof.A.M. Lali
61	Maurya Ritu	Ph.D. (Sci.)	Reactive separation of organic acids from fermentation broth	Prof.A.M. Lali
62	Nainan Lucy	Ph.D. (Sci.)	Engineering Escherichia coli for the production of C-3 metabolites	Prof.A.M. Lali
63	Yadav Manish	Ph.D. (Sci.)	Strategies for enzyme mediated synthesis of fatty acid esters	Prof.A.M. Lali
64	Atul Bari	Ph.D.(Tech)	Studies in Sonocrystallization Kinetics	Prof. A.B. Pandit

65	Ananda Jadhav	Ph.D.(Tech)	Cavitation assisted physico-chemical trasnsformation for synthesizing materials at nanoscale	Prof. A.B. Pandit
66	Sammit Karekar	Ph.D.(Tech)	Development of nanocontainer for performance based applications	Prof. A.B. Pandit
67	Dipak Chandre	Ph.D.(Tech)	Cavitation for wastewater treatment	Prof. A.B. Pandit
68	Kausley Shankar	Ph.D.(Tech)	Development of Cost Effective Technologies for Reuse of Wastewater	Prof. A.B. Pandit
69	Bhagwat Patil	Ph.D.(Tech)	Ultrasound assisted physiochemical transformation from renewable sources	Prof. A.B. Pandit
70	Karuna Nagula	Ph.D.(Tech)	Process intensification of enzymatic hydrolysis using various process intensification techniques	Prof. A.B. Pandit
71	Kulkarni, Vaishali M. (Bioprocess Technology)	Ph.D.Tech.	Studies in development and application of microbial colorants / pigments	Prof.A.V. Patwardhan
72	Prabhu, Vandana (Chemical Engineering)	Ph.D.Tech.	Synthesis of ceramic membranes and its applications	Prof.A.V. Patwardhan
73	Bhalerao Machhindra S. (Chemistry)	Ph.D.Science	Utilization of edible and non-edible oils for value added applications	Prof.A.V. Patwardhan
74	Kumbhaj Shweta (Chemistry)	Ph.D.Science	Studies in chemistry aspects of membrane separation and ceramic membrane synthesis	Prof.A.V. Patwardhan
75	Anita Sharma	Ph. D. (Tech)	Synthesis of Carbon NanoTubes	Prof.A.W. Patwardhan
76	Yadav Geeta	Ph. D. (Tech)	Extraction and Formulation of Actives from Natural Materials	Prof.A.W. Patwardhan
77	Raosaheb Farakte	Ph. D. (Tech.)	Transport Phenomena in Multiphase Processes	Prof.A.W. Patwardhan
78	Dr. Vrushali Kulkarni	Ph. D Tech, BPT	Extraction of biomolecules from natural sources	Prof.V.K.Rathod
79	Dr. Sonali Niphadkar	Ph. D Tech, BPT	Exraction and purification of natural products	Prof.V.K.Rathod
80	Dr. Sagar Gadalkar	Ph. D Sci., Chemistry	Exraction and purification of biomolecules from natural compounds	Prof.V.K.Rathod
81	Dr. Govind Waghmare	Ph. D Sci., Chemistry	Utilization of waste cooking oil for valueable products	Prof.V.K.Rathod

82	Dr. Parmanand Dange	Ph. D Sci., Chemistry	Studies in biodiesel production	Prof.V.K.Rathod
83	Dr. Shivraj Yadav	Ph. D Tech, Chem. Engg.	Process intensification studies in ethanol production from waste	Prof.V.K.Rathod
84	Dr. Sneha Bansode	Ph. D Sci., Chemistry	Studies in enzyme catalysed reactions	Prof.V.K.Rathod
85	Rajashree Jawale	PhD (tech)	Advanced oxidation processes based on cavitation for wastewater treatment	Dr.P.R. Gogate
86	Ashish Mohod	PhD (tech)	Intensification of Chemical Processing Applications Using Cavitational Reactors	Dr.P.R. Gogate
87	Aarti Barik	PhD (tech)	Combined Treatment Schemes based on Cavitation, Ozone and Photocatalysis for Wastewater Treatment	Dr.P.R. Gogate
88	Karan Chavan	PhD(Tech)	Process Development in Membrane Separations	Mrs. K.V. Marathe
89	Yadav Abhimanyu	PhD (Sci) in Chemistry	Sustainable hydrogen production by catalytic steam reforming of butanol	Dr.P.D. Vaidya
90	Pachupate Nilam	PhD (Sci) in Chemistry	Wet oxidative destruction of toxic nitrogenous organic compounds	Dr.P.D. Vaidya
91	Payal Dipak	PhD (Sci) in Chemistry	Destruction of chlorinated organics by catalytic hydrotreatment	Dr.P.D. Vaidya
92	Vemula Shrikant	PhD (Sci) in Chemistry	Studies in advanced oxidation processes: An investigation using model compounds	Dr.P.D. Vaidya
93	Baviskar Chetna	PhD (Sci) in Chemistry	A study on hydrogen production by catalytic steam reforming of model compounds of fast pyrolysis oil	Dr.P.D. Vaidya
94	Bhandare Sachin	PhD (Sci) in Chemistry	Studies in catalytic hydrogenation of biomass-derived organic acids	Dr.P.D. Vaidya
95	Patil Shailesh	PhD (Sci) in Chemistry	Renewable diesel via catalytic hydrotreatment of jatropha oil	Dr.P.D. Vaidya
96	Dewoolkar Karan	PhD (Tech) in Green Tech	Improved hydrogen production by sorption-enhanced steam reforming over multi-functional hybrid materials	Dr.P.D. Vaidya

97	Budhwani Neha	PhD (Tech) in Chem Engg	Studies in reactive absorption of CO_2 into new amine blends and individual amines	Dr.P.D. Vaidya
98	Karemore Ashvin	PhD (Tech) in Chem Engg	Development of catalyst for synthesis gas production via CO_2 reforming of CH_4	Dr.P.D. Vaidya
99	Dyawanpelly Sathish	PhD(Tech) Pharmaceutics	Intracellular delivery of nanoparticulates for biomacromolecules	Dr.R.D.Jain
100	Hrushikesh Khadamkar	Ph.D. Tech	Studies in liquid-liquid extraction: Marangoni convection	Dr.C.S. Mathpati
101	Shekhar Sawant	Ph.D Tech.	Computational and Experimental Studies in Scale-Up of Multiphase Reactor	Dr.C.S. Mathpati
102	Sharma Anita	PhD (Tech) Chem. Engg.	Synthesis of Carbon Nanotubes	Prof. J.B. Joshi
103	Nakhate Akhil V.	Phd. Science	Lab scale synthesis of fine and bulk chemicals	Prof. M Lakshmi Kantam
104	Rasal Kalidas B.	Phd. Science	Development of economical processes for Important organic Intermediates	Prof. M Lakshmi Kantam

LIST OF SUMMER TRAINEE STUDENTS OF 2017

Sr. No.	Name of the student	Name of Institute
1	Lishma P. L.	Adhiyamaan College of Engineering
2	Shrutkirti Prabhakar Patil	Vishwakarma Institute of Technology, Pune
3	Pravin Narayan Javheri	Vishwakarma Institute of Technology, Pune
4	Vikash Kumar Chandravanshi	Institute of Technology Guru Ghasidas Vishwavidyalaya, Bilaspur (CG)
5	Shubham Sharad Bhoir	Vishwakarma Institute of Technology, Pune
6	Akhil Narayanan Ravi	Kongu Engineering College
7	Prasad Mangesh Korde	Dr. Babasaheb Ambedkar Technological University
8	Priyanga Murugesan	Adhiyamaan College of Engineering
9	Pranav Ashok Bhosale	Department of Technology
10	Suresh Kumar Saravanan	Anna University
11	Ankita Anjan Palit	SRM University, Chennai
12	Tanmay Dinesh Kulkarni	Vishwakarma Institute Of Technology, Pune
13	Nikhil Manoj Puranik	Dr. Babasaheb Ambedkar Technological University, Lonere
14	Ragamaye Tigiripalli	National Institute of Technology Warangal
15	Abhishek Jaiswal	IIT BHU, Varasani
16	Akansha Sagar	VNIT, Nagpur
17	Yaash Kadam	SRM University, Chennai
18	Ibani Kapur	SRM University, Chennai
19	Swapnil Patel	SV NIT, Surat
20	Anmol Tandon	Jaypee University, Guna
21	Mayuresh Vaze	SRM University
22	Modi Purvam	IIT BHU Varanasi
23	Darshak K. Gandhi	Institute of Chemical Technology
24	Gaurav P. Yewale	Institute of Chemical Technology
25	Rahul V. Pandare	Institute of Chemical Technology
26	Riddhesh A. Patel	Institute of Chemical Technology
27	Vaidik R. Shah	Institute of Chemical Technology
28	Sarvesh gopal Sarda	Institute of Chemical Technology
29	Shreekant Gokhale	Institute of Chemical Technology
30	Tanmay Chaudhari	Institute of Chemical Technology
31	Varun Trivedi	Institute of Chemical Technology
32	Rushabh Shah	Institute of Chemical Technology
33	Yashomangalnm Bhutada	Institute of Chemical Technology
34	Vishal sherkar	Institute of Chemical Technology

35	Tejaswini Deshpande	Institute of Chemical Technology
36	Charul Thakur	Institute of Chemical Technology
37	Amol Kulmethe	Institute of Chemical Technology
38	Vaibhav Pinghase	Institute of Chemical Technology
39	Aditya Pol	Institute of Chemical Technology
40	Omkar Dapurkar	Institute of Chemical Technology
41	Mrugal Rangari	Institute of Chemical Technology
42	Sagar Lakhwani	Institute of Chemical Technology

DETAILES OF SPONSORED PROJECTS

GOVERNMENT AGENCIES:

1	Sponsor	Rajiv Gandhi Commission for S&T, Government of Maharashtra
	Title	Jaggery Granulation
	Duration	18 months
	Total amount	Rs.1 Crore
	Principal Investigator	Prof. B. N. Thorat
	Research Fellows	
2	Sponsor	Rajiv Gandhi Science and technology Commission
	Title	Cold storage facility for storage of fruits and vegetables using heat based refrigeration system
	Duration	5 years
	Total amount	Rs.1.23 cr
	Principal Investigator	Prof. Sunil S. Bhagwat
	Research Fellows	Kalpana Mahalle, Pallavi Parab
3	Sponsor	Bharat Petroleum Corporation Limited
	Title	(1) Selection and Regeneration of potential ionic liquid for hydroprocessing feed stocks
		(2) Development of additive for use in Delayed Coker Unit (DCU) to improve liquid yield
	Duration	2015-2017
	Total amount	50,00,000 Rs
	Principal Investigator	Prof. V G Gaikar
	Research Fellows	Barkule Angad Babasaheb(Ph.D. (Sci)), Kabade Ketan Balkrishna
4	Sponsor	Department of Science and Technology, Science and Engineering Research Board
	Title	Design of in situ photocatalytic systems for CO 2 conversion into useful organic materials using CdS Nanoparticles on the new polymeric CO 2 specific adsorbents and graphene supports
	Duration	4 years(2014-18)
	Total amount	Rs.54,80,900
	Principal Investigator	Prof. V G Gaikar
	Research Fellows	Ms.M.Muffidah(Ph.D. (Sci)), Ms. Gabhane Suchita(Ph.D. (T)) and Ms. Bhoje Rutuja(Ph.D. (T))

5	Sponsor	DBT, India
	Title	Biphasic Fermentation for Triacyl Glycerol (TAG) production from pretreated lignocellulosic biomass hydrolysates using Mixed Microbial Cultures.
	Duration	2017-2020
	Total amount	Rs.39.84 Lacs
	Principal Investigator	Prof. A.M. Lali
6	Sponsor	DBT, India
	Title	Setting up Demonstration Plant to 1 ton/day MSW Into Energy
	Duration	2017-2019
	Total amount	Rs.670.39 Lacs
	Principal Investigator	Prof. A.M. Lali
7	Sponsor	DBT, India
	Title	International Genetically Engineered Machines Contest (iGEM)
	Duration	2017-2019
	Total amount	Rs.20.00 Lacs
	Principal Investigator	Prof. A.M. Lali
8	Sponsor	DBT-CEB-BIPP
	Title	Pilot scale translational facility for value added chemicals from biomass
	Duration	2016-2017
	Total amount	Rs.50.00 Lacs
	Principal Investigator	
9	Sponsor	DST-KGDS
	Title	Performance and durability improvements in the solar thermal desalination system at Narippaiyur and utilization of reject sea water for algae cultivation to produce biogas
	Duration	2015-2018
	Total amount	Rs.61.35 Lacs
	Principal Investigator	Prof. A.M. Lali
10	Sponsor	DBT-AISRF, India
	Title	Integrated biorefinery for production of sorghum Grain protein Phase II
	Duration	2015-2017
	Total amount	Rs.113.74 Lacs
	Principal Investigator	Prof. A.M. Lali
11	Sponsor	IGSTC,DST, India
	Title	Design of selective nanoporous membrance bioreactor for efficient production of bio-butanol from lignocellulosic sugar (SeNaMeB)
	Duration	2014-2017

	Total amount	Rs.115.40 Lacs
	Principal Investigator	Prof. A.M. Lali
12	Sponsor	DST, India
	Title	Green enzymatic fat-splitting technology for production of fatty acids and Acyl Glycerols
	Duration	2014-2017
	Total amount	Rs.847.53 Lacs
	Principal Investigator	Prof. A.M. Lali
13	Sponsor	DBT- BBSRC/ SuBBSea
	Title	Transnational approaches to resolving biological bottlenecks in macroalgal biofuel production
	Duration	2014-2017
	Total amount	Rs.201.672 Lacs
	Principal Investigator	Prof. A.M. Lali
14	Sponsor	DBT, India
	Title	Integrated technologies for economically sustainable bio-based
	Duration	2015-2017
	Total amount	Rs.113.74 Lacs
	Principal Investigator	Prof. A.M. Lali
15	Sponsor	DBT, India
	Title	DBT-ICT Centre for Energy Biosciences: New and extension proposals
	Duration	2013-2018
	Total amount	Rs.1800.00 Lacs
	Principal Investigator	Prof. A.M. Lali
16	Sponsor	MNRE
	Title	Improved production of biogas and bio-CNG from lignocellulosic biomass
	Duration	2013-2017
	Total amount	Rs.267.16 Lacs
	Principal Investigator	Prof. A.M. Lali
17	Sponsor	DBT, India
	Title	Energy Biosciences Overseas Fellowship & Chairs
	Duration	2009-2020
	Total amount	Rs.1472.21 Lacs
	Principal Investigator	Prof. A.M. Lali
18	Sponsor	DBT under Twinning Program
	Title	Microbial enzyme based natural fiber (Ramie) finishing: an ecofriendly approach
	Duration	2016 – 2019

	Total amount	Rs. 35 lacs
	Principal Investigator	Prof. A.B. Pandit
	Research Fellows	Mr. Ashish Yadav
19	Sponsor	Indira Gandhi Center for Atomic Research (IGCAR)
	Title	Characterization of the regeneration process for liquid sodium cold trap in secondary system of fast
	Duration	2015 – 2018
	Total amount	Rs. 38 lacs
	Principal Investigator	Prof. A.B. Pandit
	Research Fellows	Mr. Sarjerao Doltade and Mr. Nilesh Rane
20	Sponsor	Department of Science and Technology, Government of India
	Title	Sustainable processes for the development of keratin hydrolysate for the use as fertilizer, animal feed and pet food
	Duration	2017 – 2020
	Total amount	Rs. 75 lacs
	Principal Investigator	Prof. A.B. Pandit
	Research Fellows	Mr. Ketan Desai
21	Sponsor	DAE-ICT Centre
	Title	Development of grafted resins and membranes (extractants) for precious metals
	Duration	3 years
	Total amount	Rs. 69 Lakh
	Principal Investigator	Prof.Anand V. Patwardhan
	Research Fellows	Swapnil Rajput
22	Sponsor	Department of Science and Technology (SERB – Green Technology)
	Title	Synthesis of novel membranes and their applications in waste minimisation and recovery of valuable chemicals from dilute aqueous streams
	Duration	3 years
	Total amount	Rs. 35 Lakh
	Principal Investigator	Prof. Anand V. Patwardhan
	Research Fellows	Mr. Ketan S. Kulkarni
23	Sponsor	DAE
	Title	CFD Modeling of Assymetric Rotating Disc Contactors
	Duration	2015 – 2018
	Total amount	Rs.58 Lakhs
	Principal Investigator	Prof.A.W.Patwardhan
	Research Fellows	Nilesh Hendre, Raosaheb Farakte, Shruti Hinge, Vaishali V.

24	Sponsor	DAE
	Title	Synthesis and modification of carbon nanotubes: modeling, experimentation and application
	Duration	2015 – 2018
	Total amount	Rs.54.3 Lakhs
	Principal Investigator	Prof.A.W.Patwardhan
	Research Fellows	Manishkumar Yadav, Shreelekha Sawant, Pratiksha Biranje
25	Sponsor	IGCAR
	Title	Thermal Hydraulic Studies on Boiling in Long Vertical Tubes
	Duration	2015 – 2018
	Total amount	Rs.43.75 Lakhs
	Principal Investigator	Prof.A.W.Patwardhan
	Research Fellows	Chaitanya Mali, Dhiraj Lote
26	Sponsor	RGSTC
	Title	- Utilization of Reetha fruit for value added products
		- Utilization of curcumin industry waste to produce value added products
	Duration	3 years
	Total amount	Rs.66 lakh
	Principal Investigator	Prof. V.K Rathod
	Research Fellows	Revati Chavan, Karuna Nagula
27	Sponsor	Department of Science & Technology (WTI Scheme), New Delhi
	Title	Treatment of Wastewater containing pesticides and emerging contaminants using novel approach of combined hydrodynamic cavitation and oxidation processes
	Duration	3 years (2016-2018)
	Total amount	Rs.54.4 Lacs
	Principal Investigator	Dr.P.R.Gogate
	Research Fellows	Pooja Thanekar
28	Sponsor	Department of Science & Technology (MOFPI Scheme), New Delhi
	Title	Intensified recovery of valuable products from whey using ultrasound
	Duration	3 years (2016-2018)
	Total amount	Rs.41.4Lacs
	Principal Investigator	Dr.P.R.Gogate
	Research Fellows	Rajeshree Khaire

29	Sponsor	Department of Atomic Energy-ICT
	Title	Improved process for CaSO4 crystallisation in concentrated brine using Ultrasound
	Duration	3 years (2017-2020)
	Total amount	Rs.35 Lacs
	Principal Investigator	Dr.P.R.Gogate
	Research Fellows	Sarvesh Sabnis, Vikram Banakar, Chaitanya Moholkar
30	Sponsor	DBT
	Title	Polymeric Nanocarrier for siRNA Delivery
	Duration	10/12-10/17
	Total amount	Rs.32,50,000/-
	Principal Investigator	Dr.Ratnesh Jain
	Research Fellows	
31	Sponsor	DST
	Title	Development and evaluation of siRNA loaded nanomedicine in computational and cellular Models
	Duration	04/14-03/17
	Total amount	Rs. 2,82,00,000/-
	Principal Investigator	Dr. Ratnesh Jain
	Research Fellows	Ashu Srivastava
32	Sponsor	ICT-DAE
	Title	Conjugation and Radiolabelling of various nanoplatforms for image guided theranostic applications
	Duration	02/16-02/19
	Total amount	Rs. 65,32,000/-
	Principal Investigator	Dr. Ratnesh Jain
	Research Fellows	Ganesh Gaikwad
33	Sponsor	DBT
	Title	Green Process for the production and purification of low molecular weight Chitosan Oligomer using solid acid catalyst
	Duration	09/16-09/19
	Total amount	Rs.51,64,200/-
	Principal Investigator	Dr. Ratnesh Jain
	Research Fellows	Ashish Pandit
34	Sponsor	DBT
	Title	Microfuidic Platform for Developing bioartificial Retina
	Duration	04/18-04/20
	Total amount	Rs.61,51,600/-
	Principal Investigator	
	Research Fellows	Devashree Jahagirdar(JRF)

35	Sponsor	ICT-DAE
	Title	Development of Hydrodnamic flow focusing droplet generator for preparation of monodisperse Actinide Oxide microsperes
	Duration	01/18-01/21
	Total amount	Rs.70,20,800/-
	Principal Investigator	
	Research Fellows	Satyajeet Yadav
36	Sponsor	RUSA
	Title	Skin on a chip for preclinical and biomedical applications
	Duration	06/16-05/17
	Total amount	Rs.35,00,000/-
	Principal Investigator	
	Research Fellows	
37	Sponsor	BIRAC-BIPP
	Title	Designing & Commercialization of affordable chemically defined serum free media & feed for high value Biosimilars Manufacture
	Duration	03/18-03/20
	Total amount	Rs.65,44,000/-
	Principal Investigator	Dr. Ratnesh Jain
	Research Fellows	Amita Puranik(JRF)
38	Sponsor	DAE
	Title	Thermal hydraulic studies related to coolants for new generation reactors
	Duration	Five years
	Total amount	Rs.72,40,000/-
	Principal Investigator	Dr.C. S. Mathpati
	Research Fellows	Ms. Sona C.S. Mr. Bhavesh Gajbhiye
39	Sponsor	Centre of Excellence in Process Intensification (TEQIP-II)
	Title	Design aspects of Two opposed jet microextractor: Experimental and Computational Fluid Dyanmics
	Duration	One year
	Total amount	Rs.16,00,000/-
	Principal Investigator	Dr.C. S. Mathpati
	Research Fellows	Mr. Aniket Waval
40	Sponsor	DAE- BRNS
	Title	Computational fluid dynamics and experimental study of fluidization of lithium titanate particles in fluidized and packed fluidized bed
	Duration	Three years
	Total amount	Rs.25,00,000/-

	Principal Investigator	Dr. C. S. Mathpati
	Research Fellows	Niraj Kulkarni
41	Sponsor	DAE
	Title	Development of graphene oxide based membranes for desalination
	Duration	3 years
	Total amount	
	Principal Investigator	Dr. P.R. Nemade
	Research Fellows	Jyoti Ambre
42	Sponsor	SERB
	Title	Development of ionic liquid membranes for gas separation
	Duration	3 years
	Total amount	
	Principal Investigator	Dr. P.R. Nemade
	Research Fellows	Amar Dhopte
43	Sponsor	Department of Science & Technology, New Delhi
	Title	Mitigation of water problems in Ausa town, Latur: wastewater management, Gaothan Lake rejuvenation, Potable water production through desalination of lake water and training of residents in matter of sanitation and water conservation
	Duration	2 years
	Total amount	Rs 173 lakh
	Principal Investigator	Dr. D. Sarode (PI) and Prof. P. K. Ghosh (co-PI)
	Research Fellows	2

PRIVATE AGENCIES:

1	Sponsor	Reliance Industries Limited
	Title	Studies on the drying and fluidization of algal slurry
	Duration	12 months
	Total amount	Rs.21 lakhs
	Principal Investigator	Prof. B. N. Thorat
	Research Fellows	Priyanka Jadhav
2	Sponsor	Marico
	Title	Rice bran Oil refining
	Duration	3 yrs
	Total amount	27 lakh
	Principal Investigator	Prof. Sunil S. Bhagwat
	Research Fellows	Amol Gore

3	Sponsor	Hindustan Unilever Ltd, Mumbai
	Title	Thermodynamics of Solubility of Tea components in water
	Duration	4 years
	Amount	Rs. 45 lakhs
	Principal Investigator	Prof. V G Gaikar
	Research Fellows	Ms. Dabir Tasneem (Ph.D. (Sci)), Mr.Syed Tanveer (Ph.D. (T))
4	Sponsor	Godrej Agrovet Ltd.
	Title	Developed of improved animal feed ingredient from seed meals
	Duration	2014-2017
	Total amount	100.00 Lacs
	Principal Investigator	Prof. A.M. Lali
5	Sponsor	Gencrest LLP
	Title	Research & Development of Chloroplast Derived Enzyme Mixtures
	Duration	2017-2019
	Total amount	246.00 Lacs
	Principal Investigator	Prof. A.M. Lali
6	Sponsor	Godrej Agrovet Ltd.
	Title	Developed of improved animal feed ingredient from seed meals
	Duration	2014-2017
	Total amount	100.00 Lacs
	Principal Investigator	Prof. A.M. Lali
7	Sponsor	L&T Hydrocarbon Engineering Ltd.
	Title	Research & Development & Generation, protection & Deployment of Innovation & Technologies in the field of Cellulosic Ethanol Technology & its scale up
	Duration	2017 & ongoing
	Total amount	500.00 Lacs
	Principal Investigator	Prof. A.M. Lali
8	Sponsor	ATUL LTD
	Title	Kinetics of Synthesis of p-Hydroxy Benzaldehyde
	Duration	2016-2017
	Total amount	Rs. 20 lacs
	Principal Investigator	Prof. A.B. Pandit
	Research Fellows	Mr. Anand Jain
9	Sponsor	Asian Paints
	Title	Recovery of Water of Esterification
	Duration	2016-2017
	Total amount	Rs. 3 lacs
	Principal Investigator	Prof. A.B. Pandit
	Research Fellows	Mr. Ketan Desai and Mr. Shankar Kausley

10	Sponsor	Hindustan Unilever Ltd., Banglore
	Title	LDH Formation and Converging Diverging Cavitating Nozzles.
	Duration	2013 – 2018
	Total amount	Rs. 75 lacs
	Principal Investigator	Prof. A.B. Pandit
	Research Fellows	Mr. Gaurav Dastane
11	Sponsor	Val Organics Pvt. Ltd Mumbai
	Title	Conversion of 2,6-Dichloroacetophenone to 2,6-Dichlorobenzamide
	Duration	2016 – 2017
	Total amount	Rs. 5 lacs
	Principal Investigator	Prof. A.B. Pandit
	Research Fellows	Mr. Ketan Desai
12	Sponsor	VA Tech Wabag
	Title	Purification of aqueous effluents from refineries and allied industries
	Duration	6 months
	Total amount	Rs. 16.188 Lakh
	Principal Investigator	Prof. Anand V. Patwardhan
	Research Fellows	Mr. Ketan S. Kulkarni
13	Sponsor	Unilever
	Title	Modelling of Kinetics of Tea Infusion
	Duration	2016 – 2019
	Total amount	30.2 Lakhs
	Principal Investigator	Prof.A.W.Patwardhan
	Research Fellows	Geeta Yadav, Pallavee Dhekne, Durgesh Jha
14	Sponsor	Konark Industries, Gujarat Chlor Alkali Ltd., Marvel Drugs, Kesar Petro products, Godavari Biorefineries Ltd, Indo Amines Ltd.
	Title	- Extraction of curcumin from turmeric
		- Synthesis and characterization of catalysts, Standardization of separation methods using synthetic mixture
		- Synthesis of intermediates for pharmaceutical application
		- Synthesis of chemical by ammoxidation and optimization study
		- Development of economical process for FDCA
		- Conversion of alcohols to amines
	Duration	
	Total amount	
	Principal Investigator	Prof V.K Rathod

	Research Fellows	Sujata Patil, Paresh Kamble, Manjeshwari Sonar, Govind Waghmare, Dilipkumar Harijan
15	Sponsor	Mangalam Organics Ltd.
	Title	Improved processing of camphor, terpenes and resins
	Duration	3 years (2017-2020)
	Total amount	Rs.15 Lacs
	Principal Investigator	Dr.P.R.Gogate
	Research Fellows	Sinhmar Pankaj
16	Sponsor	Konark industries
	Title	Recycle and Reuse of membrane in waste water treatment
	Duration	3 years
	Total amount	
	Principal Investigator	Mrs.K.V. Marathe
	Research Fellows	Hrushikesh Patil (Ph.D Tech in Chemical Engineering)
17	Sponsor	Atul Ltd.
	Title	p-Hydroxy benzaldehyde production from p-cresol -A study on reaction kinetics
	Duration	2016
	Total amount	Rs. 11,50,000/-
	Principal Investigator	Dr. P. D. Vaidya
	Research Fellows	
18	Sponsor	Rajiv Gandhi Science and Technology Commission
	Title	Preclinical Evaluation of Full Thickness Wound Healing Using Starch Based Artificial Skin Substitute in Rat Model
	Duration	07/18-07/20
	Total amount	Rs.14,00,000/-
	Principal Investigator	
	Research Fellows	
19	Sponsor	Akseera Pharma, Canada
	Title	New Formulations from Cannabis sp
	Duration	07/18-07/20
	Total amount	Rs.22,85,625/-
	Principal Investigator	Dr. Ratnesh Jain
	Research Fellows	
20	Sponsor	Bajaj Healthcare Mumbai and AUA General,UAE
	Title	Chemo-Enzymatic Synthesis of Anti-infectives
	Duration	04/15-03/18
	Total amount	Rs.1,28,76,432
	Principal Investigator	Dr. Ratnesh Jain
	Research Fellows	

21	Sponsor	FMC, Bengaluru
	Title	Quantification of Coating Material on Excipients
	Duration	05/16-05/17
	Total amount	Rs.1,97,856/-
	Principal Investigator	Dr. Ratnesh Jain
	Research Fellows	
22	Sponsor	FamyCare, Mumbai
	Title	Characterization of Pharmaceutical Excipients
	Duration	03/14-04/17
	Total amount	Rs.3,63,951/-
	Principal Investigator	Dr. Ratnesh Jain
	Research Fellows	
23	Sponsor	Anya Biopharma, Taiwan
	Title	Activity Reduction of Peptidase Enzymes by various Metal Ion-Reducing agent combination
	Duration	03/17-07/18
	Total amount	56,06,600 (82,450 USD)
	Principal Investigator	Dr. Ratnesh Jain
	Research Fellows	Saurabh Patil, Ashish Pandit, Kritika Gupta
24	Sponsor	Wockhardt, Aurangabad
	Title	Interaction of API and Excipient
	Duration	02/17-06/17
	Total amount	Rs. 91,080/-
	Principal Investigator	Dr. Ratnesh Jain
	Research Fellows	
25	Sponsor	Stelis Biopharma,Bengaluru
	Title	Structural Characterization of Recombinant Protein
	Duration	06/18-10/18
	Total amount	Rs.10,95,447/-
	Principal Investigator	Dr. Ratnesh Jain
	Research Fellows	Marianne Saldanha, Amita Puranik
26	Sponsor	SA Pharmachem, Mumbai
	Title	Evaluation New Probiotic COmpositions
	Duration	02/18-10/18
	Total amount	Rs.31,09,300
	Principal Investigator	Dr. Ratnesh Jain
	Research Fellows	Devashree Jahagirdar

27	Sponsor	Himedia Lab,Mumbai
	Title	To study the effect of increasing the enzyme concentration upon the reaction rate
	Duration	05/17-10/18
	Total amount	Rs.4,42,875/-
	Principal Investigator	Dr. Ratnesh Jain
	Research Fellows	
28	Sponsor	Hetero Biopharma, Hyderabad
	Title	Characterization of aggregates MW related variants generated in mAb by SV-AUC
	Duration	07/17-02/18
	Total amount	Rs.3,02,500/-
	Principal Investigator	Dr. Ratnesh Jain
	Research Fellows	Marianne Saldanha
29	Sponsor	Biocon, Malaysia
	Title	HMWP Characterization of Insulin Products
	Duration	07/17-07/19
	Total amount	Rs. 41,02,780/-
	(60,335USD)	
	Principal Investigator	Dr. Ratnesh Jain
	Research Fellows	Mruganka Parasnis(JRF)
30	Sponsor	BIRAC- Bill and Melinda Gates Foundation
	Title	Hygienic water free toilet
	Duration	3 years
	Total amount	Rs.21,22,000/-
	Principal Investigator	Dr.P. R. Nemade
	Research Fellows	-
31	Sponsor	United Phosphorous Limited
	Title	
	Duration	2016-2020 (4 years)
	Total amount	Rs. 26 Lakhs
	Principal Investigator	Dr. C.S. Mathpati
	Research Fellows	Prachi Dwidmuthe
32	Sponsor	Technoforce
	Title	Technoforce
	Duration	2013-2017
	Total amount	Rs. 26 Lakhs
	Principal Investigator	Prof. J. B. Joshi
	Research Fellows	AchyutPakhre

33	Sponsor	Technoforce
	Title	Technoforce
	Duration	2013-2017
	Total amount	Rs. 26 Lakhs
	Principal Investigator	Prof. J. B. Joshi
	Research Fellows	GhanshyamBhosle
34	Sponsor	United Phosphorous Limited
	Title	United Phosphorous Limited
	Duration	2016-2020 (4 years)
	Total amount	Rs. 26 Lakhs
	Principal Investigator	Prof. J. B. Joshi
	Research Fellows	Prachi Dwidmuthe
35	Sponsor	PM Fellow
	Title	PM-Fellow (Company Sponsor- United Phosphorous Limited)
	Duration	4 years
	Total amount	Rs. 26 Lakhs
	Principal Investigator	Prof. J. B. Joshi
	Research Fellows	Mahesh (IIT Bombay)
36	Sponsor	GACL, Baroda
	Title	Hydroxylation of phenol.
	Duration	1 year
	Total amount	Rs 30 Lakhs + Tax
	Principal Investigator	Prof.M. Lakshmi Kantam, Prof.G.D. Yadav and Prof.V. K. Rathod
	Research Fellows	2
37	Sponsor	VOL, Mumbai
	Title	Lab scale synthesis of fine and bulk chemicals
	Duration	1 Year
	Total amount	Rs. 6 Lakhs + Tax
	Principal Investigator	Prof.M. Lakshmi Kantam
	Research Fellows	1
38	Sponsor	Marvel Drugs, Mumbai
	Title	Development of economical processes for Important organic Intermediates
	Duration	1 Year
	Total amount	Rs. 8 Lakhs + Tax
	Principal Investigator	Prof.M. Lakshmi Kantam, Prof.V. K. Rathod
	Research Fellows	1

39	Sponsor	Kesar Petro products, Mumbai
	Title	Phthalonitrile
	Duration	1 Year
	Total amount	Rs. 13.6 Lakhs + Tax
	Principal Investigator	Prof.M. Lakshmi Kantam, Prof.V. K. Rathod
	Research Fellows	1
40	Sponsor	Mangalam Organics, Mumbai
	Title	Synthesis of terpene derivatives
	Duration	1 Year
	Total amount	Rs. 15 Lakhs + Tax
	Principal Investigator	Prof.M. Lakshmi Kantam, Prof.V. K. Rathod
	Research Fellows	1
41	Sponsor	GBL, Mumbai
	Title	Syntheis of FDCA
	Duration	1 Year
	Total amount	Rs. 15.7 Lakhs + Tax
	Principal Investigator	Prof.M. Lakshmi Kantam, Prof.V. K. Rathod
	Research Fellows	1

DETAILS OF NATIONAL AND INTERNATIONAL COLLABORATIONS

- Chemical Engineering Department, NIT, Warangal
- Chemical Engineering Department, AISSMS College of Engineering, Pune
- Chemical Engineering Department, LIT, Nagpur
- University of West Hungary, Hungary
- University of Minho, Portugal
- University of Sao Paulo, Brazil
- Have collaborated with CSMCRI, Bhavnagar, BARC, Mumbai, C-MET Hyderabad and IIT Bombay on a project related to detection of fluoride, uranium and arsenic in commercial phosphate fertilizers
- University of Newcastle, Australia
- Tata Institute of Fundamental Research, Mumbai
- Louisiana State University, Baton Rouge, USA
- Curtin University, Australia
- RMIT university Australia
- Nanoxpert Technologies, Mumbai,India
- National Institute of Research in Reproductive Health
- Foundation of Medical Research
- Department of Chemical Engineering, IIT-Bombay

PUBLICATIONS:

No.	Title and authors	Journal	Vol. No.	Pages	Year
1	Bromelain loading and release from a hydrogel formulated using alginate and Arabic gum J.A. Ataide, L. C. Cefali, M. de Araujo Robelo, L. G. Spir, E. B. Tambourgi, B. N. Thorat	Planta medica	83(10)	870-876	2017
2	Turbo-extraction of glycosides from Stevia rebaudiana using a fractional factorial design P. M. Martins, A. D. Lanchote, B. N. Thorat, L.A.P. Freitas	Revista Brasileira de Farmacognosia	27(4)	510-518	2017
3	Microbial and biochemical analysis of dried fish and comparative study using different drying methods N. Nagwekar, V. Tidke, B. N. Thorat	Drying Technology	35(12)	1481-1491	2017
4	Effect of polar head surfactants on the demulsification of crude oil - Vaibhav Kedar, Sunil S. Bhagwat	Petroleum Science and Technology	36	91-98	2018
5	Novel Ester-linked Anionic Gemini Surfactant: Synthesis, Surface-Active Properties and Antimicrobial Study - Manisha B.Ahire, Sunil S.Bhagwat	Journal of Surfactants and Detergents	20	789–797	2017
6	Effect of salinity on the IFT between aqueous surfactant solution and crude oil - Vaibhav Kedar, Sunil S. Bhagwat	Petroleum Science and Technology	36	835-842	2018
7	Solvent Free Synthesis, Characterization and Evaluation of Dimethylaminopropylamine based Double Tailed Amidoamine Cationic Surfactant - Kumudini Aher , Sunil S. Bhagwat	Journal of Surface Science and Technology			
8	Clouding Behaviour of Polysorbate 80: Effect of Additives -Shobha Desai, Sunil S. Bhagwat	Tenside Surfactants Detergents	55	93-95	2018

9	Optimization of cooling load in the combined vapour absorption–vapour compression refrigeration cycle using exergy analysis -Kalpana Mahalle, Pallavi Parab, Sunil S. Bhagwat	Indian Chemical Engineer			
10	Phytosynthesis of Silver Nanoparticles Using Walnut (Juglans regia) Bark with Characterization of the Antibacterial Activity against Streptococcus mutans Thakur, NirmlaDevi; Gaikar, Vilas G; Sen, Debasis; Mazumder, Subhasish; Pandita, Nancy S;	Analytical Letters	50	690-711	2017
11	Continuous cane sugar inversion process using immobilized invertase Koli, Aditya C; Gaikar, Vilas G;	Journal of Chemical Technology & Biotechnology	92	787-792	2017
12	Optimization of Continuous Synthesis of Crossâ€ Linked Chitosan Nanoparticles Using Microreactors Rathi, Noopur; Gaikar, Vilas G;	Chemical Engineering & Technology	40	506-513	2017
13	Steam pyrolysis of tetrabutyldi-glycolamide: Part-II: Reaction network kinetic modelling Thaore, Vaishali B; Dicholkar, Deepak D; Gaikar, Vilas G;	Journal of Analytical and Applied Pyrolysis	123	173-183	2017
14	Extraction of cadmium by TODGAâ€“dodecane and TBPâ€“dodecane: A comparative study by MD simulation Singh, Meena B; Mukhtyar, Ankita J; Bootwala, Yousuf Z; Gaikar, Vilas G;	Separation Science and Technology	52	1172-1185	2017
15	Insight into acidity driven third phase formation of TBP in organic solutions by MD simulation Singh, Meena B; Nayak, Sonal G; Kanthe, Ankit D; Patil, Rituja B; Gaikar, Vilas G;	Journal of Molecular Liquids	232		2017

16	Steam pyrolysis of N, N, Nâ€™, Nâ€™â€“Tetrabutyl diglycolamide (TBDGA) part-I: Experimental investigations Dicholkar, Deepak D; Gaikar, Vilas G; Kumar, Shekhar; Natarajan, R;	Journal of Analytical and Applied Pyrolysis	126	132-142	2017
17	Preparation of ZnO nanoribbonâ€“MWCNT composite film and its application as antimicrobial bandage, antibacterial filter and thermal IR camouflage material Upasani, Prasad; Sreekumar, TV; Gaikar, VG; Jha, Neetu;	Bulletin of Materials Science	40	865-876	2017
18	Preparation of Z n O/MWCNT/PP composite film and its application as multifunctional protective film Upasani, Prasad; Sreekumar, TV; Gaikar, VG; Jha, Neetu;	Polymer Composites	39	157-170	2018
19	Correlating vapour-liquid equilibria of binary HI+ H2O mixtures using Pitzerâ€™s model of electrolyte solutions Sampat, Chaitanya; Joshi, Amogh; Mohan, Sadhana; Gaikar, Vilas G;	Separation and Purification Technology	195	431-436	2018
20	Process intensification of continuous flow synthesis of tryptophol Dubhashe, Yogeshwar R; Sawant, Vishal M; Gaikar, Vilas G;	Industrial & Engineering Chemistry Research	57	2787-2796	2018
21	Insight into nitric acid extraction and aggregation of N, N, Nâ€™, Nâ€™-Tetraoctyl diglycolamide (TODGA) in organic solutions by molecular dynamics simulation Singh, Meena B; Patil, Suneha R; Lohi, Aishwarya A; Gaikar, Vilas G;	Separation Science and Technology	53	1361-1371	2018
22	Photocatalytic reduction of CO2 using CdS nanorods on porous anodic alumina support Kandy, Mufeedah Muringa; Gaikar, Vilas Gajanan;	Materials Research Bulletin	102	440-449	2018

23	Molecular dynamics simulation for desulphurization of hydrocarbon fuel using ionic liquids Singh, Meena B; Harmalkar, Ameya U; Prabhu, Saina S; Pai, Neha R; Bhangde, Shashank K; Gaikar, Vilas G;	Journal of Molecular Liquids	264	490-498	2018
24	Interfacial Behaviour of Substituted Dibenzothiophenes for their Extraction in Biphasic Dodecane-Ionic liquid Systems Singh, Meena B; Chheda, Saumil P; Reddy, Revathi D; Haria, Labdhi K; Vaidya, Sonali M; Gaikar, Vilas G;	Chemical Physics			2018
25	Crystallization of Curcumin and Cinnamic Acid from Aqueous Solutions of Hydrotropes Rathi, Noopur; Gaikar, Vilas G;	Journal of Crystallization Process and Technology	8	37	2018
26	Pilot scale flat panel photobioreactor system for mass production of Ulva lactuca (Chlorophyta) Mhatre, A., Navale, M., Trivedi, N., Pandit, R., & Lali, A. M.	Bioresource technology	249	582-591	2018
27	Modulation in light utilization by a microalga Asteracys sp. under mixotrophic growth regimes Agarwal, A., Patil, S., Gharat, K., Pandit, R. A., & Lali, A. M..	Photosynthesis research		1-15	2018
28	Influence of nitrogen source on photochemistry and antenna size of the photosystems in marine green macroalgae, Ulva lactuca Mhatre, A., Patil, S., Agarwal, A., Pandit, R., & Lali, A. M	Photosynthesis research		1-13	2018
29	Synthesis of designer triglycerides by enzymatic acidolysis Monali Kavadia, Manish Yadav, Annamma Odaneth, Arvind Lali	Biotechnology Reports			2018
30	Computational and experimental studies of high depth algal raceway pond photo-bioreactor Sawant, S.S., Khadamkar, H.P., Mathpati, C.S., Pandit, R., Lali, A.M.	Renewable Energy	118	152-159	2018

31	A shortened, two-enzyme pathway for 2,3-butanediol production in Escherichia col. Reshamwala, S. M., Deb, S. S., & Lali, A. M.	Journal of Industrial Microbiology & Biotechnology	44 (9)	1273-1277	2017
32	Two stage approach for microbial oil production using Yarrowialipolytica NCIM 3590. Warke, M. A., Pawar, P. P., Kothari, S. D., Odaneth, A. A., & Lali, A. M.	Advances in Biotechnology and Microbiology	5(1)	1-7	2017
33	SGNH hydrolase-type esterase domain containing Cbes-AcXE2: a novel and thermostable acetyl xylan esterase from Caldicellulosiruptorbescii. Extremophiles Soni, S., Sathe, S. S., Odaneth, A. A., Lali, A. M., &Chandrayan, S. K.		21(4)	687-697	2017
34	Heterologous expression and biochemical studies of a thermostable glucose tolerant β-glucosidase from Methylococcuscapsulatus (bath strain) Sathe, S. S., Soni, S., Ranvir, V. P., Choudhari, V. G., Odaneth, A. A., Lali, A. M., &Chandrayan, S. K.	International Journal of Biological Macromolecules	102	805-812	2017
35	Growth engineering of Propionibacterium freudenreichiishermanii for organic acids and other value-added products formation Pillai, V. V., Prakash, G., & Lali, A. M.	Preparative Biochemistry and Biotechnology			2017
36	Pilot scale flat panel photobioreactor system for mass production of Ulva lactuca (Chlorophyta) Mhatre, A., Navale, M., Trivedi, N., Pandit, R., & Lali, A. M.	Bioresource Technology.			2017
37	Growth engineering of Synechococcus elongatus PCC 7942 for mixotrophy under natural light conditions for improved feedstock production Sarnaik, A., Pandit, R., & Lali, A. M.	Biotechnology Progress	33(5)	1182-1192	2017

38	Hydrolytic potential of cellulose from Penicillium funiculosum and Trichoderma reesie against physicochemically different feedstock Choudhari, V. G., Odaneth, A. A., & Lali, A. M.	Advances in Biotechnology and Microbiology	5(2)	1-8	2017
39	Green enzymatic production of glyceryl monoundecylenate using immobilized Candida antarctica lipase B. Yadav, M. G., Kavadia, M. R., Vadgama, R. N., Odaneth, A. A., & Lali, A. M.	Preparative Biochemistry and Biotechnology			2017
40	Production of 6-O-l-Ascorbyl Palmitate by Immobilized Candida antarctica Lipase B Yadav, M. G., Kavadia, M. R., Vadgama, R. N., Odaneth, A. A., & Lali, A. M.	Applied Biochemistry and Biotechnology			2017
41	Two - way dynamics in β-glucosidase catalysis Sawant, S., Birhade, S., Anil, A., Gilbert, H., &Lali,	Journal of Molecular Catalysis B Enzyme	133	161-166	2017
42	Production of Glyceryl Monostearate by Immobilized Candida Antarctica B Lipase in Organic Media Kavadia, M., Yadav, M., Odaneth, A. A., Lali, A. M	Journal of Applied Biotechnology & Bioengineering	2(3)		2017
43	Diversity of Ulvan and Cellulose Depolymerizing Bacteria Associated With the Green Macroalgae Ulva Spp Rodriguez, V., L, O., SA, H., &Odaneth	Journal of Applied Biotechnology & Bioengineering	2(4)		2017
44	Controlled Protein Hydrolysis with Immobilized Alkaline Endo-Protease Vaze, R., Odaneth, A., & Lali, A..	Journal of Applied Biotechnology & Bioengineering	2(2)		2017
45	Preparation of cellulase concoction using differential adsorption phenomenon Birhade, S., Pednekar, M., Sagwal, S., Odaneth, A., &Lali, A.	Preparative Biochemistry and Biotechnology	47(5)	520-529	2017

46	Influence of cellulase cocktails favouring hydrolysis of cellulose Victoria, J., Odaneth, A., & Lali,	Preparative Biochemistry and Biotechnology	47(6)	547-553	2017
47	Growth engineering of Synechococcus elongatus PCC 7942 for mixotrophy under natural light conditions for improved feedstock production Sarnaik, A., Pandit, R., &Lali, A. M.	Biotechnology Progress	33(5)	1182-1192	2017
48	Improved lipid productivity of Chlorella Saccharophila with urea and acclimated stress under natural light for biofuels Gaikwad, S., Pandit, R., & Lali, A.M.	Journal of International Academic Research for Multidisciplinary	5(1)		2017
49	Photosynthetic acclimation of Chlorella saccharophila to heat stress Patil, S., Pandit, R., & Lali, A.M.	Phycological Research	65(2)	160-165	2017
50	Responses of algae to high light exposure: prerequisite for species selection for outdoor cultivation Patil, S., Pandit, R., & Lali, A.M.	Journal of Algal Biomass Utilization	8(1)	75-83	2017
51	A review on heterogeneous sonocatalyst for treatment of organic pollutants in aqueous phase based on catalytic mechanism Qiu P., Park B., Choi J., Thokchom B., Pandit A.B., Khim J.	Ultrasonics Sonochemistry	45	29-49	2018
52	Kinetic Modelling of Hydrogenation of Cardanol over Pd/C Catalyst Patil B.R., Bari A.H., Pinjari D.V., Pandit A.B.	Indian Chemical Engineer	60	88-103	2018
53	Light-weight thermal insulating fly ash cenosphere ceramics Urunkar Y., Pandit A., Bhargava P., Joshi J., Mathpati C., Vasanthakumaran S., Jain D., Hussain Z., Patel S., More V.	International Journal of Applied Ceramic Technology			2018
54	Effect of pH on sonication assisted synthesis of ZnO nanostructures: Process details Pandit A.B., Badnore A.U.	Chemical Engineering and Processing: Process Intensification	122	235-244	2017

55	Solar-Assisted synthesis of ZnO nanoparticles using lime juice: A green approach Hinge S.P., Pandit A.B.	Advances in Natural Sciences: Nanoscience and Nanotechnology	8		2017
56	Kinetics of cooking of unsoaked and presoaked split peas (Cajanus cajan) Shinde Y.H., Amogha V., Pandit A.B., Joshi J.B.	Journal of Food Process Engineering	40		2017
57	Image analysis based validation and kinetic parameter estimation of rice cooking Amogha V., Shinde Y.H., Pandit A.B., Joshi J.B.	Journal of Food Process Engineering	40		2017
58	Sonochemical effect induced by hydrodynamic cavitation: Comparison of venturi/orifice flow geometries Pawar S.K., Mahulkar A.V., Pandit A.B., Roy K., Moholkar V.S.	AIChE Journal	63	4705-4716	2017
59	Hydrodynamic cavitation: An emerging technology for the intensification of various chemical and physical processes in a chemical process industry Carpenter J., Badve M., Rajoriya S., George S., Saharan V.K., Pandit A.B.	Reviews in Chemical Engineering	33	433-468	2017
60	Sustained release formulations of citronella oil nanoemulsion using cavitational techniques Agrawal N., Maddikeri G.L., Pandit A.B.	Ultrasonics Sonochemistry	36	367-374	2017
61	Sono-crystallization kinetics of K2SO4: Estimation of nucleation, growth, breakage and agglomeration kinetics Bari A.H., Chawla A., Pandit A.B.	Ultrasonics Sonochemistry	35	196-203	2017
62	A novel approach for continuous synthesis of calcium carbonate using sequential operation of two sonochemical reactors Shirsath S.R., Bhanvase B.A., Sonawane S.H., Gogate P.R., Pandit A.B.	Ultrasonics Sonochemistry	35	124-133	2017

63	Mineralization of alkyd resin wastewater: Feasibility of different advanced oxidation processes Kausley S.B., Desai K.S., Shrivastava S., Shah P.R., Patil B.R., Pandit A.B.	Journal of Environmental Chemical Engineering			2017
64	Modeling the effect of carbon-dioxide gas on cavitation Gireesan S., Pandit A.B.	Ultrasonics Sonochemistry	34	721-728	2017
65	Bubble size distribution Dodd P.W., Pandit A.B., Davidson J.F.				2017
66	Cavitation damage: Theory and measurements – A review Sreedhar B.K., Albert S.K., Pandit A.B.	Wear	372-373	177-196	2017
67	Green approach for the synthesis of chalcone (3-(4-fluorophenyl)-1-(4-methoxyphenyl) prop-2-en-1-one) using concentrated solar radiation Jadhav N.L., Pandit A.B., Pinjari D.V.	Solar Energy	147	232-239	2017
68	Synthesis and characterization of a low cost flat membrane support. Shweta Kumbhaj, Ketan S. Kulkani, Anand V. Patwardhan*	International J. of Engineering Technology Science & Research	4	427-440	August 2017
69	Ultrasound-assisted chemoenzymatic epoxidation of soybean oil by using lipase as biocatalyst. Machhindra S. Bhalerao, Vaishali M. Kulkarni, Anand V. Patwardhan*	Ultrasonics - Sonochemistry	40	912-920	September 2017
70	Studies in Solvent Extraction and Supported Liquid Membrane for Platinum Recovery from Chloride Media by Tris 2 ethylhexyl Phosphate. Shweta Kumbhaj, Vandana Prabhu, Anand V. Patwardhan*	Indian Chemical Engineer			Published on-line: 27 November 2017

71	A different approach to augment pigment production and its extraction from Kocuria flava by using ultrasound technique. Vaishali M. Kulkarni, Anand S. Dixit, Anand V. Patwardhan*, Arjun Singh Bajwa	Journal of Biologically Active Products from Nature	8	34-42	Published on-line: 13 March 2018
72	Carboxylic acids separation using hollow fiber supported liquid membranes Patil N. D., Patwardhan A. W.*, Patwardhan A. V.	Ind. J. Chem. Tech.	24	20 – 31	2017
73	Few Layered Graphene by Floating Catalyst Chemical Vapor Deposition and its Extraordinary H2O2 Sensing Property Manishkumar D. Yadav, Kinshuk Dasgupta, Aayushi Kushwaha, Amit P. Srivastava, Ashwin W. Patwardhan, Dinesh Srivastava, Jyeshtharaj B Joshi*	Mat. Lett.	199	180 – 183	2017
74	Process for purification of 3-hydroxy-2-naphthoic acid by selective extraction of 2-naphthol impurity with tributyl phosphate using supported liquid membrane Bapat D. U., Patwardhan A. W.*	Chem. Eng. Res. Des.	123	317 – 332	2017
75	In-situ nitrogen doping in carbon nanotubes using a fluidized bed reactor and hydrogen storage behavior of the doped nanotubes Sharma A., Dasgupta K., Banerjee S., Patwardhan A. W., Srivastava D., Joshi J. B.*	Int. J. Hyd. Energy	42	10047 – 10056	2017
76	Swelling and infusion of tea in tea bags Yadav G. U., Joshi B. S., Patwardhan A. W.*, Singh G.	J. Food Sci. Tech.	54	2474 – 2484	2017
77	Kinetic Study of Nitrogen doped Carbon Nanotube in a Fixed Bed Anita G Sharma; Ashwin W Patwardhan; Kinshuk Dasgupta, Jyeshtharaj B Joshi*	Chem. Eng. Sci.	170	756–766	2017
78	Modeling G-L-L-S Reactor: A Case of Hydrogenation of Nitrobenzene Sharma D., Patwardhan A. W., Ranade V. V.*	Ind. Eng. Chem. Res.,	56	1404 –1415	2017

79	Estimation of Gas Induction in Jet Loop Reactors: Influence of Nozzle Designs Sharma D., Patwardhan A. W., Ranade V. V.*	Chem. Eng. Res. Des.	125	24–34	2017
80	Comparison of Phase Interaction Models for High Pressure Subcooled Boiling Flow in Long Vertical Tubes Mali C. R., Vinod V., Patwardhan A. W.*	Nuclear Eng. Des.	324	337 – 359	2017
81	Modeling Tea Infusion Kinetics incorporating Swelling Kinetics Farakte R. A., Yadav G. U., Patwardhan A. W.*, Singh G.	Int. J. Food. Eng.	13	20160206	2017
82	High performance fibers from carbon nanotubes: synthesis, characterization and applications in composites - A Review Yadav M., Dasgupta , K., Patwardhan, A. W., Joshi J. B.*	Ind. Eng. Chem. Res.	56	12407 – 12437	2017
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213	Study on the Kinetics of Catalytic Hydrogenation of U(VI) in Nitric Acid Solution Using a Bubble Reactor Pandey, N.K., Reddy, R., Mishra, S., Murali, R., Joshi, J.B.	Industrial and Engineering Chemistry Research	57	3482-3488	2018
214	Chemical hydrodynamics of a downward microbubble flow for intensification of gas-fed bioreactors Ansari, M., Turney, D.E., Yakobov, R., (...), Banerjee, S., Joshi, J.B.	AIChE Journal	64	1399-1411	2018
215	Comparison of void fraction measurements using different techniques in two-phase flow bubble column reactors Hernandez-Alvarado, F., Kleinbart, S., Kalaga, D.V., (...), Joshi, J.B., Kawaji, M.	International Journal of Multiphase Flow	102	119-129	2018
216	Experimental study of bubble departure characteristics in forced convective subcooled nucleate boiling Goel, P., Nayak, A.K., Ghosh, P., Joshi, J.B.	Experimental Heat Transfer	31	194-218	2018
217	Air Water Loop for investigation of flow dynamics in a steam drum: Carryover experiments and CFD simulation Bagul, R.K., Pilkhwal, D.S., Vijayan, P.K., Joshi, J.B.	Nuclear Engineering and Design	333	145-160	2018
218	Reform of the drift-flux model of multiphase flow in pipes, wellbores, and reactor vessels Turney, D.E., Kalaga, D.V., Ansari, M., Yakobov, R., Joshi, J.B.	Chemical Engineering Science	184	251-258	2018
219	Modulation of turbulent flow field in an oscillating grid system owing to single bubble rise Hoque, M.M., Mitra, S., Evans, G.M., Sathe, M.J., Joshi, J.B.	Chemical Engineering Science	185	26-49	2018

220	Experimental study and CFD simulation of the multiphase flow conditions encountered in a Novel Down-flow bubble column Mutharasu, L.C., Kalaga, D.V., Sathe, M., (...), Nandakumar, K., Joshi, J.B.	Chemical Engineering Journal	350	507-522	2018
221	Effect of bubble on the pressure spectra of oscillating grid turbulent flow at low Taylor-Reynolds number Hoque, M.M., Mitra, S., Evans, G.M., Pareek, V., Joshi, J.B.	Chemical Engineering Science	190	28-39	2018
222	Corrigendum to "Interactions in droplet and particle system of near unity size ratio" Mitra, S., Evans, G.M., Doroodchi, E., Pareek, V., Joshi, J.B.	Chemical Engineering Science	170	154–17	2017
223	Direct Synthesis of Amides from Oxidative Coupling of Benzyl Alcohols or Benzylamines with N-Substituted Formamides Using a Cu-Fe-Based Heterogeneous Catalyst ShyamSunder R. Gupta, Akhil V. Nakhate, Gunjan P. Deshmukh, Selvakannan Periasamy, Priya S. Samudrala, Prof. Suresh K. Bhargava and Prof. Mannepalli Lakshmi Kantam	Chemistry Select (in press)			2018
224	Catalysis Today Special Issue: Catalysis for Sustainable Development, Peace and Prosperity Preface Yadav, Ganapati D.; Kantam, Mannepalli Lakshmi; Bhanage, Bhalachandra M.	Catalysis Today	309	1	2018
225	Selective hydrogenation of levulinic acid into γ-valerolactone over Cu/Ni hydrotalcite-derived catalyst Gupta, S.S.R., and M.Lakshmi Kantam	Catalysis Today, 309, 189	309	189	2018

226	Shape-selective synthesis of gold nanoparticles and their catalytic activity towards reduction of p-nitroaniline Shyam Sunder R.GuptaMannepalli LakshmiKantamBhalchandra M.Bhanage	Nano-Structures & Nano-Objects	14	125-130	2018
227	Oxidative coupling of carboxylic acids using transition metal hydrotalcite derived oxides S.Shanthi Priya, Shyam Suder R. Gupta, Akhil V. Nakhate, Kalidas B. Rasal, Gunjan P. Deshmukh, Chandrakanth Gadipelly, T.Srinivas, Deepa K.Dumbre, Selvakannan Periasamy, K.V.R.Chary, S.K.Bhargava and M.Lakshmi Kantam	Applied Catalysis B: Environmental, (In Press)			2018
228	Oxidative amidation of benzaldehydes and benzylamines with N-substituted formamides overa Co/Al hydrotalcite-derived catalyst Shyam Suder R. Gupta, Akhil V. Nakhate, Kalidas B. Rasal, Gunjan P. Deshmukh and M.Lakshmi Kantam	New Journal of Chemistry,	41	15268	2017
229	Advances in Catalysis for Sustainable Development Special Issue G.D.Yadav and M.Lakshmi Kantam	ACS Sustainable Chemistry & Engineering	5	3597	2017
230	Synthesis of quinoxaline derivatives from terminal alkynes and o-phenylenediamines by using copper alumina Akhil V. Nakhate,Kalidas B. Rasal, Gunjan P. Deshmukh, Shyam Suder R. Gupta, and M.Lakshmi Kantam	Journal Of Chemical Sciences	126,2	309	2017

231	Solvent-free microwave-assisted synthesis of solketal from glycerol using transition metal ions promoted mordenite solid acid catalysts Priya, Samudrala Shanthi; Selvakannan, P. R.; Chary, Komandur V. R.; M.Lakshmi Kantam.;S.Bhargava	Molecular Catalysis	434	184	2017
232	An expedient microwave assisted regio- and stereoselective synthesis of spiroquinoxaline pyrrolizine derivatives and their AChE inhibitory activity Adinarayana Murthy Akondi, Sowmya Mekala, Mannepalli Lakshmi Kantam, Rajiv Trivedi, L. Raju Chowhan and Amitava Das	New Journal of Chemistry	41,2	873-878	2017
233	Advances in Catalysis for Sustainable Development Special Issue	ACS Sustainable Chemistry & Engineering	5	3597-3597	2017
234	Solvent-free microwave-assisted synthesis of solketal from glycerol using transition metal ions promoted mordenite solid acid catalysts Priya, Samudrala Shanthi; Selvakannan, P. R.; Chary, Komandur V. R.; et al.	Molecular Catalysis	434	184-193	2017
235	An expedient microwave assisted regio- and stereoselective synthesis of spiroquinoxaline pyrrolizine derivatives and their AChE inhibitory activity	New Journal of Chemistry	41	873-878	2017

PATENTS :

No.	Inventors	Title	Country	Funding agency
1	Thorat B. N. and Chokashi K. P	Haemostatic BioSponge	India	RGCST
2	Thorat B.N., Tidke V.B. and Kokate S.R.	Solar Dryer with control Radiation	India	Bill Melinda Gate Foundation
3	Thorat B.N., Tidke V.B. and Kokate S.R.	Turmeric Processing	India	Bill Melinda Gate Foundation
4	Thorat B.N., Tidke V.B. and Kokate S.R.	Solar Dryer with control Radiation	PCT/ International	Bill Melinda Gate Foundation
5	Lali Arvind Mallinath; Pawar Hitesh Suresh	Process for synthesis of furan derivatives from saccharides using acid catalyst and preparation thereof	Patent No.: US 15/038,416; Issued notice of allowance, 2018	
6	Lali Arvind Mallinath; Odaneth Annamma Anil; Birhade Sachinkumar Hiraman; Victoria Juliet Joanna; Sawant Sneha Chandrakant	A process for production of soluble sugars from biomass	Patent No.: ZA2016/05597	
			Patent No.: 15706524.4; Issued notice of allowance, 2018	
			Patent No.: SG11201605855T; 2018	
			Patent No.: AU2015207338; 2018	
			Patent No.: US9862980; 2018	
7	Lali Arvind Mallinath; Odaneth Annamma Anil; PednekarMukesh Prabhakar	Process for fractionation of oligosaccharides from agri-waste	Patent No.: AU2015207336; Issued notice of allowance, 2018	
			Patent No.: EP15706523.6; Issued notice of allowance, 2018	
			Patent No.: US 15/112,095; Issued notice of allowance, 2018	
			Patent No.: SG11201605857Y; 2017	
8	Lali Arvind Mallinath; Odaneth Annamma Anil; Vadgama Rajesh; WarkeMrunal; Bhat Anuradha	Enzymatic process for fat and oil hydrolysis	Patent Application No. MX/a/2014/009145, Issued notice of allowance, 2017	
			Patent No.:CN2017070700140930; 2017	
			Patent No.: AU2013213921; 2017	
			Patent No.:JP2014-553823; 2017	

9	Lali Arvind Mallinath; Odaneth Annamma Anil; Nagwekar Pooja Devidas; Varavadekar Jayesh Suman; Wadekar Prathamesh Chandrashekher; Gujarathi Swapnali Subhash; Valte Rajeshwar Dattatraya; Birhade Sachinkumar Hiraman	Method for production of fermentable sugars from biomass	Patent No.: AR076925B1; 2018 Patent No.: KR10-2011-7030914, Issued notice of allowance, 2017 Patent No.: CA2763588; Issued notice of allowance, 2017
10	Lali Arvind Mallinath; Pandit Reena; Sarnaik Aditya	Method for enhanced bio-production of zeaxanthin	Indian Application No.:201821002293; PCT Application No.: PCT/ IN2018/050189
11	Lali Arvind Mallinath; Odaneth Annamma Anil; Pawar Pratik Prashant; Chourasia Vallari Ramesh	A method for producing microbial oil from lignin or lignin hydrolysate using oleaginous yeasts	Indian Application No.:201721027460
12	Deb Shalini Subir; ReshamwalaShamlan Mohammed Shafi; Lali Arvind Mallinath	Ammonia assimilation by recombinant microorganism	Indian Application No.: 201721023070
13	Lali Arvind Mallinath;Odaneth Annamma Anil; PawarPratik Prashant; WarkeMrunal Anil; Vadgama Rajeshkumar Natwarlal; Chourasia, Vallari Ramesh	Extractive production of microbial oil using oleaginous yeasts	Indian Application No.: 201721013545 PCT Application No.: PCT/ IN2018/050225
14	Lali Arvind Mallinath; Pandit Reena; Sarnaik Aditya; Rai Peeyush Shekhar	Genetically modified microorganism and process for production of zeaxanthin therefrom	Indian Application No.: 201721011982 PCT Application No.: PCT/ IN2018/050189
15	Lali Arvind Mallinath; Pawar Hitesh Suresh	Process for treating liquid industrial effluents to produce clean water and recovering pollutants for value addition	Indian Application Number: 201721002215 PCT Application No.: PCT/ IN2018/050034

16	Lali Arvind Mallinath; Sharma Manju; Pawar Hitesh Suresh; Gore Suhas	A process for generation of biogas from organic matter via its liquefaction to biocrude	Indian Application Number: 201621030327 PCT Application No.: PCT/ IN2017/050385	
17	Lali Arvind Mallinath; Odaneth Annamma Anil; Victoria Juliet Joanna; Choudhari Vikram Gunvant; Mahadik Chinmayee Ramray; Sawant Sneha Chandrakant; Khairat Mayur Basavraj; Birhade Sachinkumar Hiraman	Rapid enzymatic hydrolysis process for production of fermentable sugars	Indian Application Number: 201621030093 PCT Application No.: PCT/ IN2017/050382	
18	Lali Arvind Mallinath; Pawar Hitesh Suresh; Shravan sreenivasan	A catalytic liquefaction (CTL) method for production of bio-crude oil using ionic liquid catalyst and preparation thereof	Indian Application Number: 201621025317 PCT Application No.: PCT/ IN2017/050303	
19	Lali Arvind Mallinath; Prakash Gunjan; Pillai Vijita V.	Continuous process for production of Vitamin B12	Indian Application Number: 201621017230 PCT Application No.:PCT/ IN2017/050190	
20	N. L. Jadhav, S. E. Karekar, A. J. Jadhav, C. R. Holkar, D. V. Pinjari, A. B. Pandit	Solar Assisted Method for Preparation of Chalcone Compound	Indian Patent Application No. 25462/MUM/2016	
21	Gore Manish Ravikiran, Dandekar Jain Prajakta, Jain Ratnesh	Microfluidic device for the development of in-vitro co-cultures of mammalian tissues	India	
22	Gore Manish Ravikiran, Dandekar Jain Prajakta, Jain Ratnesh	Microfluidic mammalian co-culture device	India	
23	Prajakta Dandekar, Ratnesh Jain, Vijay Yadav, Nikhil Kalane, Rohan Chhabra, Anomitra Dey, Tejal Pant	Kit for pyrogen detection and depyrogenati-on of water	India	

24	Prajakta Dandekar, Ratnesh Jain, Vijay Yadav	Methods for preparation of water-soluble and water-insoluble derivatives of saccharides and alkali, alkaline earth, transition and nobel metals	India	
25	Pofali Prasad Ashok, Jain Ratnesh Dharamchandra, Dandekar Jain Prajakta, Pattani Aditya Sunil	Method of manufacturing concentrated silver nanopowder	India	
26	Prajakta Dandekar, Ratnesh Jain and Vandana Patravale	Indian Trademark entitled 'NANOTARG'	India	
27	Ratnesh Jain, Prajakta Dandekar and Vandana Patravale	Polymeric Nanoparticles of Curcumin for Improved Delivery	India	
28	S. Maiti, P. Patel; C. Bhatt, B. Bharadia, M. R. Gajjar, P. S. Bapat, P. K. Ghosh	Household solar still with easy operation and maintenance and enhanced output		US Patent 9,908,790
29	J. R. Chunawala, P. K. Ghosh, M. R. Gandhi, S. H. Mehta, M. V. Sheth, D. Mondal	Double fortified salt composition containing iron and iodine and process for the preparation thereof		US Patent 9,675,098
30	R. Meena, P. K. Ghosh, D. Chejara, K. Eswaran, A. K. Siddhanta, K. Prasad, J. P. Chaudhary	Biodegradable hydrophobic composite materials and process for the preparation thereof		US Patent 9556328
31	P. K.Ghosh, S. Sharma, M. Dinda, C. R. Sharma, U. Chatterjee, V. Kulshreshtha, S. Ghosh, B. S. Makwana, S. Thampy, G. R. Desale	Process for the preparation of anion exchange membrane		US Patent 9527073
32	P. Maiti, P. K. Ghosh	Selective extraction of potassium chloride from schoenite end liquor employing tartaric acid as safe, benign and recyclable extractant		US 9,540,248 B2

33	Prof. P. K. Ghosh	Spontaneous dewatering of incoming feed with outgoing spent feed for mutual gains in solar salt and cane sugar production processes	Indian Patent Application Number 201721011893
34	Prof. P. K. Ghosh	Pneumatic pressure-driven ultrafiltration system especially suitable for rural households	Indian Patent Application Number 201721009805
35	Prof. P. K. Ghosh	A process for lowering fresh water and fresh detergent consumption in household laundry washing machine application	Indian Patent Application Number 201721009791

BOOK CHAPTER

No.	Author(s)	Title of the chapter	Editor	Publisher	Place	Year	Page
1	Priyanka Rao	Phytochemicals:An insight to modern extraction technologies and their applications	Alexdanru Mihai	Elsevier	Romania	2017	495-521
2	Nishat Khan	Biocatalysis and Its Process Intensification in the Chemical Industry	Alexdanru Mihai	Elsevier	Romania	2017	1-24
3	P.R. Gogate, A.V. Mohod	Process Intensification and parametric optimization in biodiesel synthesis using hydrodynamic cavitation reactors, Chapter in "Green Chemistry for Sustainable Biofuel Production"	Dr. G. Gude	Apple Academic Press in collaboration with CRC	203-238	2018	
4	S.M. Joshi, P.R. Gogate	Process Intensification of Biofuel Production from Microalgae, Green Energy and Technology	Jacob-Lopes E., Qeiroz Zepka L., Queiro M.	Springer, Cham	59-87	2018	

5	Vaidya, P. D.; Wu, Y. J.; Rodrigues	Kinetics of ethanol steam reforming for hydrogen production, in Ethanol: Science and Engineering (Elsevier)	Angelo Basile, Adolfo Iulianelli, Nejat T. Veziroglu			2018	
6	Rohra N,Gore M, Dyawanapelly S, Tambe M, Gautam A, Survarna M, Jain Ratnesh, Dandekar Prajakta	Emerging Trends in Nanotechnology for Diagnosis and Therapy of Lung Cancer		Nanobiotech-nology, CRC Press	Mumbai	2017	105-169
7	Dobhal A, Bangde Prachi, Dey Anomitra, Dandekar Prajakta, Jain Ratnesh	Chitosan-Based Nanoparticulate Systems: Implication Towards Therapeutics Application		Particulate Technology for Delivery of Therapeutics, Springer, Singapore	Mumbai	2017	167-225

MEMBERSHIP OF IN-HOUSE COMMITTEES

PROF. B.N. THORAT
- Head, Department of Chemical Engineering

PROF. S.S. BHAGWAT
- Dean , Student affairs
- Vice-president, Technological association

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- Chairman, TEQIP Industry Institute Interaction Cell
- Chairperson : Research Recognition Committee (Bioprocess Technology)
- Chairperson: Research Recognition Committee (Biological Sciences)

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- Outreach activity / social responsibility (Co-chair)
- Material Procurement (member)
- Examination (member)
- Unfair means in examinations and Vigilance squad (member)

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- Member Green ICT committee
- Co-coordinator DAE – ICT Centre
- Member Internal Quality Assurance Cell

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- In-charge, Information Processing Center
- Member, Website Committee and Computerization committee

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- Coordinator, CAS (UGC) Dept of Chem Engg
- Coordinator, PG course on LCA
- Member of Administrative Committees at Institute Level

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- Deputy Coordinator, M. Tech. (Green Tech)
- Coordinator, Safety Certificate Course
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- Member of committee to revamp the Institute website

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- Admission Committee
- Sr. Supervisor, Examination Committee

PROF. P.K. GHOSH

- E-Cell, TEDx ICTMumbai, Startup and Incubation

PROF. LAKSHMI KANTAM MANNEPALLI

- Member, Green Technology and Nanotechnology

SEMINARS/ LECTURES/ CONFERENCES/ SYMPOSIA/ WORKSHOPS/ SUMMER OR WINTER TRAINING SCHOOLS ATTENDED/ORAL OR POSTER PRESENTATIONS

PROFESSOR B.N. THORAT

- A. P. Chavan, V. Vitankar, B. N. Thorat (2017) CFD modelling and experimental study of Solar Conduction Dryer, Oral Presentation at Asia-Pacific Drying **Conference**, Wuxi, China, September 24-26.
- P. Jadhav, S. Ashokkumar, N. Nagwekar, B. N. Thorat (2018) Low colonies forming per units yielding solar conduction dryer using composite filter. **Poster Paper** accepted for 21st International Drying Symposium 2018 held at Valencia, Spain, September 11-14.
- A. P. Chavan, A. Sikarwar, V. Tidke, B. N. Thorat (2018) Augmenting natural convection and conduction based solar dryer. **Oral Paper** accepted for 21st International Drying Symposium 2018 held at Valencia, Spain, September 11-14.

PROFESSOR A.M. LALI

- Attend **ACHEMA** 2018, World Forum and Leading Show for the Process Industries at Frankfurt am Main, Germany on 11th to 15th June 2018.
- **Invited** as a Panelist for the Ethanol Summit of the Asian –Pacific organized by The U.S Grains Council and Sponsors Growth Energy and the Renewable Fuels Association at Minneapolis, Minnesota, USA on 21st to 23rd May 2018.
- Participated at the 3rd LBNet **Conference** in session: Challenge and opportunities in Lignocellulosic Biorefinery at Shrigley Hall, Cheshire, UK on 16th to 18th May 2018.
- Visited Aston University to **attend** the meeting of our International partners as a part of BBSRC grant which include discussion on Cascade processes for integrated bio-refining of agricultural waste in India & Vietnam on 15th to 27th April 2018.
- Participated in the AIDA'S 2 Day Technical **Seminar** & Exhibition at New Delhi.
- Invited as a speaker at the Dr. A.K. Dorle Memorial **Lecture** III at Nagpur organized by Rashtrasant Tukadoji Maharaj Nagpur University on 14th March 2018.
- Invited as a speaker at the "EU-India **Conference** on Advance Biofuels, New Delhi on 7th – 8th March 2018.
- Participate in "**International Conference**" on "Sustainable Biofuel 2018" at New Delhi organized by DBT, New Delhi on 26th & 27th February 2018.
- **Visit Harvard** University Cambridge, MA, USA ON 18th Nov to 3rd December 2017.
- Participated in Joint Mission Innovation/International Energy Agency **Event** on "Bioenergy for the Future" on 27th to 29th November 2017 at Ottawa, Canada.
- Participated Mission Innovation **workshop** "Innovation Challenge#4 Sustainable Biofuels Innovation Challenge" organized by Department of Biotechnology, New Delhi on 9th October 2017.
- Participated in "Burning Fields, Biofuels and Bettering Farm Life: Pursuing

Responsible and Innovation through Mutual Learning" **conference** on Biomass Innovation organized by Maastricht University, The Netherland & IIT Delhi on 11th -13th September 2017 at New Delhi.

- Participated in 6th **International Conference** on "Lignocellulosic Ethanol" organized by The Directorate General for Energy of the European Commission (DG ENER) on 27th & 28th September 2017 at Brussels, Belgium.
- Participated in Biofuture Summit 17' on 24th & 25th October 2017 at Hotel Estanplaza International, Sao Paulo, Brazil.
- Participated in "Bioenergy-Urja Utsav" orgainzed by MoPNG, New Delhi at Pune on 7th & 8th July 2017.

PROF. A.V. PATWARDHAN

- "Synthesis and characterization of ultrafiltration ceramic membranes using solid spent material doped in α-alumina from chemical industries" Ketan S. Kulkarni, Shankesh B. Ekhande, Anand V. Patwardhan, **poster presented** at "Recent Trends on Membranes and Separation Technology (RTMST-17)", organized by CSMCRI, Bhavnagar, Gujarat November 22-23, 2017.
- "Synthesis and Characterization of Microfiltration Ceramic Membranes: Re-use of Industrial Solid Spent Material" Ketan S. Kulkarni, Anand V. Patwardhan; **poster presented** at "Recent Trend and Developments in Environmental and Basic Sciences (RTDEBS 2018)", organized at S.D.D. Arts college and Commerce and Science College, Wada, Thane. 10th March 2018.
- "Synthesis and characterization of ultra-filtration ceramic membranes using solid spent material doped in alpha alumina from chemical industries" (Abstract No. OP-37), Ketan S. Kulkarni, Saurabh Muley, Shankesh B. Ekhande, Anand V. Patwardhan; **Paper presented** at DAE – BRNS Biennial "Symposium on Emerging Trends in Separation Science and Technology (SESTEC – 2018)", organised at BITS Pilani, K.K. Birla Goa campus, Goa, India. May 23-26, 2018.
- "Development of grafted resins and membranes (extractants) for precious metals, Swapnil Rajput, Saurabh Muley; **CHEMIX-18**, organised by IIChE at VNIT, Nagpur. April 7-8, 2018.
- "Synthesis and characterization of ultra-filtration ceramic membranes using solid spent material doped in alpha alumina from chemical industries" (Abstract No. OP-37), Ketan S. Kulkarni, Saurabh Muley, Shankesh Ekhande, Anand V. Patwardhan; **Paper presented** at DAE – BRNS Biennial Symposium on Emerging Trends in Separation Science and Technology(SESTEC – 2018), organised atBITS Pilani, K.K. Birla Goa campus, Goa, India. May 23-26, 2018.
- "Application of ceramic membranes in treating laundry wastewater." Vandana Prabhu and Mihir Panda, **Paper presentation** at Outstanding Young Chemical Engineers (OYCE), 24 March 2018, Mumbai, India.

PROF. A.W. PATWARDHAN

- Controlling the carbon nanotubes type with processing parameters from floating catalyst chemical vapor deposition synthesis, **International Conference** on Nanotechnology ICN 3I – 2017, IIT Roorkee, December 6 – 8, 2017
- Synthesis of modified carbon nanotubes, **International Conference** on Nanotechnology ICN 3I – 2017, IIT Roorkee, December 6 – 8, 2017
- Flow Patterns, Flow Pattern Map And Void Fraction Measurement Of Air/ Water Two Phase Flow In Vertical Pipe, 44th **National Conference** on Fluid Mechanics and Fluid Power, Amrita University, Kerala, December 14 – 16, 2017
- Design and Scale-up of Asymmetric Rotary Agitated Liquid – Liquid Extraction Columns, Eighth Biennial Symposium On Emerging Trends In Separation Science And Technology, SESTEC – 2018, BITS Goa, 23rd – 26th May, 2018
- Comparison of

Hydrodynamic Characteristics between Pulsed Disc and Doughnut Column and Asymmetric Rotating Impeller Column, Eighth Biennial Symposium On Emerging Trends In Separation Science And Technology, SESTEC – 2018, BITS Goa, 23rd – 26th May, 2018

- CFD-PBM Simulations of Asymmetric Rotating Impeller Column, Eighth Biennial Symposium On Emerging Trends In Separation Science And Technology, SESTEC – 2018, BITS Goa, 23rd – 26th May, 2018
- Synergistic Behavior of Tributyl Phosphate and Di-(2-ethylhexyl) Phosphoric Acid: Molecular Dynamics Simulations and Experimental Investigations, Eighth Biennial Symposium On Emerging Trends In Separation Science And Technology, SESTEC – 2018, BITS Goa, 23rd – 26th May, 2018
- Recovery of Lithium from Sea Water Bitterns by Liquid – Liquid Extraction, Eighth Biennial Symposium On Emerging Trends In Separation Science And Technology, SESTEC – 2018, BITS Goa, 23rd – 26th May, 2018

PROF. V.K. RATHOD

- Lecture on 'Application of Enzyme for conversion of Biomass in to value added product' , Rowan University, USA
- Lecture on 'Heat Transfer and its application in heat exchanger design', BPCL Training programme, Mumbai, 2017
- Lecture on 'Utilization of solid waste from Food Industry for value added products' and 'Utilization of liquid waste from Food Industry for value added products', North Maharashtra University Jalgaon, 2018

DR. P. R. GOGATE

Details of invited lectures (International)

- P.R. Gogate, "Hydrodynamic cavitation for Wastewater treatment" Invited presentation at SEW, Saudi Arabia, November 2017

Details of invited lectures (National)

- P.R. Gogate, "Intensified Hybrid oxidation processes based on hydrodynamic cavitation for treatment of emerging contaminants" Invited Lecture at AOSS-3, SRM University, September 2017
- P.R. Gogate, "Cavitational Reactors" Invited talk at Annual Convention of Marathi Vidnyan Parishad, Kudal, MS, December 2017
- P.R. Gogate, "Intensification of Chemical processing applications using Cavitational Reactors" Invited Lecture at PREC, Loni, December 2017
- P.R. Gogate, "Intensified Production of Biofuels from Sustainable Raw Materials using Ultrasonic Reactors" Invited Lecture at the Indo-Japan Bilateral Symposium organized by IIT-Guwahati, February 2018
- P.R. Gogate, "Improved crystallization using ultrasonic irradiation" Invited lecture at WFCFD workshop, ICT Mumbai, February 2018
- P.R. Gogate, "Process Intensification of Chemical Processing applications using cavitational reactors", Invited lecture at TantrAvishkar 2 K18, TSEC, Mumbai, February 2018

MRS. K.V. MARATHE

- Finishing School Lecture on Mechanical Behavior of Materials under TEQIP Program

DR. P.D.VAIDYA

- 6th International Conference on Hydrogen and Fuel Cells, Dec. 10-12, 2017, Pune

DR. R.D.JAIN

- Mahesh Tambe, Nanda Rohra, Prajakta Dandekar Jain and Ratnesh Jain (2018), Evaluation of heat and agitation induced aggregation profile of insulin using biophysical techniques, **Poster Presentation** at Indian Biophysical Society-2018, Indian Institute of Science Education and Research (IISER), Pune, India, March 2018
- Suvarna M, Gupta K, Mazumadar S, Dandekar P, Jain R(2018) Characterization of Serum Nano-particles with Serum Proteins, **Poster Presentation** at Indian Biophysical Society Annual Meet,IISER-Pune, India, March 2018
- Sonal Atale, Aditya Narvekar, Dhanashri Jagtap, Ratnesh Jain and Prajakta Dandekar

Jain (2018), Charge based Protein-Nanoparticle Interaction:Understanding binding of proteins on nanoparticles using surface plasmon resonance, **Poster presentation** at CRS- India Chapter, The Lalit, Mumbai, February 2018.

- Salzyme' Enzyme mimicking metal salt as an alternative catalyst for organic synthesis, Poster presentation, January 10-12, **Conference** on Advances in Catalysis for Energy and Environment (CACEE) 2018
- Gore M, Bute M, Gadge S, Gosavi S, Jain R and Dandekar P (2018), Skin-on-a-chip: An alternative-to-animal, 3D in-vitro skin model for preclinical and biomedical applications, **Oral Presentation** at Microfluidics and Lab on a Chip conference organized by SELECTBIO at Mumbai, India.
- Gore M, Chhabra R, Waval A, Bute M, Gadge S, Deshpande A, Mathpati C.S., Gosavi S, Jain R and Dandekar P (2018), Perfusive in-vitroPlatforms of Human Skin for Preclinical Chemical, Pharmaceutical and Cosmetic Testing, Poster Presentation at **Conference** on "India Centric R&D" organized by Indian Chemical Council at Mumbai, India.
- Dhawane M, Mistry P, Jain R, Dandekar P (2017), Enzyme immobilized chitosan-based nanofibers used for detection of cholesterol, **Poster presentation** at Nanobioteck-2017,2nd Annual Conference of Indian Society of Nanomedicine held at Trivandrum, Kerala, December 2017
- Tushar Mahajan, Prachi Bangde, Prajakta Dandekar, Ratnesh Jain (2017) Deep eutectic solvents as viable reaction media for lipase catalyzed reaction, **Poster presentation** at Bioprocessing India 2017, IIT Guwahati, India, December 2017
- Gore M, Chhabra R, Waval A, Bute M, Gadge S, Mathpati CS, Gosavi S, **Jain R** and Dandekar P (2017), Design, Fabrication and Optimization of micro-bioreactor for in-vitro development of human skin tissue, **Poster Presentation** and exhibition at 3rd TEQIP-INN Meeting and Exhibition, ICT-Mumbai, India, March 2017
- Pant T, Murarka V, Dandekar P and **Jain R** (2017), Development of microcarrier based platform for high density cellular growth and production of biologics, **Poster presentation** and exhibition at 3rd TEQIP-INN Meeting and Exhibition, ICT-Mumbai, March 2017
- Dobhal A, Kulkarni A, Dandekar P and **Jain R** (2017), Microfluidic platform for the controlled synthesis of polymeric nanoparticles, **Poster Presentation** at Nano India 2017, Indian Institute of Technology, Delhi, India, March 2017.
- Deokuliar A, Dhobhal A, Balasaheb C, Khushlani D, Dandekar P and **Jain R** (2017), Implications for Nano-Biointeractions in Cellular Studies, **Poster Presentation** atNanoIndia-2017, IIT, New Delhi, India, March 2017.

DR. C.S. MATHAPATI

- 6th International and 43rd National **Conference** on Fluid Mechanics and Fluid Power, 17-17 December 2016, Dept. of Applied Mechanics, MNNIT Allahabad.
- Application of Computational Fluid Dynamics, VJTI, Matunga, Mumbai 400 019

PROF. J.B. JOSHI

- 12th **International conference** on Gas, liquid and solid (GLS-12), Brussels, Belgium

PROF. LAKSHMI KANTAM MANNEPALLI

- Delivered Keynote **lecture** at the CHEMECA-2017, held during RACI National Centenary Conference 2017 in collaboration with the RACI Centenary Congress at Melbourne, Australia from 23-28 July 2017.
- Delivered a Keynote **lecture** at NENCS, Tokyo, Japan held from 27th October to 1st November 2017.
- Delivered an Invited **lecture** at ACS Asia-Pacific International Chapters Conference" (APICC) from November 5-8, 2017 in Jeju, South Korea

EVENTS ORGANIZED:

PROFESSOR B.N. THORAT

- 12th International Workshop on Crystallization, Filtration and Drying. Theme: Drying and Granulation Technology, Feb 2018, ICT, Mumbai.

PROF. V.K. RATHOD

- Convener, American Chemical Society School Festival (Workshop), 2018
- Treasurer, SCHEMCON, 2018

DR. P.R. GOGATE

- Prof. K Venkataraman Memorial Lecture", April 2018.

DR. P.D.VAIDYA

- Events Organized: 3-Day seminar series titled "Orientation to Chemical Security Risk Management" by SANDIA National Laboratories (USA) in January 2018

DR.R.D.JAIN

- Biosimilar Workshop, December 2017

DR.C.S. MATHPATI

- 2 days' workshop for process intensification using Aspen Plus through COE-PI

PROF.P.K. GHOSH

- Two events (including exhibitions) related to multi-institutional TEQIP-INN projects

STUDENTS PRESENTATION

PROF. A.M. LALI

- Sneha Sathe participated in the 42th Annual Meeting of Indian Biophysical Society-2018 conducted by IISER at Pune on 9th to 11th March 2018.
- Rutuja Sheth participated in the 42th Annual Meeting of Indian Biophysical Society-2018 conducted by IISER at Pune on 9th to 11th March 2018.
- Valerie Rodrigues participated in the India Seaweed Summit-2018 at Mumbai held on 28th February 2018.
- Akankash Mhatre participated in the India Seaweed Summit-2018 at Mumbai held on 28th February 2018.
- Naina Singh & Meghna Vanza participated in BPI-2017 Conference at IIT, Guwahati on 9th to 11th December 2017.
- Shaikh Kurshedaktar attended International Symposium on systems, Synthetic and Chemical Biology 2017 organized by Bose Institute, Kolkata on 5th to 7th December 2017.
- Mallikarjun Patil to pursue research at Saskatchewan University Saskatoon, Canada for period of 6 months from 1st July to 31st December 2017.
- Akankash Mhatre & Akankash Agrawal attended 8th International Conference "Photosynthesis & Hydrogen Energy Research for Sustainability -2017 organized at School of Life Sciences, University of Hyderabad on 30th October to 4th November 2017.
- Prameshwar Patil attended BIRAC Innovators Conclave & Bio-Innovation Fair at Indian Habitat Centre, New Delhi on 21st & 22nd September 2017.
- Sujata Kumari & Shaikh Kurshedaktar workshop "Current trends in Bioinformatics and Genome Analysis" conducted by Birla School of Scientific Research held at Jaipur on 20th to 22nd January 2017.
- Parmeshwar Patil & Chinmayee Mahadik participated at APCAT 2017 Conference at Mumbai organized by Institute of Chemical Technology on 17th to 21st January 2017.

PROF. V.K. RATHOD

- Convener, American Chemical Society School Festival (Workshop), 2018
- Treasurer, SCHEMCON, 2018

DR. P.R. GOGATE

- Prof. K Venkataraman Memorial Lecture", April 2018

DR. P.D. VAIDYA

- 3-Day seminar series titled "Orientation to Chemical Security Risk Management" by SANDIA National Laboratories (USA) in January 2018

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PROF. P.K. GHOSH

- Two events (including exhibitions) related to multi-institutional TEQIP-INN projects

STUDENT'S POSTER PRESENTATION

PROF A. M. LALI

- **Akanksha Agarwal**, Kashif Shaik, Krushna Gharat, Pavan Jutur, Reena Pandit and Arvind Lali, "Dynamics of microalgae metabolism under varying

light intensities – a mixotrophic outlook", 8th International conference on Algal biomass, biofuels and bioproducts-2018, Seattle, USA.

- **Arijit Das**, Arvind Lali, "High cell density fermentation of Bacillus sp. for enhanced productivity of 2,3-Butanediol", 40th Symposium on Biotechnology for fuels and chemicals-2018, Clearwater, Florida, USA.
- **Sneha Sathe**, Arvind M. Lali, Sanjeev K. Chandrayan, on "Structural mechanism explaining the glucose tolerance of β-glucosidase from Methylococcuscapsulatus (bath strain)" in International Conference titled '42nd Annual Meeting of the Indian Biophysical Society' at IISER, Pune during 9-11th March 2018.
- **Shruti Kothari**, Annamma Anil and Arvind Lali, on title "Oleaginous yeast as suitable platform for production of value added biomolecules" in 10th Yeast Biology Conference at Jawaharlal Nehru University, New Delhi during 8th – 11th February, 2018.
- **Kurshedaktar Shaikh,** Vishwanath Khadye, Annamma Anil, and Arvind Lali, on" A comparative study of two integrative approaches, YLEX and CRISPR/Cas9, in Yarrowialipolytica" in 10th Conference on Yeast Biology at School of Life Sciences, JNU & Amity University, Gurgaonduring 8th – 11th February, 2018.
- **Surabhi Soni**, Sanjeev Chandrayan, Annamma Anil and Arvind Lali, on title "Expression analysis of the Thermomyceslanuginosus lipase gene" in 10th Yeast Biology Conference at Jawaharlal Nehru University, New Delhi during 8th – 11th February, 2018.
- **Pratik P. Pawar**, Annamma Anil and Arvind Lali, on title "Strategies for production of Microbial oil using oleaginous yeast" in 10th Yeast Biology Conference at Jawaharlal Nehru University, New Delhi during 8th – 11th February, 2018.
- **Akanksha Agarwal**, Smita Patil, Krushna Gharat, Reena Pandit and Arvind Lali, "Modification in light utilization efficiency by Asteracys sp. at varying light intensities under mixotrophic regimes", 8th International conference on photosynthesis and hydrogen energy research for sustainability-2017, Hyderabad, India.
- **Akanksha Mhatre**, Smita Patil, Akanksha Agarwal, Reena Pandit and Arvind Lali, "The influence of the nitrogen source on photochemistry and antenna size of the photosystems in marine green macroalgae, Ulva lactuca, 8th international conference on photosynthesis and hydrogen energy research for sustainability-2017, Hyderabad, India.

ORAL PRESENTATION

- **Priya Upadhyay** and Arvind M.Lali, on title "Chemo-biological routes for Lignin conversion to platform chemicals" in BioinnovaConference at Thakur college of Science and Commerce, Mumbai, 10th February, 2018.
- **Kurshedaktar Shaikh**, Annamma Anil, and Arvind M Lali, on "Non-conventional yeasts: a platform for production of sustainable food, fuel and valuable chemicals" in 10th Yeast Biology Conference at Jawaharlal Nehru University, New Delhi during 8th – 11th February, 2018.
- **Akanksha Mhatre, Juilee Palkar, Prashant Savvashe, Mayur Sathe**, Reena Pandit, and Arvind Lali, "Synergistic strategy for production of macroalgal biomass for biorefinery in photobioreactor along with phycoremediation of coastal city seawater, 8th International conference on algal biomass, biofuels and bioproducts-2018, Seattle, USA.

INDUSTRIAL CONSULTANCY

- Maldeep Catalysts India Pvt. Ltd.
- Azista Industries Pvt Limited
- J S Industries
- Pidilite Industries Limited
- Harman Finochem, Limited
- Sharon Bio-Medicine Limited
- Marval Drugs Pvt. Ltd.
- Spectrochem Pvt. Ltd.
- Pulcra Chemicals India Pvt. Ltd.
- Kansi Nerolac Paints Ltd.

- SS Techno Ltd.
- Ajista Industries Pvt. Ltd.
- Marico
- Galaxy
- Aditya Birla Science and Technology Co
- Jayant Agro
- KV Fires
- HUL
- SRF ltd, New Delhi, Design of mixing equipments
- Unilever ltd, Bangalore, India
- Eastman Chemical Co. Ltd., USA.
- Bharat Petroleum Corporation limited (BPCL)
- Atul Pvt. Ltd
- Asian Paint
- Val Organics Pvt. Ltd, Mumbai, India
- Tuli and Company: expert advice regarding shipment of chemicals.
- NOCIL Ltd.
- GMM Pfaudler Ltd.
- Gujarat Chlor Alkali Ltd.
- Marvel Drugs
- Kesar Petro products
- Godavari Biorefineries Ltd.
- Indo Amines Ltd.
- Herman Phenochem Ltd. Aurangabad
- Konark Herbals and Health Care
- Hikel Ltd.
- Mangalam Organics
- Privi Organics
- SEW, Saudi Arabia
- PACE
- Konark Industries,
- Atul Ltd
- Zoetis Pharmaceutical Research Pvt. Ltd.
- Bhavi Plast Pvt. Ltd.
- Advy Chemicals Limited, Mumbai
- Biocon Limited, Malysia
- Anya Biopharma
- United Phosphorus Ltd
- Asian Paints Technology Council
- Atul Industries Limited
- Rubamin Industries Limited
- Eternis
- Alkyl Amines
- Laxmi Organic
- UPL
- Technoforce
- Vinati Organics
- GACL
- Hikal

MAJOR ACCOMPLISHMENT

PROF. S.S. BHAGWAT

- VAM implementation at Gokul was observed for entire season cycle and data analysed for further improvement

PROF. A.V. PATWARDHAN

- Separation of various metal ions and organic acids from aqueous streams using supported liquid membrane. This is relevant for recovery of metals as well as in industrial pollution control. Scale-up from laboratory scale to industrial scale equipment is in progress.
- Water recovery from effluents containing dyes, pesticides, surfactants. Water recovery from effluents from textile industry, and refineries.
- Development of grafted resins and membranes (extractants) for precious metals.
- Separation of racemic aldehydes using vicinal diamines as chiral auxiliary has been successfully demonstrated at laboratory scale.
- Friedel-Crafts alkylation of phenols using ionic liquids as catalysts has been successfully demonstrated at laboratory scale.
- In-situ epoxidation of non-edible oil using hydrogen peroxide has been achieved. This epoxidised oil is found suitable for making plasticisers.
- An innovative bio-technological approach for the production of L-ascorbic acid (vitamin C) has been successfully developed.
- Production of natural colorants using microbes has been accomplished, and the application of the same has been successfully tried for dyeing of natural fibres.

PROF. A.W. PATWARDHAN

- Kinetics of infusion, mathematical modeling of infusion processes, design of improved infusion systems
- Design and scale-up of liquid-liquid extraction equipment
- Recovery of valuable chemicals from aqueous streams using membrane processes
- Characterization of flow instability in boiling systems
- Synthesis of Nitrogen and boron doped CNTs, CNT aerogels and fibres, their characterization and uses
- Molecular Dynamics studies of extraction processes

DR. P.R. GOGATE

- Improved synthesis of Iron doped TiO2 has been

attempted based on the use of ultrasound during the sol-gel process and optimizing the important parameters to obtain the best catalyst with minimum particle size. The best catalyst obtained was with a minimum particle size of 99 nm under conditions of 0.4 mol% doping of iron, 60 min treatment of ultrasound, initial temperature of 30°C, propan-2-ol as the solvent and solvent to precursor ratio as 10. The particle size of the catalyst obtained through conventional approach under otherwise similar conditions has been found to be 325 nm. Various characterization techniques like DLS, Surface BET analysis, SEM, EDS, XRD and UV-Vis band gap analysis have been used for establishing the superior characteristics of the obtained catalyst. The subsequent application of the obtained best catalyst was also investigated in the photocatalytic degradation of Acid Blue 80 dye (fixed initial concentration as 10 ppm). The effect of various parameters like catalyst loading and UV power as well as intensification of degradation based on the addition of H2O2, ozone, Potassium persulfate (KPS) as process intensifying additives has been studied. Overall it was established that at an optimum catalyst loading of 0.2 g/L, 16 W of UV power and 0.4 g/L KPS loading, maximum degradation of 99.59 % was obtained in 120 min of irradiation also giving a COD reduction of 95%. Integral method of analysis for kinetics revealed that pseudo-first order kinetics explained the degradation very well. Comparative study of the different catalysts established that iron doped TiO2 catalyst synthesized using ultrasound assisted approach gave the higher efficacy as compared to the iron doped TiO2 catalyst synthesized using the conventional approach and undoped TiO2.

- Use of different cavitational reactors, namely, ultrasonic bath, ultrasonic flow cell, high speed homogenizer and hydrodynamic cavitation using orifice plate, circular venturi and slit venturi was investigated for obtaining stable emulsion of turmeric oil in skimmed milk. The effect of different operating parameters on the droplet size and stability has been investigated. The oil droplet size decreased from 282.5 nm to 239.3 nm with an increase in power amplitude from 20% to 80% in the ultrasonic flow cell whereas, in the case of hydrodynamic cavitation using orifice plate, an increase in pressure from 5 to 10 bar led to a decrease from 338.6 to 235.0 nm. In high speed homogenizer, the oil droplet size increased from 231.3 to 313.7 nm with an increase in input voltage from 100 to 140 V. The ability of these six emulsification devices to generate emulsions at large scale was assessed with an objective to compare efficiency of different reactors based on energy density. To produce stable emulsion, the energy requirement of ultrasonic bath (98.28 J/mL) was observed to be far lower than that of ultrasonic flow cell (461.4 J/mL) and hydrodynamic cavitation with orifice plate (1008.00 J/mL), circular venturi (756.00 J/mL) and slit venturi (1008.00 J/mL). Also, in the case of emulsification using ultrasonic bath, the effectiveness of treatment approach was analyzed for the use of ultrasound and stirring in different combinations. The obtained results clearly established that ultrasonic bath reactor operated in combination with stirrer produced stable emulsion with minimum droplet size (232.2 nm) and 0.12 PDI value at lowest energy consumption.
- Value addition of lactose to hydrolyzed lactose syrup containing glucose and galactose in major proportion was investigated using the novel approach of ultrasound assisted acid catalyzed lactose hydrolysis. The hydrolysis of lactose was performed in ultrasonic bath (33 kHz) at 50% duty cycle at different temperatures as 65°C and 70°C with hydrochloric acid (HCl) concentration also varied as 2.5 N and 3 N. It was observed that acid concentration, temperature and ultrasonic treatment were the major factors in deciding the time required to complete ~90% hydrolysis reaction. The ultrasonic assisted approach resulted in reduction of

reaction time depending on the temperature, acid concentration and time of ultrasonic exposure. It was observed that the maximum process intensification obtained by introduction of ultrasound in the lactose hydrolysis process for ~90% hydrolysis with 70°C and 3N HCl was reduction in the required time from 4 hours (without the presence of ultrasound) to 3 hours. The scale-up study was also performed using an ultrasonic bath with longitudinal horn (36 kHz as operating frequency) at 50% duty cycle with the optimized temperature of 70°C and acid concentration of 3 N. It was observed that the reaction preceded faster using ultrasonic assistance in the presence of stirring by axial impeller at rpm of 225±25. The time required to complete ~90% of reaction and the extent of hydrolysis remained almost the same as observed for small scale study on ultrasonic bath (33 kHz) at 50% duty cycle. Overall the work has presented a novel ultrasound assisted approach for intensified lactose hydrolysis.

- A novel biosorbent synthesized from Ficus racemosa leaves based on the treatment using NaOH was applied for removal of Acid Blue 25 from aqueous solution. The synthesized biosorbent was characterized using scanning electron microscopy, Fourier transform infrared spectroscopy and Brunauer-Emmett-Teller analysis. NaOH treatment was demonstrated to remove lignin content from the biomass as well as induce the development of significant pores. Batch experiments were performed to evaluate the effect of important operating parameters such as pH (range of 2-10), biosorbent dose (range of 1-10 g/L), contact time (range of 0-5 h), initial dye concentration (range of 50-400 mg/L) and temperature (range of 293-323 K) on the extent of removal of Acid Blue 25. The established optimum conditions were pH of 2, biosorbent dose of 4 g/L, contact time of 3 h and temperature of 323 K yielding maximum removal of dye. Pseudo-second order model was found to best fit the kinetic data. Langmuir and Temkin isotherm models were found to best fit the equilibrium data. The obtained thermodynamic parameters confirmed endothermic and spontaneous nature of adsorption. The study established the utility of novel biosorbent for removal of Acid Blue 25 dye with higher adsorption capacities (83.33 mg/g) as compared to the more commonly used adsorbents. Desorption studies conducted for seven cycles indicated potential reusability of synthesized biosorbent for the treatment of textile dye effluents.
- Biodiesel offers as an excellent alternative to the petro-based diesel fuel and can be derived from the reaction of vegetable/non-edible oils and/or animal fats with alcohols using the transesterification reaction. In the present study, hydrodynamic cavitation device as High-Speed Homogenizer has been used for the intensified production of biodiesel for the first time. The efficacy of biodiesel production was observed to be dependent on the operational parameters viz. molar ratio, catalyst loading and operating temperature. The maximum yield of biodiesel obtained in the present work was 97% for waste cooking oil as starting material and 92.3% for fresh cooking oil under optimized conditions of reaction time of 120 min, molar ratio of methanol to oil as 12:1, 3% wt loading of KOH and temperature of 500C. The study demonstrated that the application of cavitation offers the advantages as enhanced progress of reaction in reduced reaction time and improved separation. Overall, high speed homogenizer has been established to be a viable approach for intensified biodiesel production with possibly favourable economics.
- Ultrasound assisted intensification of synthesis of tricaprylin based on the enzyme catalyzed reaction of caprylic acid and glycerol was investigated with a novel approach of using ultrasound in only the initial stages of the reaction. Two types of immobilized lipases as

Lipozyme RM (Rhizomucor Miehie) and Novozym 435 (Candida Antarctica) have been used in the work. The effect of ultrasonic conditions as treatment time and power as well as the reaction conditions as substrate molar ratio, reaction time and enzyme loading on the extent of yield of tricaprylin has been investigated. It was established that the optimum pretreatment conditions were irradiation time as 30 min with ultrasonic frequency of 20 kHz, supplied power of 240 W, 70% duty cycle (7 s on 3 s off cycle) whereas the optimum reaction conditions were 4:1 molar ratio of caprylic acid to glycerol, enzyme loading as 3% and operating temperature of 50 °C. It was also established that reuse of enzymes for 10 cycles was possible without any significant effect on the activity of lipase. It was also conclusively established that compared to the conventional approach of synthesis, ultrasound pretreatment based approach greatly influenced the rate of reaction and maximum tricaprylin yield of 94.8% was achieved in 7 h of reaction time under the optimum conditions.

- Curcumin, a dietary phytochemical, was extracted from rhizomes of Curcuma amada using ultrasound assisted extraction (UAE) with comparison of the results with the conventional extraction approach to establish the process intensification benefits. The effect of different operating parameters such as type of solvent, extraction time, extraction temperature, solid to solvent ratio, paticle size and ultrasonic power on the extraction yield have been investigated in details for UAE. The maximum extraction was obtained at optimized conditions of 35 oC temperature, solid to solvent ratio of 1:25, particle size of 0.09 mm, ultrasonic power of 250 W and ultrasound frequency of 22 kHz with ethanol as the solvent. Soxhlet extraction was used for establishing the curcumin content in the plant material and the results of extraction yield were expressed as a function of this maximum content. Under optimized conditions, the extent of curcumin extraction using UAE was 72% achieved in 1 h at 35 oC temperature, which was higher as compared to the batch extraction (about 62% in 8 h of treatment). Peleg's model was used to describe the kinetics of UAE and the model showed a good agreement with the experimental results. Overall, ultrasound has been established to be a good process intensification approach for extraction of curcumin with benefits of reduction in time as compared to batch extraction or operating temperature as compared to Soxhlet extraction, which can give economical benefits and also lead to greener processing.

MRS. K.V. MARATHE

- Participation in New INDIGO NPP2 Project – Greentech
- Talks delivered during the Co-Operation Days:
- Technologies in Water Treatment (University of Cantabria, Spain)
- Water treatment Management (University of Oulu, Finland)
- Talk delivered on International Women's Day 2013 at DRDO, Ambernath
- Completion of Research Project as Principal Investigator sponsored by Department of Science and Technology - DST, India
- Completion of Research Project as Principal Investigator sponsored by All India Council for Technical Education - AICTE, India
- Best Paper Award SESTEC-2008
- Member scientific and Technical advisory committee SDEWES (Portugal)-2013
- Guiding Best MTech Thesis - Indian Society for Technical Education, 2005

PROF. P.K.GHOSH

- New course developed on Innovations in Chemical Technology;
- 4 Indian patent applications filed on successful inventions;
- Important field project initiated at Ausa, Latur with support from DST, New Delhi;
- Important piece of work carried out on fluoride contamination of phosphate fertilizers (in partnership with CSMCRI, BARC and C-MET)

RESEARCH GROUP

PROF. BHASKAR NARAYAN THORAT

Left to Right : Purvesh Kore, Shailendra Singh Rajput, Govind Thombre, Amit Kamble, Anand Chavan, Prof. B. N. Thorat, Priyanka Jadhav, Rahul Shete, Nupur Nagwekar, Arun Maurya, Shilpa Haramkar, Akash Kubade.

PROF. SUNIL S. BHAGWAT

Left to right(1st Row): Rahul Kamble, Prashant Kotian, Kunal Pawar, Amol gore
Left to Right(2nd Row): Akshaya Chavan, Prof. S.S. Bhagwat, Kumudini Lokhande, Pallavi Parab

PROF. V. G. GAIKAR

Left to Right: Shrilekha Sawant, Vijayalakshmi, Mufeedah Muringa Kandy, Rutuja Bhoje, Tasneem Dabir, Suwarna Hiware, Noopur Rathi, Meena Singh, Suchita Gabhane, Ketan Kabade, Arif Pathan, Angad Barkule, Vishal Sawant, Yogeshwar Dubashae, Vikram Chatake, Syed Tanveer, Aditya Koli

PROF.A. M. LALI

Prof. A.M. Lali with his students and Colleagues

PROF. ANIRUDDHA BHALCHANDRA PANDIT

Prof.A. B.Pandit, Amruta Badnore, Karuna Nagula, Mayur Ladole Abha Sahu, Atul bari, Bhagwat Patil, Shankar Kausley, Nilesh Jadhav, Mandar Badve, Ketan Desai, Sarjerao Doltade, Shruti Hingel, Prachi Dwimuthe, Rutuja Kamble, Sagar Shah, Chandrakant Bhogale, Subash G. Priyanka Patil, Gaurav Dastane, Chandrakant Holkar, Aanada Jadhao, Akshay Narkhede and Zakir Hussain.

PROF. ANAND VINAYAK PATWARDHAN

(1st row, L to R): Machhindra Bhalerao (PhD Chemistry), Shankesh Ekhande (M Chem Eng), Yogesh Choughule (PhD Chemistry), Swapnil Chaudhari (PhD Tech Chem Eng), Swapnil Rajput (PhD Tech Chem Eng), Nitin Thombre (PhD Tech Chem Eng)
(2nd row, L to R): Saurabh Mulay (M Chem Eng), Shweta Kumbhaj (PhD Chemistry), Anand V. Patwardhan, Radhish Gupta (M Chem Eng), Ketan Kulkarni (PhD Chemistry)

(3rd row, L to R): Vaishali Kulkarni (PhD Tech BPT), Vandana Prabhu (PhD Tech Chem Eng), Geetanjali Ratrey (M Chem Eng)

PROF. ASHWIN WASUDEO PATWARDHAN

Left to Right: Pallavee Dhekane, Shrilekha Sawant, Gurunath, Ravi Jindal, Manishkumar Yadav, Amol Ganjare, Shashank Tiwari, Dhiraj Lote, Prof. A. W. Patwardhan, Aadil Bharucha, Sudha Ramani, Deepak Bapat, Chaitanya Mali, Shruti Hinge, Durgesh Jha, Pratiksha Biranje, Vaishali V., Gauri, Nilesh Hendre

DR. V. K. RATHOD

Left to Right: First row- Priyanka Rao, Girish Nivehekar, Prof. VK Rathod, Dhairyasheel Santre,Suraj Yadav
Second Row- Kajal Jaiswal, Sneha Bansode, Prerana Tomke, Kavita L, Swetha Pawar, Neha Gharat, Revati Chauhan, Komal M
Third Row- Manjeshwari Sonar, Prachi Sadawarte, Ketan Ingle
Last Row- Manish Salgaongar, Rahul Walwatkar, Govind Waghmare, Shyamraja Nadar

DR. PARAG R. GOGATE

First row (From Left to Right): Pankaj Sinhmar (Ph. D.), Prasad Chaudhari (MChem), Amit Gadhekar (Mchem.), Saurabh Joshi (Ph. D.), Nishant More (Ph. D.)
Second row (From Left to Right): Rajashree Jawale (Ph. D.), Amogh Oke (MTech BPT), Sarvesh Sabnis (Ph.D.)
Third row (From Left to Right): Pooja Thanekar (Ph. D.), Rajeshree Khaire (Ph. D.), Dr. Parag Gogate (Associate Professor), Swapnil Gujar(JRF), Vikram Banakar (Ph. D.),

MRS. KUMUDINI V. MARATHE

Photograph of Research Scholars from KVM lab. Starting from Left; Mr. Karan Chavan, Pranav Nakhate, Hrushikesh Patil, Shruti Singh, Akshay Hatewar and at the centre, Mrs. K. V. Marathe

DR. P. D. VAIDYA

Standing from left: Swapnil Ghungrud (PhD Tech), Mayurkumar Patil (PhD Tech), Ganesh Bhoite (PhD Tech); seated in front: Dr. P. D. Vaidya

DR. VISHWANATH H. DALVI

Left to Right : Tukaram Shinde, Dr. V.H. Dalvi, Rinin Rajan, Sanket Chafle.

DR. RATNESH JAIN

Dr. Ratnesh Jain with his students

DR. C. S. MATHPATI

Front Row: (L to R): Naresh Hanchate, Bhavesh Gajbhiye, Dr. C. S. Mathpati, Aniket Waval, Prachi Dwidmuthe, Pratiksha Karmankar,
Back Row (L to R): Gulshan Maheshwari, Harshawardhan Kulkarni, Parikshit Shahane, Niraj Kulkarni

DR. P. R. NEMADE

From left to right : Priyanka Sane, Jyoti Ambre, Sushil Chaudhari, Rasika Mhetre, Sanjeevani Umale, Pramod Gawal, Amar Dhopte, Dr. P. R. Nemade, Aniket Waval, Kiran Dhopte, Rahul Zambare, Pratiksha Pawar.

PROF. PUSHPITO KUMAR GHOSH

Left to Right: Rhea Bhansali, Prof Pushpito K. Ghosh, Bharat Honmane, Dr. LokeshRamteke, Neha Bagwe

PROF. J. B. JOSHI

(From top left to top right) Shashank Tiwari, Manish Yadav, Dr. Kinshuk Dasgupta, Dr. Hrushikesh Khadamkar, Dr. Shubhankar Manna, Yogesh Urunkar, Rohan Oak, Zakir Khan, Dr. Nitin Minocha, Dr. Eshita Pal
(From bottom left to bottom right) Dr. Ankur Kumar, Prachi Dwidmuthe, Parul Goel, Prof. Jyeshtharaj. B. joshi, Dr. Vishal Bhusare, Dr. Vinayak Thalange, Dr. Anita Sharma

PROF. LAKSHMI KANTAM MANNEPALLI

Left to Right: Gunjan Deshmukh, Jayaram Molleti, Govind Waghmare, Paresh Kamble, Prof. Lakshmi Kantam, Rakhi Vishwakarma, Nagraju Nekkala, Revati, Snehal Gajbhie