



DEPARTMENT OF DYESTUFF TECHNOLOGY



PROF. GANAPATI SUBRAY SHANKARLING

B. Sc. (Hon), B. Sc (Tech), M. Sc. (Tech), Ph.D. (Tech).

**Professor of Dyestuff Technology
Head of the Department**

The Department of Dyestuff Technology was established in 1944 under the stewardship of Prof. K. Venkataraman, the then director of Institute of Chemical Technology (ICT, then known as UDCT), University of Mumbai. Under the successive leadership of highly experienced, talented and hard-working scientists and scholars the department has trained more than 1200 undergraduate students and over 550 postgraduate students. The thrust area of this department is the development of organic chemical technologies, including dyestuff and intermediates, specialty and fine chemicals, agrochemicals, perfumery and flavor chemicals and process intensification in the above fields.

The department is a unique center of learning that offers an advanced curriculum in tune with the latest industrial and academic developments.

The B. Tech course in Dyestuff Technology emphasizes the process chemistry, technology and engineering of organic intermediates and colorants. In the last few academic years, the department placed all graduating students in the chemical industry in various fields such as R & D, production, marketing, etc. A large number of students secured admissions along with financial aid in reputed universities across the globe. Thanks to generous financial support from Colourtex Pvt. Ltd, the department has initiated a major renovation of the undergraduate laboratory.

A strong research focus in the area of functional colorants has enabled the department to file over 20 patents in the last two years and publish over 150 papers in international journals in the past five years. Recruitment of three young faculty members in the last two years under the auspices of the UGC Faculty Recharge Programme has finally ended a severe faculty crunch the department dealt with for more than a decade. The department tries to maintain close ties with the Indian dyestuff and chemical industry by way of organizing conferences, seminar and guest lectures. These activities not only bridge the gap between industries and academia it provides undergraduate students

an excellent opportunity to interact with the industry.

The Department of Dyestuff Technology organizes conferences, seminar and guest lectures' every year in order to bridge the gap between industries and the academia. The objective of arranging such co –curricular activities enhances the exposure of the dyes and dyestuff manufacturing community to undergraduate and graduate students.

Dyes Department jointly organizes the International conference- “Convention on Colorants (COC)” biannually with DMAI (Dyestuff Manufacturers Association of India). The aim of the convention is to enhance cooperation between industry and academia. In the past eight years four such conferences were organized namely COC 2011, COC 2013, COC 2015, COC 2017.

In 2016, the department has started with a new concept of having an international symposium on ionic liquids to propagate a greener aspect of the chemistry to the world. On 21st and 22nd January 2016, the department had organized the International Symposium on Ionic Liquids (ISOIL 2016) in collaboration with Reliance Industries Ltd. The focus was given on industrial applications of ionic liquids.

Apart from these technical events the department has been organizing “Dyes Day” since 2013, where all dyes alumni get chance to meet and have informal and formal discussions with each other. A panel discussion is organized where dyes alumni from industry share their experiences and help undergraduates to understand the current market status of dyes and chemical industries. The event ends with a cultural program where the students, faculty and alumni showcase their talent.

Along with this Department also organizes Memorial lecture series as a tribute to legends of department that includes K.V. Venkatraman lecture series, Kabbur Memorial lecture, Dr. KKG Menon lectures amongst others

VISION 2020

“To build world class programmes of excellence in education and research in specialized areas of Dyestuff, Chemistry and Technology for the benefit of society through problem solving competencies”

MISSION

The Department aspires to be one of the world's top ten colour chemistry departments by 2020. It will do so by:

Providing knowledge and skill-based training at the undergraduate level by designing, teaching and periodically upgrading a colour chemistry and technology syllabus in line with current and anticipated trends in industry and academia.

Pursuing world-class research in the colourants and related areas – basic textile and leather coloration, functional colourants, organic process technology and specialty chemicals.

Proactively developing and maintaining close interaction with national and international research laboratories, universities and chemical industries

PROGRAMS OFFERED:

- B.Tech (Dyes)
- M.Tech (Dyes)
- M.Tech (Perfumery and Flavour Technology)
- M.Tech (Green Technology)
- Ph.D (Tech)
- Ph.D (Sci)

LIST OF PUBLICATIONS AND RELEVANT DETAILS

Faculty Profile												
Core Faculty	Industrial/PDF experience & Consultancy	Publication on	Conference Proceedings	Patents	Book Chapters	Citations	i10 index	H-index	Ph.D's guided	Present Research Students		
										Ph.D	M.Tech	RA's
					2013-19							
Prof. G. S. Shankarling Ph.D (Tech)-UDCT	8 years of industrial experience and 29 consultancies	113	71	20	01	2072	58	24	11	11	07	-
Prof. N. Sekar Ph.D (Tech) – UDCT	24 consultancies	508	115	08	04	2874	93	27	22	10	-	01
Dr. S. Some Ph.D (Sci) - IITKGP	6 Years post-doctoral experience	36	04	15	-	1418	25	19	-	07	01	02
Dr. S. Saha Ph.D (Sci) - IITK	3 Years post-doctoral experience	18	03	-	-	599	10	10	-	02	02	01
Dr. N. Sadhukhan Ph.D (Sci) -IITK	6 years post-doctoral experience	18	02	-	-	299	11	10	-	02	01	01

FUTURE PLANS

THE DEPARTMENT IS IN THE PROCESS OF UPGRADING ITS EXISTING INFRASTRUCTURE BY RENOVATING ITS' LABORATORIES

BUILDING PLAN - OUTLOOK



PRESENT STATUS





PROF. (DR.) GANAPATI SUBRAY SHANKARLING

B. Sc. (Hon), B. Sc (Tech), M. Sc. (Tech), Ph.D. (Tech).

Professor and Head of Dyestuff Technology Department

Highlights of Research work done and its Impact:

- An environmentally benign, one-pot diazotization and coupling reaction using CHCl_3 :tartaric acid DES at room temperature is described.
- The bulky tartrate ion renders stability to the diazonium salt at room temperature, also evidenced by $^1\text{H NMR}$.
- The isolated diazonium salt is stable and active even after 192 h at room temperature.
- The synthesis of a variety of commercially important pigments following the developed protocol in good yields is demonstrated.
- Graphene oxide was prepared by improved hummers method and characterized by various spectral analysis
- An environmentally friendly, inexpensive, carbocatalyst, graphene oxide (GO) promoted efficient, metal-free transamidation of various carboxamides with aliphatic, cyclic, and aromatic amines is demonstrated.

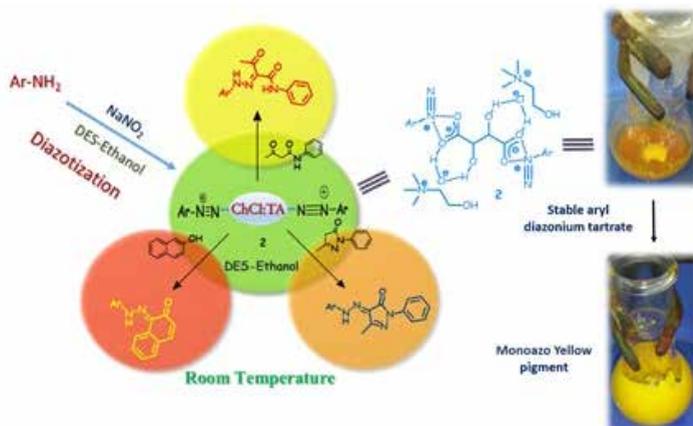


FIGURE 1: The synthesis of monoazo pigments at Room temperature via diazotization and coupling reaction using a DES-ethanol system:

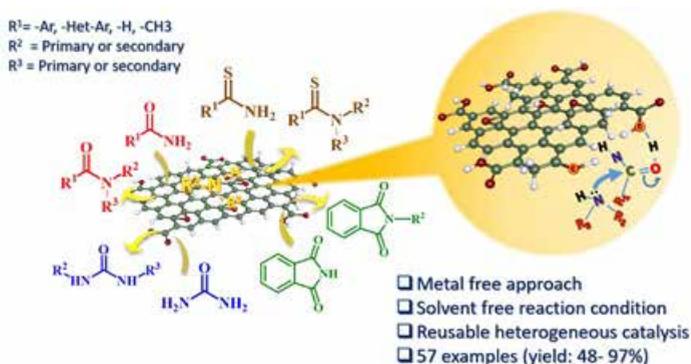


FIGURE 2: Synthesis of Diverse Amides using graphene oxide under Solvent-Free Conditions

- The protocol is equally applicable to phthalimide, urea, and thioamide determining its adaptability.
- The graphene oxide can be recycled and reused up to five cycles without much loss in catalytic activity.

Publications (peer reviewed) so far: 113

Patents: 20

Conference proceedings/papers: 71

Seminars/lectures/orations delivered: 33

Ph.D.s awarded as single/ co-guide: 18

Masters awarded as single/ co-guide: 32

H-index: 24

Citations : 2072

Subjects taught :

B. TECH:

- DYT- 1501 Chemistry and Technology of quinonoid colorants
- DYT- 1521 Experimental dyes

M. TECH:

- DYT-2802 Technology and Chemistry of agrochemicals
- DYT- 2102 Specialty chemicals chemistry and technology
- DYP- 2001 Advance unit process and formulations laboratory

- GTT 2101- Analysis and development of green Industrial process
- PFP 2001 Olfaction and sensory education
- PFT- 2101 Chemistry of ingredients in fragrance and flavor

Research Interests:

- Green Chemistry
- Perfumery and Flavour Technology
- Functional colorants
- Supramolecular Chemistry (CB[6], CB[7])
- Metal-ion fluorescent sensor
- Ultrasonics sonochemistry
- Graphene oxide
- Computational studies

Research Students:

Ph.D. (Tech.) - 03

Ph.D. (Sci) - 08

M.Tech. - 07

Research Publications:

International- 18
Peer-reviewed- 18

Patents :

Indian - 20

Sponsored Projects:

Government- 2

Private- 1

Professional Activities:

- Course coordinator of Perfumery and flavors technology
- Co-Chairperson of media publicity
- Faculty representative and Co-Chairperson of cultural and co-curricular activity
- Member of election cell, ICT
- Member of apex institutional quality assurance cell
- Member of anti-Ragging squad, ICT

Special Awards/Honours:

- Mr. Prashant Ghorpade was awarded first prize for the poster presentation in COC-2019.
- Ms. Vidula kamble and Ms. Manjusha bharsa were awarded third prize for the poster presentation in COC-2019.



PROF. N. SEKAR.

B.Sc. (Hon), B.Sc. (Tech), M.Sc. (Chemistry) Ph.D. (Tech), B. A (Music), M.A (German), M.Mus. (Indian Music)

Former Head, Department of Dyestuff Technology

Professor in Tinctorial Chemistry

Research Interests :

Synthesis of multistep Heterocyclic and Fused Heterocyclic compounds,

Process development of security strong disperse intermediates, Fluorescent dyes sensing, Laser Dyes, compounds for bio- sensors, NIR absorbing, fluorescing, medical diagnostics and reflecting colorants,

Tinctorially, Extended Styryl dyes, Metal complex dyes for photovoltaics, Greener Methods for fluorescent compounds, Synthesis and formulation of perfumes and flavors, Computational Chemistry.

HIGHLIGHTS:

- Five coumarin disperse azo dyes with thiophene bridge are synthesized
- 3a show red shifted absorption i.e. 649 nm, high UPF and antimicrobial activity.
- has (-NO₂) a strong acceptor with increased pi-conjugation.
- They show UPF and antimicrobial property effect on textile fabric.
- The lightfastness, UPF and antimicrobial property are correlated with help of Density Functional Theory (DFT).

Publications (Peer reviewed) so far: 508

Patents: 08 Filed

Conference proceedings/papers: 115

Seminars/lectures/orations delivered: 26

Ph.D.'S awarded as single: 5

Masters awarded as single/co-guide: 22

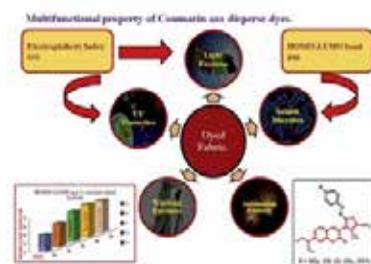
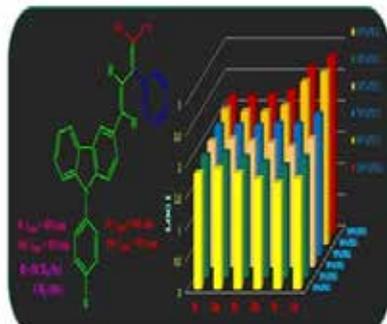
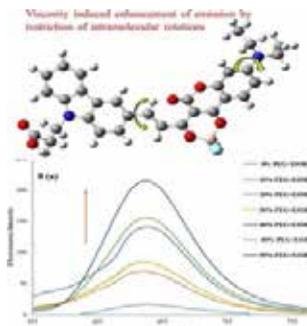
H-index: 27

Citations: 2874

Research students:

PDF - 01

Ph.D. (Sci) -10



Research Publications:

International- 30

Peer-reviewed – 30

Conference proceeding- 26

Books- 03

Sponsored Projects:

Government - 06

Special Awards/Honours / Accolades:

- Awarded as Chairperson at the International conference on Pure and Applied chemistry held in Mauritius in July 2016.
- Certified as Invited speaker in 35th Annual National Conference of Indian Council of Chemists held at Haribhai V.Desai collage,Pune in association with collage

of Engineering,Pune in December 2016.

- Awarded as an outstanding research faculty and top ten knowledge producers in India for the academic year 2017-2018

Publications (Peer Reviewed) So far: 111

Patents: 19

Conference Proceedings/Papers: 71

Seminars/lectures/orations delivered: 36

Ph.D.s awarded as single/co-guide: 18

Masters Awarded as Single/Co-guide: 32

H-index : 22

citations : 1911



DR. SURAJIT SOME

M. Sc. Ph.D. (Science)

Assistant Professor Dyestuff Technology Department

Fellowships/ Memberships Of Professional Bodies:

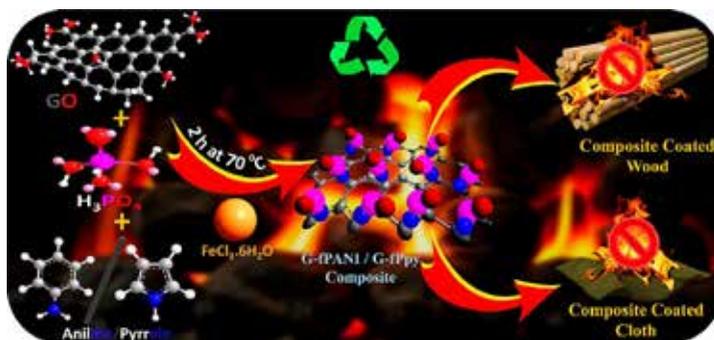
Member of American Chemical Society.

Highlights of Research work done and its impact:

In this article, we report the synthesis of polymer-functionalized graphene composites as highly potent flame retardants. Functionalized polyaniline (PANI)- and polypyrrole (PPy)-supported graphene nanocomposites were synthesized by the reaction of graphene oxide, and monomers of the above-mentioned polymers, aniline and pyrrole, respectively, in the presence of phosphoric acid. These synthesized nanocomposites show excellent flame-retardant properties when coated with cotton fabric and wood. When G-fPANI and G-fPPy solutions were coated on a cloth piece which was exposed to a flame its initial shape and size were sustained by liberating a little amount of smoke. At the initial stage, the coated cloth did not catch fire for more than 620 s (10.20 min) and 380 s (6.20 min) in case of G-fPANI and G-fPPy, respectively, whereas

the use of only PANI, PPy, and GO coated on blank cloths were totally burned within 14, 10, and 10 s, respectively. Blank cloth subjected to fire was totally burned within 10 s, leaving small amounts of black mass.

wood was also used to check the flame-retardant nature of prepared nanocomposites, and it showed good results. This is the first time such a novel approach has been made to prepare polymer-functionalized graphene



Scheme 1: Synthesis of Polymer-Functionalized Graphene Composite Flame Retardant (G-fPANI and G-fPPy)

Flame-retardant efficiency of G-fPANI- and G-fPPy-coated cloth was confirmed by detailed flame tests such as a limiting oxygen test (LOI), vertical flammability test, and exposure to high temperature (~1500 °C). In the case of the LOI test, G-fPANI- and G-fPPy-coated cloths show high values up to 47.6 and 41.9 indicating an excellent flame-retardant property. Like cotton fiber,

nanocomposites as a flame retardant for fire prevention using a simple, cost-effective route in comparison to prior work. A novel and green approach to the synthesis of sulfur and nitrogen co-functionalized reduced graphene oxide (SN-rGO), by the reduction of graphene oxide (GO) using deep eutectic solvent (DES) as chemical reducing agent and dopant. For the first time, we are

introducing a DES of choline chloride and sodium sulfide as cheap and safe components, which is highly effective as well as a reusable reducing agent to produce SN-rGO. DES was utilized as a solvent as well as reducing agent and dopant to generate SN-rGO. This DES is highly efficient to remove oxygen functionality from GO followed by sulfur and nitrogen functionalization designed for energy storage efficiency.

g-1 at 1 A g-1 current density which corresponds to high energy and power density 57.3 Wh kg⁻¹, 1804.7 W kg⁻¹, respectively. This simple and green method of direct reduction of GO with sulfur and nitrogen functionalization on graphene surface can be a cost-effective bulk production of a nanocarbon template for energy storage applications.

Publications (peer reviewed) so far: 36

Patents: 15



Scheme 2. General illustration of the preparation of DES by using choline chloride and sodium sulfide.

The reduction ability of this DES was confirmed with 5 consecutive cycles, which adds to the sustainability and recyclability for development of energy storage devices. The SNrGO has exhibited high specific capacitance 509 F

H-index: 19

Citations : 1418

Subjects Taught:

- DYT1204: Heterocyclic colorants and intermediates.
- DYT1206: Structural elucidation of organic

compound.

- DYT2109: Organic materials for electronic.
- DYP1501: Analysis of intermediates and dyes and fibers.

Research Interests:

- Graphene Nanotechnology, graphene quantum dot and Material Chemistry.
- Synthesis of graphene derivatives and their applications: Semiconductor materials, Energy storage materials, Flame retardant, waste water treatment, Bio-probes, Sensors, Anticancer materials, Surfactants, Advanced catalysts.

Research Students:

P.D.F. - 2 (Research Associate)

Ph.D. (Sci) - 07

M.Tech. - 01

B.Tech. (Final Year) - 12

Research Publications:

International - 36

Books - 01

Patents: 15

International - 09

Indian - 06

Sponsored Projects: 05

Government- 03

Private- 02

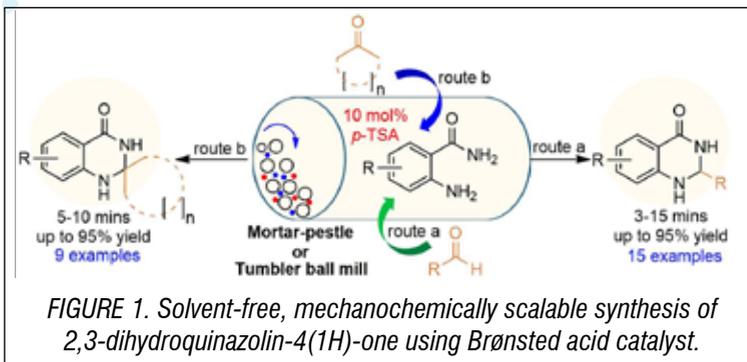


DR. SATYAJIT SAHA

B. Sc. (Chem Hon), M. Sc. (Organic Chemistry), Ph.D. (Sci).
Assistant Professor

Highlights of research work done and its impact:

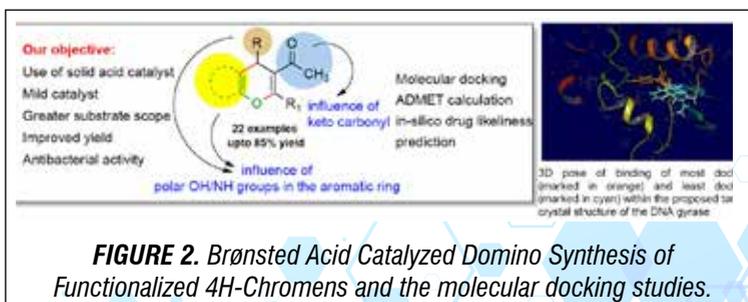
- We have demonstrated a rapid, environmentally benign and energy efficient method for the synthesis of 2,3-dihydroquinazolin-4(1H)-one by grinding in mortar pestle as well as mechanochemically via ball milling using 10 mol% p-TSA catalyst.
- Interestingly, bis (2,3-dihydroquinazolin-4(1H)-one) could also be synthesized effortlessly by mechanochemical grinding in mortar-pestle.
- The ability to accomplish the reaction in the absence of solvent via grinding or milling with p-TSA catalyst, with an immediate reduction in the cost and operational procedures, features the significant advantages of this protocol.
- The study also demonstrated the significant role of ball diameter to improve the efficiency of the milling operation.



- We have developed a highly efficient domino synthesis of substituted 4H-chromenes utilizing p-TSA as Brønsted acid catalyst.
- Simple reaction conditions, easy isolation of the products and large substrate scope are the advantages of the present method.
- we have calculated the Absorption, Distribution, Metabolism, Excretion, and Toxicity (ADMET)

properties of the synthesized molecules and the theoretical binding mode at the chlorobiocin binding site using molecular docking modeling.

- Binding energies were also calculated along with the in-silico calculation of drug-likeness, medicinal chemistry, water solubility and boiled egg-prediction model for passive absorption using SwissADME target prediction tool.



- The antibacterial properties of selected products were also reported which may find applications in medicinal chemistry.
- Molecular hybridization, a unique concept for rational drug designing, has been manifested in the design and synthesis of novel iminocarbazole derivatives.
- All compounds showed moderate to potent antimicrobial activity (1.4 ug/mL-125 ug/mL).
- The present work will undoubtedly help in the design and development of new potent antimicrobials based on iminocarbazole scaffold.

Publications (peer reviewed) so far: 18

Conference proceedings/papers: 3

Seminars/lectures/orations delivered: 3

Ph.D. S awarded as single/co-guide: 2 ongoing

Masters awarded as single/co-guide: 2 ongoing

H-index: 10

Citations: 599

Subjects taught:

- DYT 1721: Reaction Mechanism and reagent chemistry
- DYP 1001: Analysis of Inorganic Raw Materials

of colorants

- PFT 2005: Analytical chemistry and quality control techniques
- DYT 1107: Technology of Pigments
- DYP 1009: Preparation and Analysis of Dyes, Intermediates, Optical Brighteners, Functional colorants
- DYT 2106: Crop Protecting Chemicals

Research Interests:

Organic synthesis, Green Chemistry, Catalysis, Enantioselective transformations, organocatalysis, Functional Dyes, Perfumery and Flavor Technology

Research Students:

P.D.F- 1 (Research associate)

Ph.D. (Sci) - 02

M.Tech. - 02

B.Tech (BTUGRP) - 3

Research Publications:

International- 6

Peer-reviewed- 6

Sponsored Projects:

Government - 5

Professional activities:

used in Dyestuff Industries

- DYT 2101: Advances in the chemistry and technology

- Member of the Academic Programme (Student diary)

- Departmental TEQIP-III coordinator

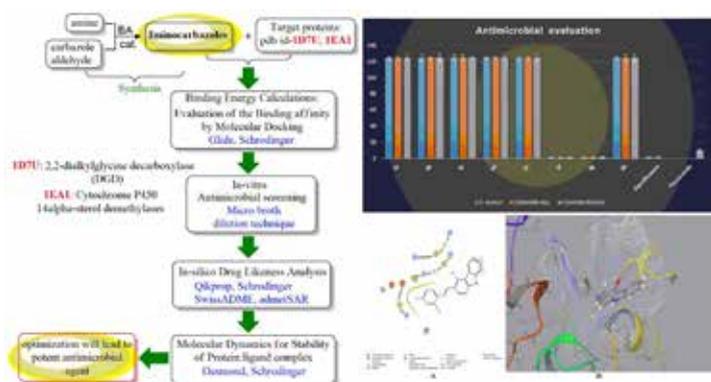


FIGURE 3. Flow diagram of the design, synthesis and computational analysis carried out in this work.



DR. NABANITA SADHUKHAN

*B. Sc. (Chem. Hon), M. Sc. (Inorg. Chem),
Ph.D. (IITK, Chemistry), Post-doc (Japan)*

Assistant Professor of Dyestuff Technology
DST Young Scientist (2014),
CSIR-Pool Scientist (2014 – 2016) at CLRI

Subjects Taught:

B. Tech

- DYT-1203 – Fluorescent colorant
- DYT-1101 – Technology of Intermediate I
- DYT-1102 – Technology of Intermediate II
- DYT-1203 – Chemistry of Functional colorant
- DYT 1107 - Technology of Pigments
- DYP-1004 – Chromatography Techniques and Preparation of Intermediates of Dyes
- DYP – 1001 – Analysis of Inorganic Raw Materials used in Dyestuff Industries

Research Interests:

- Stimuli responsive biologically important functional molecules
- Functional colorants for biological application
- Fluorescent dyes for cosmetic application
- Monodisperse polymer
- Stimuli responsive controlled release of fragrance from organic gel
- Aggregation induced fluorescent dyes for bio-

imaging

- Bio-mimicking catalysis
- Small molecule derived nano-carrier for drug delivery
- Natural dyes inspired molecular glue for anti-tumor and anti-cancer application

Publications (peer reviewed) so far: 18

Conference Proceedings/papers: 2

Seminars/lectures/orations delivered: 6

Masters awarded as single: 2

H-index: 10

Citations: 299 (Google scholar)

Sponsored Projects:

Government (ongoing) : 2
(CSIR = 1, and TEQIPIII = 1)

Government (Completed) : 2
(UGC = 1, and DST-SERB = 1)

Professional activities:

Member of American Chemical Society

Research Students:

- Ph.D. (Sci) in Chemistry -2 (JRF)
- Project Assistant – 1
- M.Tech. - 1

Highlights of research work done and its importance:

- Stimuli responsive biologically important functional colorants for biological application:-
a) We are working on bioinspired 'Molecular glue'. The synthesis, characterization and potential antitumor/anticancer applications are our research interests.
b) In addition, our research interest lies on bio-mimicking catalysis in aqueous media.
c) Aggregation induced fluorescent dyes for biological application
- Fluorescent dyes for cosmetic application:-
Synthesis, characterization and application of fluorescent dyes for cosmetic application.
- Green protocol to prepare monodisperse polymer for bio application:-
Biological properties of monodisperse Polyethylene oxide (PEO) defers compared to polydisperse analogue. Now, we have started working on an eco-friendly process modification for the synthesis of

polyethylene oxide towards monodispersity and process intensification for upscale production following green technology protocol. Such processes will be highly useful for large scale production of high molecular weight monodisperse PEO by pharma-industry.

- Stimuli responsive controlled release of

fragrance from organic gel and molecular vehicle:- Synthesis and characterization of photo and thermo dual responsive organic gels that can entrap fragrance molecules. Controlled release of fragrances from the gel is under study.

- Organometallic and inorganic coordination chemistry for bio-

mimicking application: Design of solvent dyes based ligands, which can occupy two or more metal centers together towards organometallic / bimetallic complexation, and their application in biologically relevant catalysis, LEDs like application by structural colorant inspired by birds.

SUPPORT STAFF



Mr. H. R. Fegade
(Instrument Mechanic)



Mr. S. B. Sonawane
(Senior Lab Assistant)



Mr. A. M. Patil
(Lab Assistant)



Mr. A. R. Rawool
(Lab Assistant)



Mr. Y. S. Chandiwade
(Lab Attendant)



Mr. P. B. Rana
(Lab Attendant)

UNDERGRADUATE STUDENTS' SEMINARS/PROJECTS/HOME PAPERS:

SEMINARS			
Sr. No.	Name	Roll no.	Seminar Topics
1	Abha valavalkar	15DYE1001	Distillation in packed column
2	Minhaj Hannure	15DYE1002	Vacuum system in chemical industry
3	Parth Parekh	15DYE1003	Liquid level measuring instruments
4	Dhruv Sureka	15DYE1004	Ionophores
5	Riddhesh Dani	15DYE1005	Solar pigments
6	Manish jain	15DYE1006	Carbon supported materials for dye degradation
7	Saily Bhagwat	15DYE1008	Retinoids
8	Pankaj Kumar Rajput	15DYE1010	Cross conjugated chromophores
9	Saurabh Patil	15DYE1011	Croconium Colorants
10	Viraj Shinde	15DYE1012	Conducting paints.
11	Suyash Oka	15DYE1014	Color formers
12	Nupur Damke	15DYE1015	Organometalic dyes for display application
13	Nikita Gulgule	15DYE1016	Green chemistry in nitration
14	Sairam Malekar	15DYE1017	Natural dyes used to detect tumors
15	Sudesh Tandlekar	15DYE1018	Size reduction experiments used in chemical plant
16	Aishwarya Gurav	15DYE1020	Filtration media used in dye industry.

POST GRADUATE STUDENTS' SEMINARS/PROJECTS:

M. TECH.				
Sr. No.	Research Scholar	Previous Institution	Project	Supervisor
1	Chaudhari Sushil M.Tech Perfumery	Government college of pharmacy, Amravati.	Synthesis of fragrance and flavor ingredients using DES and Ionic liquids	Prof. G.S. Shankarling
2	Kamble Vidula M.Tech Perfumery	Sharad Pawar college of Food Technology, Ratnagiri	Synthesis of aroma compounds through green routes	Prof. G.S. Shankarling
3	Bharose Manjusha M.Tech Green tech	University Department of Chemical Technology, Dr. B.A.M. University, Aurangabad.	Green Solvents for Base Catalysed Reactions	Prof. G.S. Shankarling
4	Tikhe Rashmi M.Tech Perfumery	Government college of pharmacy, Amravati	Synthesis of novel odorant from renewable resource.	Prof. G.S. Shankarling
5	V.Sundarlakshmi	Indian Institute of Food processing technology	Creation of new novel citrus blend	Prof. G.S. Shankarling

6	David Dorathy M.Tech Perfumery	D.Y.Patil school of Biotechnology	Synthesis of macrocyclic musk from shellac	Prof. G.S. Shankarling
7	Chordiya Aadeshkumar M.Tech Dyestuff	K.K. Wagh, Nashik	Process development of anthraquinone and phthalimide derivative	Prof. G.S. Shankarling
8	Praful Patil M.Tech Dyestuff	Konkan Gyanpeeth Rahul Dharkar College of Pharmacy, Karjat	Not yet decided	Prof. N. Sekar
9	Shinde Dinesh M.Tech Perfumery	KSK College of food Technology, Beed.	Study of on Bacterial foul odour.	Dr. Surajit Some
10	Shewale Anuradha	Queens collage of food Technology and Research Foundation	Synthesis of synthetic fragrance molecules	Dr. Satyajit Saha
11	Mete Aditi Vilas	K. K. Wagh, Nasik	Synthesis of Anthraquinone based dyes and study photophysical properties	Dr. Satyajit Saha

SEMINARS

Sr.	Name of the Student	Topic
1	Shinde Dinesh	Study of on Bacterial foul odour.
2	Aditi Vilas Mete	Design strategies in Organic Dyes Sensitized Solar Cells
3	Pravin S Mogarkar	Analytical Methods used in analysis of fragrance and flavor materials

RESEARCH PROJECTS

Ph.D. (Tech.)

Sr.	Research Scholar	Previous Institution	Project	Supervisor
1	Joglekar Amruta	Institute of Chemical technology, Mumbai	Development and characterization of specialty colorants using conventional and environmentally benign methods	Prof. G.S. Shankarling
2	Patil Yogesh	Institute of Technology, Nirma University, Ahmedabad	Dye degradation using metal organic framework	Prof. G.S. Shankarling
3	Chaturvedi Ankur	Institute of Chemical Technology	Characterization of Ionic Liquids	Prof. G. S. Shankarling

Ph.D. (SCIENCE)

Sr. No.	Research Scholar	Previous Institution	Project	Supervisor
1	Moolya Preetam	RPG Life Sciences	Synthesis of High-performance colorants	Prof. G. S. Shankarling
2	Vajekar Shailesh	Ruparel College, Mumbai	Study and synthesis of novel colorant for High-tech application	Prof. G. S. Shankarling
3	Ghorpade Prashant	VMV College, Amravati	Synthesis of novel deep eutectics and study of deep eutectics mixtures for catalytic action in organic synthesis	Prof. G.S. Shankarling
4	Rathi Jyoti	Vidyabharti College Amaravati	Implementation of Chiral Deep Eutectic solvent for selective organic synthesis.	Prof. G.S. Shankarling
5	Khopkar Sushil	University department Chemistry, Mumbai.	Synthesis, photophysical properties and application of novel squaraines	Prof. G.S. Shankarling
6	Jachak Mahesh	Centaur Pharmaceuticals Pvt. Ltd	Synthesis of novel colorants for metal sensor applications and ink jet ink formulations.	Prof. G.S. Shankarling
7	Patel Khushbu	University department Chemistry, Mumbai.	Synthesis of graphene oxide and its functionalized derivatives as a promising carbocatalyst for organic transformations	Prof. G.S. Shankarling
8	Mehta Viral	Mithibai College, Mumbai	Studies in supramolecular host cavitated Cucurbit[n]urils: Synthesis and their applications	Prof. G.S. Shankarling
9	Rupali Bhise	Swami Ramanand Teerth Marathwada University, Nanded	Deep Eutectic Solvent as greener media for oxidation reaction	Prof. G. S. Shankarling
10	Sulochana Bhalekar	Ahmednagar college, Ahmednagar	Synthesis of fluorescent colourants	Prof. N. Sekar
11	Manish Raikwar	The D.G. Ruparel College	Synthesis of highly fluorescent heterocyclic compounds	Prof. N. Sekar
12	Suvidha Shinde	Department of Textiles and fibre processing and technology department, ICT, Mumbai	Application of fluorescent dyes on textile and leather substrate	Prof. N. Sekar & Prof. R.V. Adivarekar(Co-guide)
13	Mishra Virendra	University Of Mumbai. Kalina.	Synthesis of Fluorescent reactive dyes & their intermediates	Prof. N. Sekar

14	Nitish N Ayare	ICT Mumbai.	Synthesis of fluorescent dyes with high performance.	Prof. N. Sekar
15	Yadav Sagar B.S.	University of Mumbai, Kalina.	Synthesis of Heterocyclic Dyes with High performance Fluorescence.	Prof. N.Sekar
16	Ramugade Supriya H.	ICT, Mumbai.	Synthesis and application of photostable dyes on textiles	Guide-Prof. N.Sekar Prof. R.V. Adivarekar (Co-guide)
17	Ghanavatkar Chaitannya Waman	Gogate Jogalekar college Ratnagiri	Synthesis of photostable and Fluorescent reactive dyes & their intermediates	Prof. N. Sekar
18	Sharma Suryapratap	The Institute of Science , Mumbai	Intramolecular Charge/Proton Transfer Chromophores for Dye Sensitized Solar Cells (DSSC's) and NLO properties	Prof. N.Sekar
19	Zahir ali siddiqui	University of delhi	Design, synthesis and properties of dimeric acenes and their application for	Guide-Prof. N.Sekar Co-Guide Dr. Sandeep more
20	Zeba Khan	Jai hind college university of mumbai	Synthesis of xanthene based fluorescent colourants	Prof. N.Sekar
21	Vandana kumari Shukla	University of pune	Not yet decided	Prof. N.Sekar
22	Sumeet Sonvane	Dr.Babasaheb Ambedkar Marathwada University, Aurangabad	Not yet decided	Prof. N.Sekar
23	Puja Omprakash Gupta	K.J. Somaiya college of science and commerce Mumbai University	Not yet decided	Prof. N.Sekar
24	Dattatray A. Pethsangave	Dr. B.A.M.U. Aurangabad	Synthesis of graphene derivative and their application.	Dr. Surajit Some
25	Rahul V. Khose	Wilson college, Mumbai	Tunable laser properties of dye decorated graphene derivatives.	Dr. Surajit Some
26	Pravin H. Wadekar	Institute of science Mumbai	Development of Graphene based supercapacitor employing improved protocols for preparation of graphene.	Dr. Surajit Some

27	Pratik S. Dhumal	Dr. B.A.M.U. Aurangabad	Synthesis and characterization of spongy graphene material for effluent treatment.	Dr. Surajit Some
28	Mahesh P.Bondarde	Pune University	Synthesis of graphene based nanocomposite for energy storage devices.	Dr. Surajit Some
29	Madhuri A. Bhakare	Dr. B.A.M.U. Aurangabad	Green approach towards synthesis of conductive paint from biomass.	Dr. Surajit Some
30	Kshama D. Lokhande	Dr. B.A.M.U. Aurangabad	Synthesis and characterization of carbon based nanocomposites and their application.	Dr. Surajit Some
31.	Jejurkar Valmik P.	SPPU, Pune	Design and Synthesis of Novel Organic Dyes Based on Twisted Architecture for functional applications in DSSC, OLEDs, sensors etc.	Dr. Satyajit Saha
32.	Yashwantrao Gauravi	Mumbai University	Synthesis and process intensification of N-heterocycles and their applications	Dr. Satyajit Saha
33.	Tanvi Phoolchand Gupta	Jay Hind College, Mumbai	"An eco – friendly process modification for the synthesis of polyethylene oxide towards monodispersity and process intensification for upscale production following Green Technology protocol" (TEQIP)	Dr. Nabanita Sadhukhan
34.	Rohit Narendra Ketkar	Ramnarain Ruia College	"Novel approach to make tailored design molecular glue from bioinspired dye molecules: Evaluation of properties and potential antitumor/anticancer applications."	Dr. Nabanita Sadhukhan

POSTDOCTORAL/Ph.D. STUDENTS' RESEARCH PROJECTS:

No.	Research Scholar	Previous Institution	Project	Supervisor
1	Dr. Dipti Lakhe	IIT BOMBAY	Synthesis of novel fluorescent cyanine dyes for High technology application	Prof. N.Sekar
2	Kshatriya Rajpratap	University of Pune	A Novel Approach Of Rational Catalyst Design For The Direct Enantioselective α -Allylation/Alkylation Of Ketones	Dr. Satyajit Saha

DETAILS OF SPONSORED PROJECTS – GOVERNMENT AND PRIVATE :

I. GOVERNMENT AGENCIES:	
Sponsor	BARC
Title	Development and characterization of specialty colorants using conventional and environmentally benign methods
Duration	3 years
Total amount	-
Principal Investigator	Prof. G. S. Shankarling
Research Fellows	Joglekar Amruta

Sponsor	TEQIP-III
Title	Deep Eutectic Solvent as greener media for oxidation reaction
Duration	18 months
Total amount	-
Principal Investigator	Prof. G. S. Shankarling
Research Fellows	Rupali Bhise

Sponsor	BRNS
Title	Tunable laser properties of dye decorated graphene derivatives
Duration	3 years
Total amount	27.78 Lacs
Principal Investigator	Dr.Surajit Some
Research Fellows	Rahul V.khose

Sponsor	DST-SERB
Title	Synthesis of 3D, fixable heteroatom doped carbon based metal oxide containing nanocomposites for its high-performance supercapacitor application
Duration	3 years
Total amount	25.81 Lacs
Principal Investigator	Dr.Surajit Some
Research Fellows	Dattatray A.Pethsangave

Sponsor	CSIR
Title	Synthesis of Graphene Based Bioadsorbent for west stream treatment
Duration	3 years
Total amount	29.26 Lacs
Principal Investigator	Dr.Surajit Some
Research Fellows	Dnyaneshwar K.Kulal (Reasearch Associative)

Sponsor	SERB-DST
Title	Design and Synthesis of Novel Organic Dyes Based on Trogers's Base (TB) Architecture for Efficient Dye Sensitized Solar Cells (DSSC)
Duration	3 years (2015-2018)
Total amount	Rs. 29,99,000
Principal Investigator	Dr. Satyajit Saha
Research Fellows	Valmik Jejurkar Pandurang

Sponsor	CSIR
Title	A Novel Approach Of Rational Catalyst Design For The Direct Enantioselective α -Allylation/Alkylation Of Ketones
Duration	3 years (2017-2020)
Total amount	Rs. 25 46,000
Principal Investigator	Dr. Satyajit Saha
Research Fellows	Dr. Rajpratap Kshatriya

Sponsor	ICT Mumbai-Golden Jubilee Research Grant
Title	Design and synthesis of novel organic dyes with twisted architecture for applications in dye sensitized solar cells
Duration	1 year (2018-2019)
Total amount	Rs. 0.4 lakh
Principal Investigator	Dr. Satyajit Saha
Research Fellows	-

Sponsor	UGC
Title	Organocatalytic Transformations
Duration	2 years (2016-2017)
Total amount	Rs. 6,00,000
Principal Investigator	Dr. Satyajit Saha
Research Fellows	-

Sponsor	TEQIP-III
Title	Process intensification by continuous-flow production of 2-aryl-1,2,3,4-tetrahydroquinoxaline derivatives in high optical purity mediated by immobilized organocatalyst
Duration	20 months
Total amount	Rs. 7,50,000
Principal Investigator	Dr. Satyajit Saha
Research Fellows	Gauravi Yashwantrao

Sponsor	CSIR
Title	Novel approach to make tailored design molecular glue from bioinspired dye molecule: evaluation of properties and potential anticancer applications
Duration	3 years (2018-2021)
Total amount	Rs. 12,98,667
Principal Investigator	Dr. Nabanita Sadhukhan
Research Fellows	Rohit Ketkar

Sponsor	TEQIP-III
Title	"An eco – friendly process modification for the synthesis of polyethylene oxide towards monodispersity and process intensification for upscale production following Green Technology protocol" (TEQIP)
Duration	-
Total amount	19 months
Principal Investigator	Dr. Nabanita Sadhukhan
Research Fellows	Tanvi Gupta

II. PRIVATE AGENCIES:

Sponsor	Reliance industries
Title	Characterization of Ionic Liquids
Duration	12 months
Total amount	-
Principal Investigator	Prof. G. S. Shankarling
Research Fellows	Ankur Chaturvedi

Sponsor	ONGC
Title	Development of Graphene based supercapacitor employing improved protocols for preparation of graphene
Duration	15 Month
Total amount	14,70,000
Principal Investigator	Dr.Surajit Some
Research Fellows	Pravin H.Wadekar

Sponsor	ONGC
Title	Development spongy Graphene Materials for Recovery of crude oil from Effluent water
Duration	15 Month
Total amount	14,59000
Principal Investigator	Dr.Surajit Some
Research Fellows	Mr. Pratik Dhumal Mr. Mahesh Bondarde

DETAILS OF NATIONAL AND INTERNATIONAL COLLABORATIONS

- Dr. H. Choudhury, Department of Pharmacy, ICT Mumbai
- Dr. G. U. Chaturbhuj, Department of Pharmacy ICT Mumbai
- Dr. Purav Badani, University of Mumbai

PUBLICATIONS					
No.	Title and authors	Journal	Vol. No.	Pages	Year
1	Synthesis, photophysical properties and applications of NIR absorbing unsymmetrical squaraines: A review Khopkar, S., Shankarling, G.	Dyes and Pigments	170	107645-10774	2019
2	Viscosity sensitive semisquaraines based on 1, 1, 2-trimethyl-1H-benzo[e]indole: Photophysical properties, intramolecular charge transfer, solvatochromism, electrochemical and DFT study Khopkar, S., Jachak, M., Shankarling, G.	Journal of Molecular Liquids	285	123-135	2019

3	Graphene Oxide: A Metal-Free Carbocatalyst for the Synthesis of Diverse Amides under Solvent-Free Conditions Patel, K.P., Gayakwad, E.M., Patil, V.V., Shankarling, G.S.	Advanced Synthesis and Catalysis pp	361(9)	2107-2116	2019
4	Novel A2-D-A1-D-A2 type NIR absorbing symmetrical squaraines based on 2, 3, 3, 8-tetramethyl-3H-pyrrolo [3, 2-h] quinoline: Synthesis, photophysical, electrochemical, thermal properties and photostability study Khopkar, S., Jachak, M., Shankarling, G.	Spectrochimica Acta - Part A: Molecular and Biomolecular Spectroscopy	211	114-124	2019
5	Novel semisquaraines based on 2, 3, 3, 8-tetramethyl-3H-pyrrolo [2, 3- f] quinoline: Synthesis, photophysical properties, AIE, viscosity sensitivity and DFT study Khopkar, S., Jachak, M., Shankarling, G.	Dyes and Pigments	161	1-15	2019
6	Room temperature diazotization and coupling reaction using a DES-ethanol system: A green approach towards the synthesis of monoazo pigments Kamble, S.S., Shankarling, G.S.	Chemical Communications 55(42), pp. 5970-5973	55 (42)	5970-5973	2019
7	Sodium sulfate-hydrogen peroxide-sodium chloride adduct: selective protocol for the oxidative bromination, iodination and temperature dependent oxidation of sulfides to sulfoxides and sulfones Gayakwad, E.M., Patel, K.P., Shankarling, G.S.	New Journal of Chemistry	43(15),	6001-6009	2019

8	Nonanebis (peroxoic acid)-Mediated Transition-Metal-Free Approach for N-Oxide Synthesis Gayakwad, E.M., Patel, K.P., Shankarling, G.S.	Chemistry Select	3(40),	11219-11222	2018
9	Amalgamation of CSR and DES: An Energy Efficient Protocol for the One-Pot Synthesis of 2,4,6- Triaryl Pyridine Derivatives. S. Kamble, S., S. Shankarling, G.	Chemistry Select	3(37),	pp. 10464-10467	2018
10	Greener Protocol for the Synthesis of NIR Fluorescent Indolenine-Based Symmetrical Squaraine Colorants Khopkar, S., Deshpande, S., Shankarling, G.	ACS Sustainable Chemistry and Engineering	6(8)	10798-10805	2018
11	Graphene Oxide Promoted Oxidative Bromination of Anilines and Phenols in Water Ghorpade, P.V., Pethsangave, D.A., Some, S., Shankarling, G.S.	Journal of Organic Chemistry	83(14)	7388-7397	2018
12	Application of Fe ₃ O ₄ @ Silica Sulfuric Acid as a Magnetic Nanocatalyst for the Synthesis of Rhodamine Derivatives Vajekar, S.N., Shankarling, G.S.	Chemistry Select	3(21)	5848-5852	2018
13	Ru(II)-Salen Complex: Solvent Selective Homogeneous Catalyst for One-Pot Synthesis of Nitriles and Amides Borase, P.N., Thale, P.B., Shankarling, G.S.	Chemistry Select	3(20)	5660-5666	2018

14	Choline Hydroxide Promoted Synthesis of N-Aryl Anthraquinone Derivatives: Metal Free Approach to Ullmann Coupling Reactions Pant, P.L., Sonune, R.K., Shankarling, G.S.	ChemistrySelect	3(19)	5249-5253	2018
15	Supramolecular host-guest interaction of antibiotic drug ciprofloxacin with cucurbit[7]uril macrocycle: Modulations in photophysical properties and enhanced photostability Boraste, D.R., Chakraborty, G., Ray, A.K., Shankarling, G.S., Pal, H.	Journal of Photochemistry and Photobiology A: Chemistry	358	26-37	2018
16	A simple substituted spiropyran acting as a photo reversible switch for the detection of lead (Pb ²⁺) ions Deshpande, S.S., Jachak, M.A., Khopkar, S.S., Shankarling, G.S.	Sensors and Actuators, B: Chemical	258	648-656	2018
17	A Unique Blend of Water, DES and Ultrasound for One-Pot Knorr Pyrazole Synthesis and Knoevenagel-Michael Addition Reaction Kamble, S.S., Shankarling, G.S.	Chemistry Select	3(7)	2032-2036	2018
18	Recent advances in synthetic methodologies for transition metal-free Ullmann condensation reactions Pant, P.L., Shankarling, G.S.	New Journal of Chemistry	42(16)	13212-13224	2018

19	UV protective heterocyclic disperse azo dyes: Spectral properties, dyeing, potent antibacterial activity on dyed fabric and comparative computational study Mishra, V.R., Ghanavatkar, C.W., Sekar, N.	Spectrochimica Acta - Part A: Molecular and Biomolecular Spectroscopy	223	117353	2019
20	Novel Aza-BODIPY based turn on selective and sensitive probe for on-site visual detection of bivalent copper ions Yogesh Gawale, Sreejith Mangalath, Nagappanpillai Adarsh, Joshy Joseph, Danaboyina Ramaiah, Nagaiyan Sekar	Dyes and Pigments	171	107684	2019
21	Triphenylamine and N-phenyl carbazole-based coumarin derivatives: Synthesis, solvatochromism, acidochromism, linear and nonlinear optical properties Yadav, S.B., Kothavale, S., Sekar, N.	Journal of Photochemistry and Photobiology A: Chemistry	382	111937	2019
22	Biphenyl-Amine-Based D- π -A'- π -A Sensitizers for DSSCs: Comparative Photo-Conversion Efficiency in Iodide/triiodide and Cobalt-Based Redox Electrolyte and DFT Study Manish M. Raikwar Keval K. Sonigara Dinesh S. Patil Hiren Machhi Saurabh S. Soni, Nagaiyan Sekar	Chemistry Select	4(24)	7371-7379	2019

23	Change in spectral properties of dyes upon immobilization on siliconsurfaces: a combined theoretical and experimental study Mukherjee A, Thorat K.G, Sekar N, Panda S	SN Applied Sciences	1	678	2019
24	Azo dyes with ESIPT core for textile applications and DFT study Ramugade S. H, Umesh S. Warde U. S., Sekar N	Dyes and Pigments	170	107626	2019
25	NLOphoric Triphenylamine Derived Donor-p-Acceptor-p-Donor Based Colorants: Synthesis, Spectroscopic, Density Functional Theory and Z-scan Studies Raikwar M.M., Mathew E, Varghese M, Joe I. H, Sekar N	Photochemistry and Photobiology 10.1111/php.13089		In press	2019
26	Chlorine (Cl) - Substituted Carbazole Based A- π -D- π -a Push-Pull Chromophores as Aggregation Enhanced Emission (AEE) Active Viscosity Sensors: Synthesis, DFT and NLO Approach Lokhande P.K, Patil D. S, Mayuri Kadam M, Sekar N	Journal of Fluorescence	29	779-795	2019
27	Investigation of photophysical, structural aspects and nonlinear optical properties of Foron Blue SR analogs using Density Functional Theory (DFT) Bhagwat A, Sekar N	Journal of Chemical Sciences (accepted) 10.1007/s12039-019-1632-7	131	56	2019

28	Effect of donor modification on the photo-physical and photo-voltaic properties of N-alkyl/aryl amine based chromophores Jadhav M Vaghasiya J. V, Patil,D, Saurabh S. Soni S. S, Sekar N	New J. Chem.	43	8970--8981	2019
29	Synthesis, bioactivities, DFT and in-silico appraisal of azo clubbed benzothiazole derivatives Ghanavatkar, C.W., Mishra, V.R., Mali, S.N., Chaudhari, H.K., Sekar, N.	Journal of Molecular Structure	1192	162-171	2019
30	Synthesis, spectroscopic characteristics, dyeing performance and TD-DFT study of quinolone based red emitting acid azo dyes Shinde, S., Sekar, N.	Dyes and Pigments 168	168	12-27	2019
31	Viscosity sensitive red shifted novel D- π -A carbazole chromophore with chlorine in π -spacer: Synthesis, photophysical properties, NLO study and DFT approach Lokhande, P.K.M., Patil, D.S., Sekar, N.	Journal of Luminescence	211	162-175	2019
32	D- π -A- π -D coumarin hybrids derived from arylamine donors: DFT and Z-scan studies Raikwar, M.M., Avhad, K.C., Varghese, M., Mathew E, Joe, I.H., Sekar, N.	Optical Materials	92	100-110	2019
33	Near IR emitting novel rhodanine-3-acetic acid based two donor- π -acceptor sensitizers for DSSC: Synthesis and application Jadhav, M.M., Chowdhury, T.H., Bedja, I., Patil D, Islam, A., Sekar, N.	Dyes and Pigments	165	391-399	2019

34	Synthesis of novel colorants for DSSC to study effect of alkyl chain length alteration of auxiliary donor on light to current conversion efficiency Jadhav, M.M., Vaghasiya, J.V., Patil, D., Soni, S.S., Sekar, N.	Journal of Photochemistry and Photobiology A: Chemistry	377	119-129	2019
35	NLOphoric benzyl substituted BODIPY and BOPHY: A comprehensive linear and nonlinear optical study by spectroscopic, DFT and Z-scan measurement Mallah, R.R., Mohbiya, D.R., Sreenath, M.C., Chitrambalam S, Joe, I.H., Sekar, N.	Spectrochimica Acta - Part A: Molecular and Biomolecular Spectroscopy	215	122-129	2019
36	Design and Synthesis of Coumarin–Imidazole Hybrid Chromophores: Solvatochromism, Acidochromism and Nonlinear Optical Properties Bhagwat, A.A., Avhad, K.C., Patil, D.S., Sekar, N.	Photochemistry and Photobiology	95	740-754	2019
37	Multi-Dentate Carbazole Based Schiff Base Dyes with Chlorovinylene Group in Spacer for Dye-Sensitized Solar Cells: A Combined Theoretical and Experimental Study. Lokhande, P.K.M., Sonigara, K.K., Jadhav, M.M., Patil D.S, Soni, S.S., Sekar, N.	Chemistry Select	41	4044-4056	2019

38	Synthesis of 2-methyl-5-(5-phenyl substituted-1,3,4 oxadiazole-2-yl) quinazolin-4-one fluorescent brightening agent: Computational and experimental comparison of photophysical structure Patil, V., Padalkar, V.S., Sekar, N., Patil, S.V., Rajput, J.	Journal of Molecular Structure	1182	150-157	2019
39	NLO-Phoric Emissive Quinoxaline Analog of Quinoline Yellow 54 and Z-Scan Studies Ayare, N.N., Rajeshirke, M., Sreenath, M.C., Chitrabalam S, Joe, I.H., Sekar, N.	Chemistry Select	4	3752-3761	2019
40	Multi-stimuli responsive emissive NLOphoric colorants – A recent trend in research Rajeshirke, M., Sekar, N.	Dyes and Pigments	163	675-683	2019
41	Photostable coumarin containing azo dyes with multifunctional property Ayare, N.N., Ramugade, S.H., Sekar, N.	Dyes and Pigments	163	692-699	2019
42	Influence of thiophene spacer and auxiliary acceptor on the optical properties of 4-(Diethylamino)-2-hydroxybenzaldehyde based D- π -A- π -D Colorants with N-alkyl donors: Experimental, DFT and Z-scan study Raikwar, M.M., Patil, D.S., Mathew, E., Varghese M, Joe, I.H., Sekar, N.	Journal of Photochemistry and Photobiology A: Chemistry	373	45-58	2019

43	One-bath dyeing of polyester/cotton blend with vinyl sulphone reactive disperse dyes Meena, C.R., Maiti, S., Sekar, N., Kulkarni, K., Adivarekar, R.V.	Asian Dyer 16	16	26-32	2019
44	Synthesis of 2-methyl-5-(5-phenyl substituted-1,3,4 oxadiazole-2-yl) quinazolin-4-one fluorescent brightening agent: Computational and experimental comparison of photophysical structure Patil, V., Padalkar, V.S., Sekar, N., Patil, S.V., Rajput, J.	Journal of Molecular Structure	1182	150-157	2019
45	Influence of acceptors in NLOphoric aacenaphthene and morpholine-thiourea hybrid dyes: Photophysical, viscosity, DFT and Z-Scan study Mohbiya, D.R., Mallah, R.R., Sreenath, M.C., Chitrambalam S, Joe, I.H., Sekar, N.	Optical Materials	89	178-190	2019
46	Non-linear optical response of meso substituted dipyrromethene boron difluoride dyes: Synthesis, photophysical, DFT and Z scan study Mallah, R.R., Mohbiya, D.R., Sreenath, M.C., Chitrambalam S, Joe, I.H., Sekar, N.	Optical Materials	89	164-172	2019
47	Red emitting coumarin based 4, 6-disubstituted-3-cyano-2-pyridones dyes – Synthesis, solvatochromism, linear and non-linear optical properties Kadam, M.M.L., Patil, D.S., Sekar, N	Journal of Molecular Liquids.	276	385-398	2019

48	Synthesis, photophysical, viscosity and DFT study of solid state fluorescent molecular rotors Bhalekar, S., Avhad, K., Sekar, N.				
	Journal of Photochemistry and Photobiology A: Chemistry.	371	223-237	2019	
49	Non-linear optical response of meso hybrid BODIPY: Synthesis, photophysical, DFT and Z scan study Mallah, R.R., Mohbiya, D.R., Sreenath, M.C., Chitrambalam S, Joe, I.H., Sekar, N.	Spectrochimica Acta - Part A: Molecular and Biomolecular Spectroscopy	209	126-140	2019
50	Solvent and Substituents Effect on the UV/Vis Absorption Spectra of Novel Acidochromic 2-Aminothiazole Based Disperse Mono Azo Dyes Rajeshirke, M., Kadam, M., Sekar, N.	Fibers and Polymers	20	320-327	2019
51	Design, synthesis, antimicrobial activity and computational studies of novel azo linked substituted benzimidazole, benzoxazole and benzothiazole derivatives Mishra, V.R., Ghanavatkar, C.W., Mali, S.N., Qureshi S.I, Chaudhari, H.K., Sekar, N	Computational Biology and Chemistry	78	330-337	2019
52	Rhodanine-3-acetic acid containing D- π -A push-pull chromophores: Effect of methoxy group on the performance of dye-sensitized solar cells Avhad, K., Jadhav, M., Patil, D., Chowdhury T.H, Islam A, Bedja, I., Sekar, N.	Organic Electronics	65	386-393	2019

53	Fluorescent 7-Substituted Coumarin Dyes: Solvatochromism and NLO Studies Bhagwat, A.A., Sekar, N.	Journal of Fluorescence	29	121-135	2019
54	Nonlinear Optical Chromophores with Aggregation Induced Emission Enhancement Based on 2-N,N-Dibutylamino-4-Phenyl Thiazole with FMR Characteristics Rajeshirke, M., Shah, D., Sekar, N.	Journal of Fluorescence	29	61-73	2019
55	Molecular and NLO Properties of Red Fluorescent Coumarins – DFT Computations Using Long-Range Separated and Conventional Functionals Sekar, N., Katariya, S., Rhyman, L., Alswaidan, I.A., Ramasami, P.	Journal of Fluorescence	29	241-253	2019
56	Extensive Study of Rhodanine-Arylamine-Based Chromophores: Consolidated Optical, DFT/TD-DFT and Non-Linear Optical Properties Avhad, K.C., Patil, D.S., Chitrambalam, S., Sreenath M.C, Joe, I.H., Sekar, N.	ChemistrySelect	4	211-221	2019
57	Schiff base clubbed benzothiazole: synthesis, potent antimicrobial and MCF-7 anticancer activity, DNA cleavage and computational study Mishra, V.R., Ghanavatkar, C.W., Mali, S.N.,	Journal of Biomolecular Structure and Dynamics 10.1080/07391102.2019.1621213			2019

58	2-(1,1-Dioxidobenzo[b]thiophen-3(2H)-ylidene) malononitrile (BTD) Based Styryl Chromophores-Solvatochromic and Computational Investigation of Linear and NLO properties Bhagwat AA, Sekar N	ChemistrySelect	3	13654 - 13664	2018
59	Effect of methoxy group on NLOphoric properties of fluorescent 7-arylstyryl-2-methoxyphenylimidazo [1,2-a]pyridine - Solvatochromic and computational method Jadhav, S.D., Alswaidan, I.A., Rhyman, L., Ramasami, P, Sekar, N.	Journal of Molecular Structure.	1173	349-365	2018
60	4-(Diethylamino) salicylaldehyde based fluorescent Salen ligand with red-shifted emission – A facile synthesis and DFT investigation Kadam, M.M.L., Patil, D., Sekar, N.	Journal of Luminescence	204	354-367	2018
61	Highly fluorescent blue-green emitting phenanthroimidazole derivatives: Detail experimental and DFT study of structural and donating group effects on fluorescence properties Kothavale, S., Bhalekar, S., Sekar, N.	Dyes and Pigments	159	209-221	2018
62	NIR emitting new N, N-diethylaniline based NLOphoric D- π -A and D-A'- π -A dyes: Photophysical properties, viscosity sensitivity and DFT studies Patil, D., Jadhav, M., Avhad, K., Gawale, Y., Sekar, N.	Journal of Luminescence	204	436-447	2018

63	Triphenyl borate catalyzed synthesis of amides from carboxylic acids and amines Ghorpade, S.A., Sawant, D.N., Sekar, N.	Tetrahedron	74	6954-6958	2018
64	Fluorescent carbazole based pyridone dyes – Synthesis, solvatochromism, linear and nonlinear optical properties Kadam, M.L., Patil, D., Sekar, N.	Optical Materials	85	308-318	2018
65	Theoretical Investigation of Difluoroboron Complex of Curcuminoid Derivatives with and without Phenyl Substituent (at Meso Position): Linear and Non-Linear Optical Study Raikwar MM, Rhyman L. Ramasami P. SekarN	Chemistry Select	3	11339-11449	2018
66	Viscosity-active D- π -A chromophores derived from benzo[b]thiophen-3(2H)-one 1,1-dioxide (BTD): Synthesis, photophysical, and NLO properties Bhagwat, A.A., Mohbiya, D.R., Avhad, K.C., Sekar, N.	Spectrochimica Acta - Part A: Molecular and Biomolecular Spectroscopy	203	244-257	2018
67	Carbazole based NLOphoric styryl dyes-synthesis and study of photophysical properties by solvatochromism and viscosity sensitivity Kadam, M.M.L., Patil, D., Sekar, N.	Journal of Luminescence	202	212-224	2018

68	Excitation energy transfer processes in BODIPY based donor-acceptor system - Synthesis, photophysics, NLO and DFT study Mallah, R., Sreenath, M.C., Chitrabalam, S., Joe, I.H., Sekar, N.	Optical Materials	84	795-806	2018
69	Fluorescent meso-benzyl curcuminoid boron complex: Synthesis, photophysics, DFT and NLO study Mallah, R.R., Mohbiya, D.R., Sreenath, M.C., Chitrabalam S, Joe, I.H., Sekar, N.	Optical Materials	84	786-794	2018
70	Electronic structure and spectral properties of indole based fluorescent styryl dyes: Comprehensive study on linear and non-linear optical properties by DFT/TDDFT method Mohbiya DR, Sekar N	Computational and Theoretical Chemistry	1139	90 – 101	2018
71	Influence of electron donors in fluorescent NLOphoric D- π -A derivatives with acenaphthene rotor: Photophysical, viscosity, and TD-DFT studies Mohbiya, D.R., Mallah, R.R., Sekar, N.	Journal of Photochemistry and Photobiology A: Chemistry	364	40-52	2018
72	Low cost and efficient hetero-anthracene based small organic hole transporting materials for solid state photoelectrochemical cells Vaghasiya, J.V., Sonigara, K.K., Patel, M.H., Patel V.K. Sekar, N., Soni, S.S.	Materials Today Energy	9	496-505	2018

73	Linear correlation between DSSC efficiency, intramolecular charge transfer characteristics, and NLO properties – DFT approach Patil DS, Avhad KC, Sekar N	Computational and Theoretical Chemistry	1138	76 - 83	2018
74	Viscosity sensitive fluorescent coumarin-carbazole chalcones and their BF ₂ complexes containing carboxylic acid – Synthesis and solvatochromism Rajeshirke, M., Tathe, A.B., Sekar, N.	Journal of Molecular Liquids	264	358-366	2018
75	Azo Acid Dyes Based on 2H-Pyrido[1,2-a]Pyrimidine-2,4(3H)-Dione with Good Tinctorial Power and Wetfastness - Synthesis, Photophysical Properties, and Dyeing Studies Gawale, Y., Jadhav, A., Sekar, N.	Fibers and Polymers	19	1678-1686	2018
76	Azo Acid Dyes Based on 2H-Pyrido[1,2-a]Pyrimidine-2,4(3H)-Dione with Good Tinctorial Power and Wetfastness - Synthesis, Photophysical Properties, and Dyeing Studies Gawale, Y., Jadhav, A., Sekar, N.	Fibers and Polymers	19	1678-1686	2018
77	Highly Stoke shifted near infrared (NIR) emitting donor-pi-acceptor chromophore: Synthesis and combined experimental and computational studies of photophysical properties Jadhav, M.M., Patil, D., Sekar, N.	Journal of Photochemistry and Photobiology A	363	13-22	2018

78	Enhancement of NLO Properties in OBO Fluorophores Derived from Carbazole-Coumarin Chalcones Containing Carboxylic Acid at the N-Alkyl Terminal End Rajeshirke, M., Sreenath, M.C., Chitrabalam, S., Joe, I.H., Sekar, N.	Journal of Physical Chemistry C	122	14313-14325	2018
79	Spectroscopic and DFT approach for structure property relationship of red emitting rhodamine analogues: A study of linear and nonlinear optical properties Jadhav AG, Ehyman K, Alswaidan LA, Ramasami P, Sekar N	Computational and Theoretical Chemistry	1131	1-12	2018
80	Viscosity induced emission of red-emitting NLOphoric coumarin morpholine-thiazole hybrid styryl dyes as FMRs: Consolidated experimental and theoretical approach Avhad, K.C., Patil, D.S., Chitrabalam, S., Sreenath M C,, Joe, I.H., Sekar, N.	Optical Materials	79	90-107	2018
81	Large Stokes Shifted Far-Red to NIR-Emitting D- π -A Coumarins: Combined Synthesis, Experimental, and Computational Investigation of Spectroscopic and Non-Linear Optical Properties Avhad, K.C., Patil, D.S., Gawale, Y.K. Chitrabalam S, Sreenath M C, Joe, I.H., Sekar, N.	Chemistry Select	3	4393-4405	2018

82	Red Emitting Monoazo Disperse Dyes with Phenyl(1H-benzimidazol-5-yl) Methanone as Inbuilt Photostabilizing Unit: Synthesis, Spectroscopic, Dyeing and DFT Studies Jadhav, A.G., Shinde, S.S., Sekar, N.	Journal of Fluorescence	28	639-653	2018
83	Bedford-type palladacycle-catalyzed miyaura borylation of aryl halides with tetrahydroxydiboron in water Zernickel, A., Du, W., Ghorpade, S.A., Sawant D N, Makki A A, Sekar, N., Eppinger, J.	Journal of Organic Chemistry	83	1842-1851	2018
84	Tuning 'Stokes Shift' and ICT Character by Varying the Donor Group in Imidazo[1,5 a]pyridines: A Combined Optical, DFT, TD-DFT and NLO Approach Mohbiya, D.R., Sekar, N.	Chemistry Select	3	1635-1644	2018
85	NLO properties of ester containing fluorescent carbazole based styryl dyes – Consolidated spectroscopic and DFT approach Rajeshirke, M., Sekar, N.	Optical Materials	76	191-209	2018
86	Fluorescent pyridopyrimidine fused pyranones - design, synthesis, fluorescent whitening and DFT studies Gawale, Y., Sekar, N.	Journal of Luminescence	194	248-256	2018
87	Auxiliary Methoxy Aided Triphenylamine and Dicyanoisophorone Based Fluorophores with Viscosity and Polarity Sensitive Intramolecular Charge Transfer Erande, Y., Kothavale, S., Sekar, N.	Journal of Solution Chemistry	47	353-372	2018

88	Phenylpyran-fused coumarin novel derivatives: combined photophysical and theoretical study on structural modification for PET-inhibited ICT emission Jadhav, A.G., Shinde, S.S., Patil, D.S., Sekar, N.	Structural Chemistry	29	217-230	2018
89	Triphenylamine Derived 3-Acetyl and 3-Benzothiazolyl Bis and Tris Coumarins: Synthesis, Photophysical and DFT Assisted Hyperpolarizability Study Erande, Y., Kothavale, S., Sreenath, M.C., Chitrambalam S Joe, I.H., Sekar, N.	Journal of Electronic Materials	47	1431-1446	2018
90	Modulation of optical properties of BODIPY fluorophore via intramolecular charge transfer Thakare, S.S., Chakraborty, G., More, A.B., Chattopadhyay S, Mula S, Ray, A.K., Sekar, N.	Journal of Luminescence	194	622-630	2018
91	Investigating the excited state optical properties and origin of large Stokes shift in Benz[c,d]indole N-Heteroarene BF ₂ dyes with ab initio tools Gawale Y, Sekar N	Journal of Photochemistry and Photobiology B	178	472-480	2018
92	Fluorescent Benzocoumarin- π -Extended Styryl Hybrids: Solvatochromism, Excess Dipole Moment, NLO Properties and DFT Study Warde, U., Sekar, N.	Journal of Fluorescence	28	293-309	2018

93	NLOphoric rigid pyrazino-phenanthroline donor- π -acceptor compounds: Investigation of structural and solvent effects on non-linear optical properties using computational methods Kothavale, S., Katariya, S., Sekar, N.	Optical Materials 75, pp. 379-389	75	379-389	2018
94	Structure-efficiency relationship of newly synthesized 4-substituted donor- π -acceptor coumarins for dye-sensitized solar cells Jadhav, M.M., Vaghasiya, J.V., Patil, D.S., Soni, S.S., Sekar, N.	New Journal of Chemistry	42	5267-5275	2018
95	Water promoted allylic nucleophilic substitution reactions of (: E)-1,3 diphenylallyl acetate Ghorpade, S.A., Sawant, D.N., Makki, A., Sekar, N., Eppinger, J.	Green Chemistry 20(2), pp. 425-430	20	425-460	2018
96	Modulation of the Photophysical Properties of β -substituted BODIPY Dyes More, A.B., Chakraborty, G., Mula, S., Ray, A.K., Sekar, N.	Journal of Fluorescence	28	381-392	2018
97	Excited State and Non-linear Optical Properties of NIR Absorbing β -Thiophene-Fused BF ₂ -Azadipyromethene Dyes—Computational Investigation Gawale Y, Rhyman L, Elzagheld M, Ramasami P, Sekar N	Journal of Fluorescence	28	243 - 250	2018

98	Triphenylamine derived coumarin chalcones and their red emitting OBO difluoride complexes: Synthesis, photophysical and NLO property study Erande, Y, Kothavale, S., Sreenath, M.C., Chitrambalam S, Joe, I.H., Sekar, N.	Dyes and Pigments	148	474-491	2018
99	A new class of triphenylamine-based novel sensitizers for DSSCs: A comparative study of three different anchoring groups Patil, D., Jadhav, M., Avhad, K., Chowdhury T.H. Islam A, Bedja, I., Sekar, N.	New Journal of Chemistry	42	11555-11564	2018
100	Aqueous protocol for allylic arylation of cinnamyl acetates with sodium tetraphenylborate using a Bedford-type palladacycle catalyst Ghorpade, S.A., Sawant, D.N., Renn, D., Zernickel, A Du W, Sekar, N., Eppinger, J.	New Journal of Chemistry	42	6210-6214	2018
101	Effect of structural manipulation in hetero-tri-aryl amine donor-based D-A'- π -A sensitizers in dye-sensitized solar cells Patil, D.S. Sonigara, K.K. Jadhav, M.M., Avhad K C, Soni, S.S., Sekar, N.	New Journal of Chemistry	42	4361-4371	2018
102	Novel Approach toward the Synthesis of a Phosphorus-Functionalized Polymer-Based Graphene Composite as an Efficient Flame Retardant. Dattatray A. Pethsangave, Rahul V. Khose, Pravin H. Wadekar, and Surajit Some	ACS Sustainable Chem. Eng.	7	11745-11753	2019

103	Effect of morphological ordering on the electrochemical performance of MnO ₂ -Graphene oxide composite. Samik Saha, Prasenjit Maji, Dattatray A. Pethsangave, Atanu Roy, Apurba Ra, Surajit Some, Sachindranath Das	Electrochimica Acta	317	199-210	2019
104	One-pot Facile Synthesis of Sulfur and Nitrogen cofunctionalized Graphene material using Novel Deep Eutectic Solvent for Supercapacitor applications Pravin H. Wadekar, Rahul V. Khose, Dattatray A. Pethsangave, and Surajit Some.	Chem Sus Chem	12	3326-3335	2019
105	Biomass-Derived Lignocellulosic Graphene Composite: Novel Approach for Removal of Oil and Organic Solvent Dnyaneshwar K. Kulal, Rahul V. Khose, Dattatray A. Pethsangave, Pravin H. Wadekar, and Surajit Some.	Chemistry Select,	4	4568-4574	2019
106	Solvent-Free, Mechanochemically Scalable Synthesis of 2,3-2 Dihydroquinazolin-4(1H)-one Using Brønsted Acid Catalyst Gauravi Yashwantrao, Valmik P. Jejurkar, Rajpratap Kshatriya and Satyajit Saha*	ACS Sus. Chem. Eng.	DOI: 10.1021/acssuschemeng.9b03199	-	2019

107	Brønsted Acid Catalyzed Domino Michael Addition and Cyclocondensation Towards the Synthesis Of Functionalized 4H-Chromens And Their ADMET, Molecular Docking And Antibacterial Studies. Rajpratap Kshatriya Daya Kamble, Suraj Mali, Valmik P. Jejurkar, Hemchandra Choudhury, Pradeep Lokhande and Satyajit Saha*	ChemistrySelect	DOI: 10.1002/slct.201901775	-	2019
108	Synthesis, antimicrobial screening and in-silico appraisal of iminocarbazole derivatives Valmik P. Jejurkar, Suraj Mali, Rajpratap Kshatriya, Hemchandra Chaudhury and Satyajit Saha*	Chemistry Select	(accepted, in production)	-	2019
109	Recent advances in the catalytic synthesis of triaryl methanes (TRAMs) Rajpratap Kshatriya, Valmik P. Jejurkar and Satyajit Saha*	Eur. J. Org. Chem	3818-3841	-	2019
110	Scope and Advances in Catalytic Propargylic Substitution Reactions Rashmi Roy and Satyajit Saha*	RSC Advances	31129-31193	8	2018
111	In memory of Prof. Venkataraman: recent advances in the synthetic methodologies of flavones Rajpratap Kshatriya, Valmik P. Jejurkar and Satyajit Saha*	Tetrahedron	811-833	74	2018

PATENTS:

No.	Inventors	Title	Country	Funding agency
1	Sekar,N.; Mishra, V.R; Dahatonde, D.J; Ghanavatkar, C.W.	Improved process for synthesis of 2-(4-aminophenylsulfonyl) ethyl hydrogen sulfate	India	PSA-II
2	Surajit Some and Dattatray A. Pethsangave	Development of method to synthesize novel polymer based composite as an efficient flame retardant thereof	India	TEQIP- ICT
3	Surajit Some, Pravin H. Wadekar	Development of method to synthesize Aqueous Dispersible Reduced Graphene oxide .	India	TEQIP-ICT
4	Surajit Some, Rahul V. Khose and Alok Ray	Flame retardant transparent liquid based on novel functionalized Graphene Quantum Dot Provisional Patent Filled	India	BARC-BRNS

BOOK CHAPTER:

No.	Author(s)	Title of the chapter	Editor	Publisher	Place	Year	Page
1.	Dnyaneshwar K.Kulal, Prakash C.Loni, Criss Dcosta Surajit Some and Pramod K.Kalambate	Advances in Cyanobacterial Biology	-	Elsevier Academic press	USA	2019	Accepted

MEMBERSHIP OF IN-HOUSE COMMITTEES:

- Departmental TEQIP-III coordinator
- Member of the academic programme (student diary)

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

- Poster presented on "Graphene oxide promoted oxidative bromination of anilines and phenols in water with high selectivities" in international conference "Chemcon-2018" by Prashant Ghorpade, Dattatray Pethsangave, Khushbu Patel, Surajit Some* and Ganapati Shankarling* held on 27th – 30th December 2018 at IChE, Department of Chemical Engineering, Jalandhar, Punjab, India.
- Participated in International convention on colorants (COC) 2019 held on 28th Feb and 1st March at The Club, Andheri, organized jointly by Department of Dyestuff Technology, Institute of Chemical Technology and Dyestuff Manufacturing association of India.
- Attended Refresher course, 12th Nov 2018-1st Dec 2018, HRDC, Mumbai University
- Attended NRCE Workshop (PMMMNTT), MHRD, on Identification of Subject Wise Resources for Teachers, 6-8 June 2018, NIEPA, New Delhi, NIEPA, New Delhi
- Invited lecture for a Summer Training Workshop, 9th May 2019 at Birla College, Kalyan, Maharashtra.

- Poster presentation on “Solvent-Free, Mechanochemically Scalable Synthesis of 2,3-2 Dihydroquinazolin-4(1H)-one Using Brønsted Acid Catalyst, Valmik P. Jejurkar, Gauravi Yashwantrao, Valmik P. Jejurkar and Satyajit Saha at National Seminar on Catalysis for Fine Chemicals (NSFC), 25th July 2019, CSIR-CSCMRI, Bhavnagar, Gujrat

EVENTS ORGANIZED:

- Prof. Prakash M. Bhate’s farewell seminar and felicitation function held on 28th October 2018
- International convention on colorants (COC) 2019 held on 28th Feb and 1st March at The Club, Andheri, organized jointly by Department of Dyestuff Technology, Institute of Chemical Technology and Dyestuff Manufacturing association of India.
- Dyes Day-2019
- Two days’ Workshop on statistical design of

experiments organized by department of dyestuff Technology, ICT Mumbai Funded by TEQIP III

- COC-2019, Member of the organizing committee, 28th Feb and 1st March 2019, The Club, Andheri, Mumbai
- Coordinator for the two-day Workshop on Design of Experiments, 1st and 2nd Feb 2019, ICT Mumbai
- Coordinator of the Dyes department for the Industry Readiness Programme for final year students, 27th Feb 2019, ICT Mumbai

INDUSTRIAL CONSULTANCY:

DETAILS OF POST-GRADUATE/PH.D. STUDENTS WHO PASSED OUT:

Name	Course	
Boraste Deepak	Ph.D (Sci.)	Studies in synthesis and application of pyromethene derivative and cucurbitol host molecules
Gayakwad Eknath	Ph.D (Sci.)	Green methodologies for synthesis of novel heterocyclic colorants.
More Priyanka	Ph.D (Sci.)	Utilization of biocatalyst in organic synthesis
Kamble Sujit	Ph.D (Tech.)	Green approach in synthesis of heterocyclic compounds and synthesis of novel colorants.
Pant Preeti	Ph.D (Sci.)	Synthesis of colorants for functional applications and implementation of green principles in organic reactions.
Jadhav Manoj	Ph.D (Sci)	Synthesis of Novel Colorants for Dyes Sensitized Solar Cells
Mallah Ramnath	Ph.D (Sci)	Synthesis of Highly Fluorescent Fused Heterocyclic Compounds
Erande Yogesh	Ph.D (Sci)	Greener Methods for Synthesis of Heterocyclic Compounds
Archana Bhagwat	Ph.D (Sci)	Synthesis and Photophysical Properties of Polycyclic Fluorescent Compounds
Erande Yogesh	Ph.D (Sci)	Greener Methods for Synthesis of Heterocyclic Compounds
Kiran Ahavad	Ph.D (Sci)	Synthesis and Applications of Heterocyclic Fluorescent ES IPT Fluorophore
Dhanraj Mobyia	Ph.D (Sci)	Synthesis of novel fluorescent dyes and their applications

Manali Rajashirake	Ph.D (Sci)	Synthesis of High performance Fluorescent colourants for functional applications
Mayuri Kadam	Ph.D (Sci)	Synthesis of novel fused heterocyclic fluorescent compounds and their applications
Dinesh Patil	Ph.D (Sci)	Synthesis of Novel fluorescent fused heterocyclic colorant systems

THE DEPARTMENT IS EQUIPPED WITH A FUNCTIONAL ORGANIC SYNTHESIS LABORATORY. FACILITIES INCLUDE:

- Autoclaves, Hastelloy – 300 mL, 1 lit
- Autoclaves, SS 316 – 3 x 600 mL, 5 lit
- Pressure reactor
- Glass assemblies
- Julabo
- Lyophilizer / Freeze dryer
- Ice-Machine
- Oven
- Microwave reactors
- Parr hydrogenators – 300 mL, 600 mL
- Rotary evaporators
- High vacuum pump
- Chemical Vapor Deposition
- Centrifuge Machine
- Ultra Sonicator

The following analytical instruments are available:

- Gas Chromatography (GC)
- HPLC
- FTIR
- UV-Visible Spectrophotometer
- Spectrofluorimetry
- Particle size analyzer
- Simultaneous DSC – TGA i.e. Thermo gravimetric analyzer
- 500 MHz NMR (Sanctioned under Prime Minister's Project).
- Cyclic Voltammetry
- Simultaneous DSC-TGA
- Polarimeter
- Water contact angle
- Resistivity meter

The Pigment House is equipped with:

- Analytical mill and homogenizer
- Automatic draw down assembly
- Automatic pigment Mueller
- Automatic vibroshaker
- Ball mill
- Kneader
- Mars mill
- Planetary ball mill
- Sand mill

LABORATORY PHOTOS



Agilent 500MHz
NMR



Gas Chromatography
with Auto-sampler



FT/IR-4000 Series
JASCO FT-IR Spectrophotometer



Particle size
analyzer



Cary Eclipse Fluorescence
Spectrophotometer



LAMBDA 25 UV/Vis Spectrophotometer

LABORATORY PHOTOS



Flash Chromatography
Smart Flash EPCLC AI-5805
Yamazen



Preparative
HPLC



Rotary Evaporator



DSC-TGA Instrument



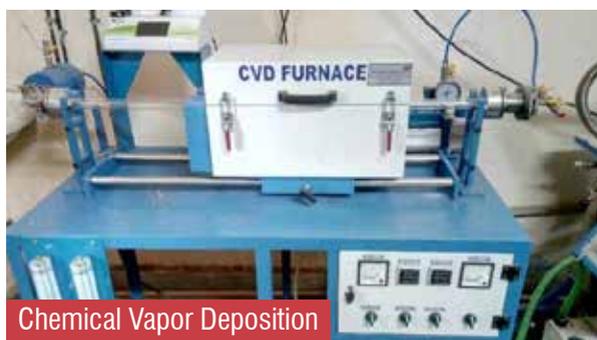
Lyophiliser



HPLC instrument



Cyclic Voltammetry



Chemical Vapor Deposition



Julabo

LABORATORY PHOTOS



Centrifuge Machine



Freeze dryer



Ultra Sonicator



Muffle Furnace



DSC -TGA



Water contact angle



Vaccum oven

PROFESSOR G.S. SHANKARLING RESEARCH GROUP



From Left to Right: Sujit Kamble, Yogesh Patil, Sushil Khopkar, Viral Mehta, Amruta Joglekar, Mahesh Jachak, Manjusha Bharose, Prof. G.S.Shankarling, Khushbu Patel, Vidula Kamble, Rashmi Tikhe, V. Sundarlakshmi, Rupali Bhise

PROFESSOR N. SEKAR RESEARCH GROUP



First Row Left to Right – Puja Gupta, Vandana Shukla, Prof. N. Sekar, Supriya Ramugade, Zeba Khan
Second Row Left to Right – Virendra Mishra, Sagar Yadav, Chaitannya Ghanavatkar, Sumeet Sonvane, Nitesh Ayare, Suryapratap Sharma

DR. SURAJIT SOME RESEARCH GROUP



First Row Left to Right – Madhuri, Kshama, middle Dr.Surajit Some, right side Dattatray and Dinesh

Second Row Left to Right – Dr.Rini, Pratik, right side Dr. Dnyaneshwar and Pravin.

Third Row Left to Right – Mahesh, Rishikesh, right side Abhinav, and Rahul.

DR. SATYAJIT SAHA RESEARCH GROUP



Dr. Satyajit Saha
(Group Leader)



Dr. Rajpratap Kshatriya
(RA, CSIR)
Postdoc



Valmik P. Jejurkar
(SRF, SERB)



Gauravi Yashwantrao
(JRF, TEQIP - III)

Salil Narvekar
BTUGRP
Project fellow

Surabh K. T.
BTUGRP
Project fellow

Atharva Suryavanshi
BTUGRP
Project fellow

DR. NABANITA RESEARCH GROUP



From Left to Right – Mr. Chinmay Thakkar (Project Assistant), Ms. Tanvi Gupta (Ph.D.), Dr Nabanita Sadhukhan (Mentor), Ms. Tejashwini (M.Tech), Mr. Rohit Ketkar (JRF),