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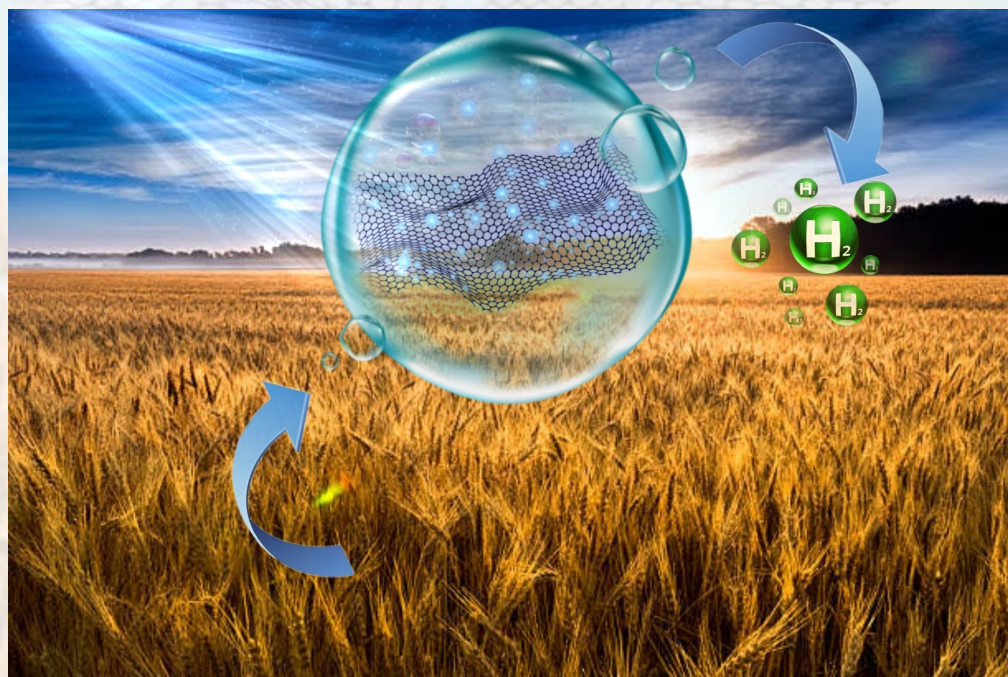
INSTITUTE OF SCIENCE & TECHNOLOGY
Deemed to be University u/s 3 of UGC Act, 1956

Horizon

Quarterly Newsletter

Volume 3, Issue 2

(April to June 2024)



School of Basic Sciences

**College of Engineering and Technology
SRM Institute of Science and Technology
Kattankulathur - 603 203, Chengalpattu District
Tamil Nadu, India**

 NAAC A++	 Category 1 with 12B Status	 12 th Ranked University (2024)	 one among 46 Indian Universities (2025) World Ranking	 one among 91 Indian Universities (2024) World Ranking	 VERY GOOD QS 4 Star Rated Globally	 Ranked 5-7 in Indian Universities (2024) World Ranking
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Message from the Dean Sciences



Dr. D. John Thiruvadigal

Professor and Dean Sciences
School of Applied Sciences
College of Engineering and Technology
SRM Institute of Science and Technol-
ogy Kattankulathur 603 203

I am happy to note that we are releasing volume 3 , issue 2 of the newsletter “Horizon” with highlights on the accomplishments and activities of the School of Basic Sciences during April to June 2024. My sincere thanks to the editorial team of the newsletter “Horizon”, Hearty congratulations and appreciation to the faculty members, research scholars and students for their accomplishments in publishing high impact journals, publishing patents, and securing the funds. I anticipate all the members to continue working work with the same spirit that will enhance not only their individual career but also the school’s growth.

Cover page theme:

The theme of this issue of “Horizon” focuses on the biomass-derived photocatalytic and electrocatalytic water splitting reactions utilising size-confinement earth-abundant nanomaterials (Ti, Cu, and Ni) with 2D graphene support. This work was reported in the journal Nanoscale by our faculty member Dr. S. Karthikeyan, Department of Chemistry.

(D. John Thiruvadigal) 2

Message from the HoD, Chemistry



Dr. M. Arthanareeswari

Professor and Head (Admin.)

Department of Chemistry

College of Engineering and Technology

SRM Institute of Science and Technology

Kattankulathur 603 203

Sci-connect and Sci-meet programs focused on the outgoing students of M.Sc and B.Sc programmes (School of Basic Sciences). Through this Sci-connect platform, final year project works were showcased as posters and interacted with diverse faculty members within our institute. To motivate the young minds, best presentation awards were given Sci-meet, a farewell program for the final year students was conducted. The event enabled the students to express their extracurricular activities, an important event during their stay at SRMIST. In addition, the motivational talk given by Dean Sciences sir could be a game changer in their thought perspective.

As part of curriculum, M.Sc. and B.Sc. students have undergone various internship in industries and prestigious institutions like NIT and IISER. As part of our intense research focus, 14 Ph.D. students were awarded with their Doctoral degree. More than 100 research publications, with an average impact factor of 5.596 were published during this period, including 8 nature indexed papers.

6 days of faculty development programme, AIMM 2024 was conducted with 13 eminent speakers across academia and industries. Two Ph.D. students successfully secured TEEP internship program, one M.Sc. and one Ph.D. student got IIPP internship from Taiwan. For the first time, a Ph.D. student secured a DAAD fellowship for 6 month internship in Germany. As part of their passion towards research, two Ph.D. girl students got SRF fellowship.

My congratulations to all the students who got SRF fellowship and International internships.

Message from the HoD, Mathematics



Dr. V. Subburayan

Associate Professor and Head In-Charge
Department of Mathematics
College of Engineering and Technology
SRM Institute of Science and Technology
Kattankulathur 603 203

The department of mathematics is very happy to be a part in the release of the Second Issue (Volume 3 Issue 2) of our newsletter "Horizon". The department congratulates all the contributors for their hard work and commitment. It is indeed a proud moment to share the achievements of all our students and faculties. Hearty congratulations to Ms. Nikita Naik, Ph.D., Research Scholar for receiving Internship under Taiwan Experience Education Programme at National Taiwan Ocean University, Taiwan. Congratulations to all outgoing B.Sc., and M.Sc., students for their successful completion of their degree and rank holders. I express my sincere gratitude to the members of the department for their dedication and contribution.

Message from the HoD, Physics & Nanotechnology



Dr. A. Karthigeyan

**Professor and Head In-Charge
Department of Physics
and Nanotechnology
College of Engineering and Technology
SRM Institute of Science and Technology**

I am thankful and proud to inform you that our hard work and commitment in achieving top grade in the 4th cycle of the NAAC accreditation is very well appreciated by the authorities. During this process we have learnt a lot and we are sure to achieve many higher standards. We have also achieved QS Subject Rankings -2024 in Physics and Astronomy 451-500 (Joint 10th in India), I congratulate all of you for your tremendous effort and contribution. You have also contributed for the University achieving the subject ranking in Material Science 301-350 (Joint 6th in India).

My heartfelt appreciations and congratulations are due for our faculty members who garnered special recognitions and published articles in Nature indexed journals. In the academic year 2024-25, we are expected to achieve many more standards with all your contributions and also venture into grey areas of concern, such as industry academia collaboration, student mentoring and networking. Wish you all success.

Editorial Team

Dr. D. John Thiruvadigal
Dean Sciences

Prof. M. Arthanareeswari
Head,
Department of Chemistry

Prof. V. Subburayan
Head,
Department of Mathematics

Prof. A. Karthigeyan
Head,
Department of Physics
and Nanotechnology

Dr. K. Ananthanarayanan
Research Associate Professor
Department of Chemistry

Dr. K. K. R. Datta
Research Associate Professor
Department of Chemistry

Dr. A. Anuradha
Assistant Professor
Department of Mathematics

Dr. E. Suresh
Assistant Professor
Department of Mathematics

Dr. S. Venkataprasad Bhat
Research Professor
Department of Physics
and Nanotechnology

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From the Editors Desk

Dear Readers,

Greetings!

We take pleasure in announcing the release of the Volume 3, Issue 2 of HORIZON, the quarterly newsletter of school of Basic Sciences that showcases the activities and achievements of our students and faculty members in the last three months (April 2024 – June 2024).

The issue spotlights the breadth and depth of the contribution of students and faculty members towards teaching, research and consultancy which makes the school of basic sciences special. The issue also highlights the numerous accomplishments by the members of the school in research article publication, acquiring grants and fellowship, patenting and alumni activities.

We invite all the readers' inputs for the betterment of the newsletter. Please write to us at dean.sobs.ktr.et@srmist.edu.in

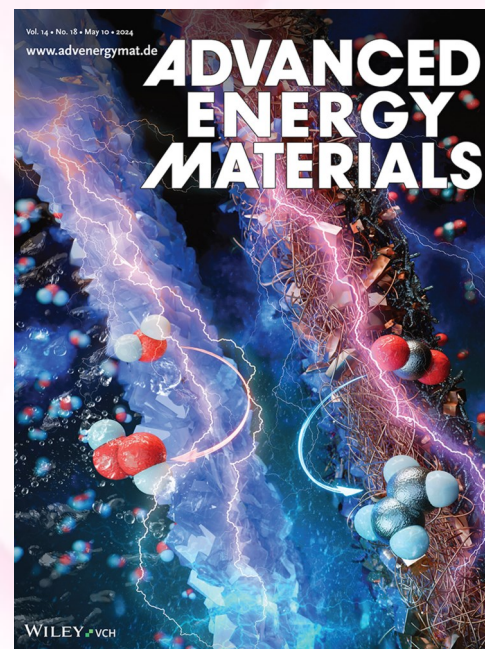
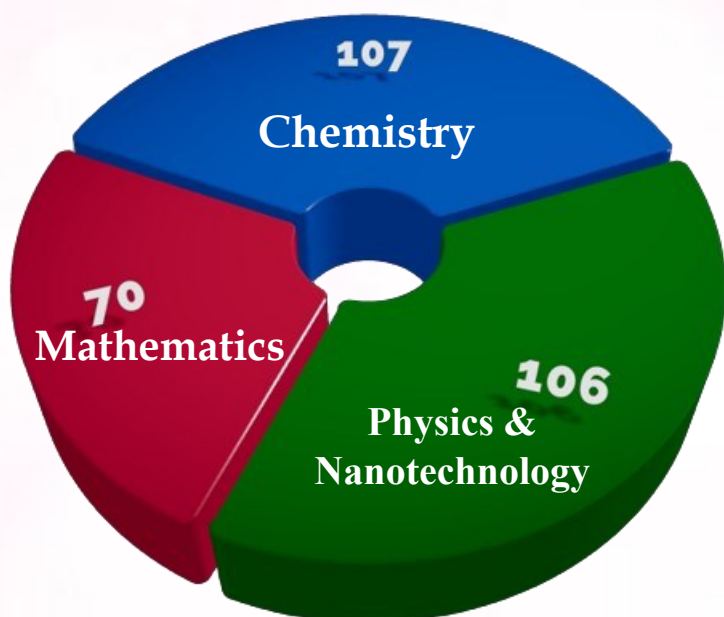
Please enjoy reading our newsletter !!

Highlights

School of Basic Sciences

Key Metrics	January to March 2024	April to June 2024
Total No. of publications (SCI/Scopus)	252	283
Highest Impact Factor Journal Publication	20.6	27.8
No of projects sanctioned	12	1
Total grant outlay	223.93 Lakhs	19.00 Lakhs
No of patents filed / granted	12	4
No of book chapters	4	1
MoUs (International / National)	1	-
Number of Ph.D's completed	15	25

Total number of research publications:



(Impact factor : 27.8)

Academics - Chemistry

QS world ranking **351-400** by subject.

8th position (joint) among Indian universities.

1st position (joint) under the private institutes.

TEEP:

Ms. Jeyakirba (Reg. No. RA2033003011003), Research Scholar (2020 batch), Department of Chemistry got selected for Taiwan's NSTC International Internship Pilot program (IIPP) during 01.05.2024 – 31.07.2024 in National Taiwan University, Taiwan under the supervisor Prof. Woei Wu Larry Pai.



Ms. A. Mullaimalar (Reg. No. RA2233003011008), Research Scholar (2022 batch), received Short-Term Research Internship to Taiwan under Dr. Vinoth Kumar, Associate Professor Nano & Green Analytical Technology Lab in KMU, at Kaohsiung Medical University (KMU), Taiwan through Taiwan Experience Education Program (TEEP) during 1.5.2024 to 31.10.2024.

Mr. Rashid Lateef Bhat (Reg. No. RA2232008010004), M.Sc. Chemistry (2022 batch) Department of Chemistry got selected for Taiwan's NSTC International Internship Pilot program (IIPP) in National Cheng Kung University, Taiwan, Under the Supervision of Prof Chia-Yu-Lin during 01.06.2024 - 31.08.2024.



Ms. Ishaniya (RA2133003011015) Research Scholar (2021 batch), received six month Short-Term Research Internship to Taiwan (TEEP - Taiwan Experience Education Program) under Dr. Ping –Shan Lai from National Chung Hsing University (NCHU) Taiwan during 01.08.2024 to 31.01.2025.

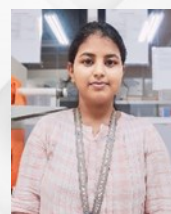
Mr. S. Mariappan, has been awarded the DAAD fellowship (1,300.00 EUR / month) by the German Academic Exchange service for further study and training in Universität zu Köln, Germany during 01.10.2024 – 30.09.2025.

Ms. Nasrin Banu G Ph.D. scholar was selected as a visiting student in the lab of Dr. Wonyong Choi, Korea Institute of Energy Technology, Korea for the period from 01.5.2024 to 30.06.2024.

SRF :



Ms. Yuvashri J., Ph.D. scholar has been selected for CSIR-Senior Research Fellowship in Material Sciences.



Ms. C. Sumithaa, PhD scholar has been selected for CSIR-Senior Research Fellowship in Inorganic and Analytical Chemical Sciences.

Chemistry department exchange program with ERASMUS

Prof. Celedonio M. Álvarez, Universidad de Valladolid, Spain., visited the department of chemistry, SRMIST through ERASMUS program. The duration of his visit is 14.5.2024-17.5.2024. During this visit, he delivered two talks

1. Nuclear Magnetic Resonance lecture series
2. An Interesting Journey through the Supramolecular Interactions of Non-Planar Polyaromatic Compounds

Collaborative Research Project activity:

Under Prof. B. Neppolian's, (Dean, Research) SPARC project, Prof. Wonyong Choi, Korea Institute of Energy Technology (KENTECH), South Korea and Prof. Masaya Matsuoka, Department of Applied Chemistry, Osaka Metropolitan University, Japan were invited to SRMIST for strengthening research collaborations. The professors gave lectures to research scholars and faculty members as follows:

1. Design and development of environmentally friendly photocatalytic eco-materials using solar energy
2. Introduction to the electron-spin resonance technique (14.06.2024)
3. Basics of Catalysis Chemistry ~Topics in catalysis for energy-related fields (10.06.2024)
4. Preparation of visible light responsive Ti-based photocatalysts for H₂ evolution reaction (19.06.2024)



Also, a workshop on Recent Trends in Renewable Energy in collaboration with MHRD - Scheme For Promotion Of Academic And Research Collaboration (SPARC) was conducted on the 18th and 19th of June, 2024.

Name of the Speaker & Designation	Date	Title of the Topic
Prof. Wonyong Choi Editor-in-Chief, ACS ES&T Engineering Institute for Environmental & Climate Technology Korea Institute of Energy Technology Republic of Korea		"Solar energy utilization through photo(electro)catalysis"
Prof. Kulamani Parida Centre for Nano Science and Nano Technology Siksha 'O' Anusandhan University Bhubaneswar, India		"Designing of Graphitic Carbon Nitride for Photocatalytic Hydrogen Production"
Prof. Subrahmanyam Ch. Department of Chemistry Indian Institute of Technology, Hyderabad Telangana, India		"Novel Photocathodes for PEC water splitting"
Dr. Sandeep K Lakhera Department of Physics and Nanotechnology SRM Institute of Science and Technology Chennai, India	18.06.2024	"Hybrid Strategies for Enhanced Photocatalytic Water Splitting: Bridging Conventional and Emerging Methods"
Prof. Aravind Kumar Chandiran Department of Chemical Engineering Indian Institute of Technology, Madras Chennai, India		"Hydrogen evolution – what we have to do"
Prof. Ranga Rao Department of Chemistry Indian Institute of Technology Madras Chennai, India		"Various methods of hydrogen production"



S. No.	Name of the Speaker	Speaker's Affiliation	Title	Name of the Event	Date
1	B.Sc. , M.Sc. students project expo			Sci-Connect 2024	1.4.24
2	The Farewell Day Ceremony on B.Sc. , M.Sc. Chemistry and M.Sc. Organic Chemistry final year students			Sci-Meet 2024	1.4.24
3	Dr. Dineshkumar Raja (Ph.D. Chemistry - 2017–2022).	Institute Post-Doctoral Fellow (IPDF) IIT Bombay Powai, Mumbai 400 076, Maharashtra, India	Beyond the Thesis: Navigating Postdoctoral Opportunities for Success	Alumni Talk series	27.4.24
4	Six-days Faculty Development Program on “Academia to Industry : Molecules to materials”, AIMM 2024				20.5.24 - 25.5.24
5	Prof. Pratim Kumar Chattaraj, FASc., FNASc., FNA, FAScT, FTWAS	Visiting Professor, SRMIST, J.C. Bose National Fellow & Former Professor, IIT, Kharagpur	a) Lectures on Quantum Mechanics, DFT, QSAR Properties etc.,	Visiting professor lecture series	28.6.24
			b) Catalyst free catalytic process	Up skilling of faculty members	28.6.24

SCI MEET - 2024



Students performing at Sci – Meet



Group Photo of III B.Sc. Chemistry students (2021-2024 batch) and faculty members



Group Photo of II M.Sc. Organic Chemistry students (2022-2024 batch) and faculty members



Group Photo of II M.Sc. Chemistry students (2022-2024 batch) and faculty members

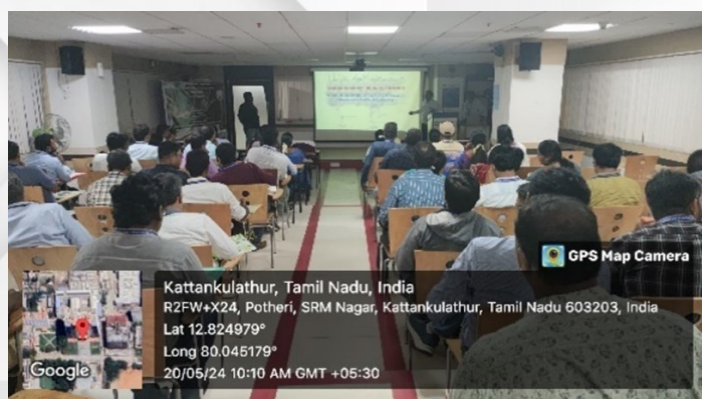
AIMM - 2024

Six-days Faculty Development Program on “Academia to Industry : Molecules to materials”, AIMM 2024 was successfully organized/conducted by the Department of Chemistry, College of Engineering and Technology, SRM Institute of Science and Technology, Kattankulathur from 20 – 25 May 2024 as part of the initiative to bridge the gap between academic and industrial researches for providing motivation to the faculty and research scholars to conduct translation research, thereby aiming to achieve commercialization of the molecules, materials, and the associated products.

The FDP program started in a grand fashion at 9:35 am on 20th May 2024 with the inaugural function at Sir. J. C. Bose Hall, 12th floor, Tech Park, SRMIST.

S. No.	Name of the Speaker and affiliation	Title of talk	Date
1.	Dr. K. Sankaran, Professor of Eminence, National Networking consultant, NTHID, Anna University, Chennai	Translational Biochemistry for Engineering of Proteins into Lipoproteins for Commercial Applications	20.5.2024
2.	Dr. S. Venkatraman, Head, Enterprise project, Syngene, Bangalore	Application of Project Management Principles in Scientific Research and Risk Management in Scientific Projects	20.5.2024
3.	Dr. T.P. Yuvaraj Deputy General Manager (R&D), GAIL, India.	Challenges in Gas Industry and Opportunities for Research	20.5.2024
4.	Prof. K. R. Justin Thomas Department of Chemistry, IIT Roorkee	Tuning Organic Emitters for Harvesting Triplet Excitons in OLEDs	21.5.2024
5.	Dr. Naveen Malik, Research Assistant Professor, Department of Chemistry, SRMIST.	Polypyridyl Metallo-Organic Assemblies for Smart Electrochromic Glasses	22.05.2024
6.	Dr. S. Anandhakumar, Research Assistant Professor Department of Chemistry, SRMIST	The significance of knowledge transfer from academia to industry in the aspects of materials electrochemistry	22.05.2024
7.	Dr. Anjan Das, Research Assistant Professor Department of Chemistry, SRMIST	Harnessing Single Enantiomer by Asymmetric Organic Transformations	22.05.2024
8.	Dr. Karthik D, Research Assistant Professor Department of Chemistry, SRMIST	Development of organic emitter designs for organic light emitting diode (OLED) applications	23.05.2024
9.	Prof. N. D. Pradeep Singh Professor IIT Kharagpur	Photoremovable Protecting Groups and their Biological Applications: A Journey from Visible to NIR light	24.5.2024

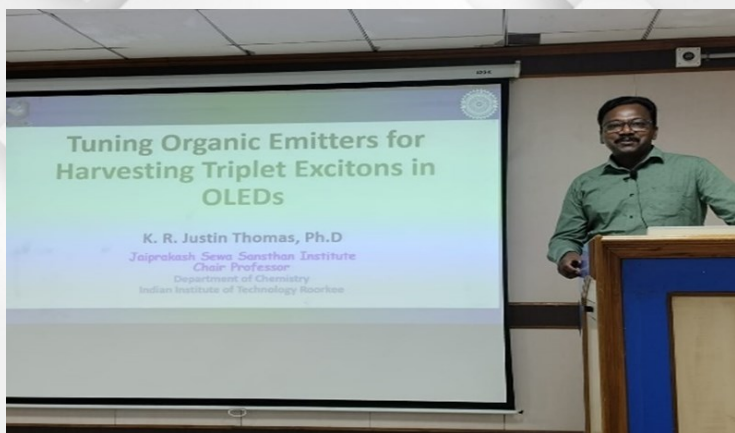
S. No.	Name of the Speaker and affiliation	Title of talk	Date
10.	Prof. V. Ravichandran, Director of NIPER, Kolkata	Translational Research	24.5.2024
11.	Dr. K. Ganesh Babu Director, Syngene, Bangalore	Syngene capabilities and opportunities	24.5.2024
12.	Dr. S. Suryanarayana General Manager, Sai life Science, Hyderabad	Understanding pharmaceutical solid form diversity and applications	24.5.2024
13.	Dr. U.P. Senthil Kumar Head (R & D Established Products) 3Xper Innoventure Ltd., Chennai	Antimicrobial Resistance - Global Threat and Innovation Drive	25.5.2024



Dr. Senthil Andavan G. T., Associate Professor in Chemistry, felicitated Dr. S. Venkatraman, Head, enterprise project, Syngene, Bangalore with a memento.



Dr. Ananthanarayanan K, Research Associate Professor from Chemistry felicitated Dr. T. P. Yuvaraj Deputy general manager (R & D), GAIL, India with a memento.



Prof. K. R. Justin Thomas, IIT Roorkee delivered a talk on about "Tuning Organic Emitters for Harvesting Triplet Excitons in OLEDs " on 21.5.2024.



Prof. N. D. Pradeep Singh Professor, IIT Kharagpur delivered a talk on 24th May 2024



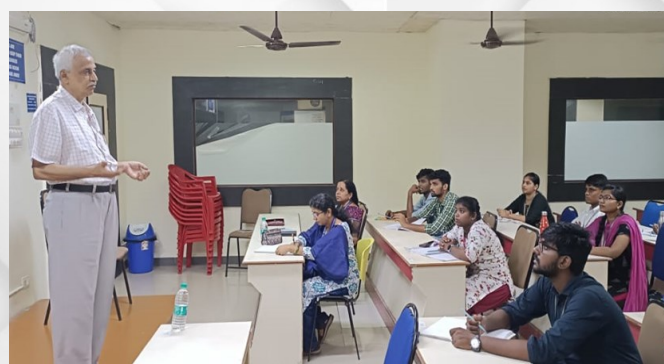
Dr. M. Arthanareeswari, Professor and Head, Department of Chemistry SRMIST, and Dr. Bernaudshaw Neppolian, Dean (Research) felicitated Prof. V. Ravichandran, Director of NIPER, Kolkata with a memento



Dr. K. Ganesh babu, Director, Syngene, Bangalore, delivered lecture



Dr. S. Venkatraman, Head, enterprise project, Syngene, Bangalore delivered his lecture .



Prof. Pratim Kumar Chattaraj, Presents his lecture on "Quantum mechanics" on 12.06.2024.

Academics - Mathematics

FACULTY ACHIEVEMENTS



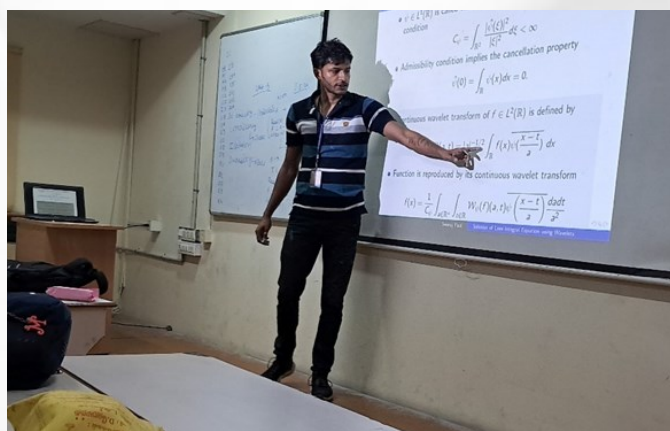
Dr. Swaraj Paul was an Invited Speaker in the 11th International Conference "Inverse Problems: Modeling and Simulation" (IPMS 2024) held at the Republic of Malta, Europe.



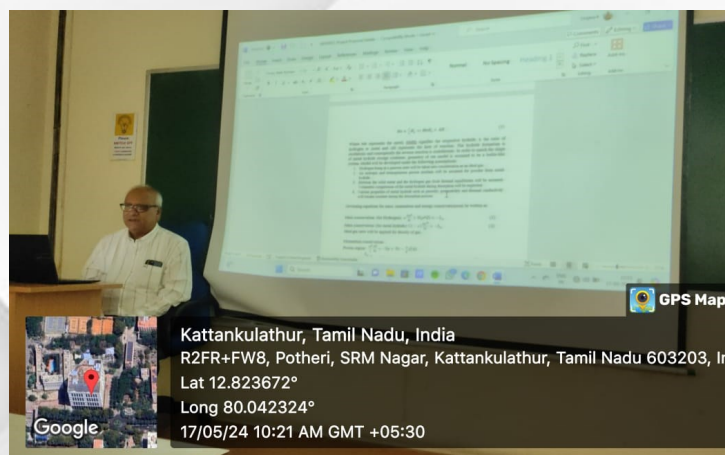
Dr. M. Suresh delivered a guest lecture at Mohamed Sathak A. J. College of Engineering, Chennai.

<p>A Five-Day Online FDP on Cutting Edge Developments in Graph Theory and its Applications 24th June – 28th June 2024</p> 	<p>Resource Persons</p> <ul style="list-style-type: none">† Dr. Sadagopan N., Associate Professor, Department of CSE, IIITDM – Kancheepuram† Dr. Sundara Rajan R., Professor, Department of Mathematics, Hindustan Institute of Technology, Chennai† Dr. Sagaya Suganya A., Assistant Professor (sel.), Department of Mathematics, B. S. Abdur Rahman Crescent Institute of Science & Technology, Chennai† Dr. Suresh E., Assistant Professor, Department of Mathematics, SRM University, Chennai† Dr. Bala Murgan B. J., Associate Professor, School of Advanced Sciences, Vellore Institute of Technology, Chennai† Dr. Jaya Gopal R., Assistant Professor, School of Advanced Sciences, Vellore Institute of Technology, Chennai
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Dr. E. Suresh delivered a lecture in 5 day FDP programme “Cutting Edge Developments in Graph Theory and its applications” at VIT University, Chennai campus 24 June to 28 June 2024.



Research Colloquium conducted on 26-04-2024. Speaker: Dr. Swaraj Paul, Research Assistant Professor, Department of Mathematics, SRMIST.



Department of Mathematics organized Three Days Workshop on "Mathematics Behind the Artificial Intelligence & Machine Learning " held on 16th – 18th May 2024. Dr. Debabrata Datta, Former Senior Nuclear Scientist, HBNI, BARC, MUMBAI was the resource person.



Dr. R. Varadharajan was selected and participated in the exposure training programme on "Official Statistics" of one-week duration conducted for HOD's/ Faculties of Department of Statistics/ Economics of Universities & Colleges from 24th to 28th June, 2024 at National Statistical Systems Training Academy, Greater Noida, India.



Three Days Workshop for skill development on "Mathematics Behind the Artificial Intelligence & Machine Learning " to be held on 16th – 18th May 2024. Dr. G. Ramesh, Assistant Professor, Department of Mathematics, honoring the Chief Guest Dr. Debabratta Datta, Former Scientist, BARC.

- Dr. D. K. Sheena Christy attended Indian Summer School on Cellular Automata 2024.
- Dr. S. Sangeetha, Dr. P. Uma Maheswari and Dr. K. Dhanalakshmi have completed an Online Course titled Logic for Economists authorized by University of Amsterdam.
- Dr. V. Suvitha attended Conference on 2024 Sixth IEEE Sponsored International Conference on Electrical, Computer and Communication Technologies (IEEE ICECCT 2024) held at Chhattisgarh Swami Vivekanand Technical University (CSVТУ), Bhilai, Chhattisgarh, India during 26 - 28, June 2024.
- Dr. C. Karthick attended FDP on FuzzyMat2024 at IIIT Kottayam during 10 - 14, June 2024.
- Dr. R. Varadharajan was a reviewer for the journal Quality and Quantity, Springer.
- Dr. E. P. Siva delivered an Invited Talk and chaired a session in the Second International Conference on Recent Advances in Fluid Mechanics and Nanoelectronics at Manipal University, Jaipur.
- Dr. R. Dhanalakshmi delivered a Guest Lecture organised by the Muthayammal Engineering College, Rasipuram, Tamil Nadu.
- Dr. M. Kousalya participated in the International FDP organized by Koneru Lakshmaiah Education Foundation, Hyderabad.
- Dr. Swaraj Paul visited and delivered an Invited Talk at Department of Mathematics, Jadavpur University, Kolkata.
- Dr. Swaraj Paul was the Resource Person at Faculty Development Programme, organised by VIT, Chennai

SCICONECT and SCIMEET 2024



Group Photo of III B.Sc. Mathematics students (2021-2024 batch) and faculty members



Group Photo of II M.Sc. Mathematics students (2022-2024 batch) and faculty members



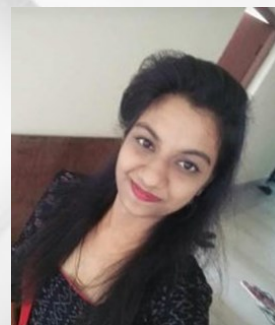
Our students achievers were congratulated and acknowledged during SCI-MEET 2024 by Prof. D. John Thiruvadigal, Dean Sciences



Students performing at Sci – Meet

STUDENT ACHIEVEMENTS:

Ms. Nikita Naik, Ph.D., Full Time Research Scholar, got selected for the three months Internship under Taiwan Experience Education Programme at National Taiwan Ocean University, for the period 15/04/2024 to 15/07/2024.



Academics - Physics and Nanotechnology

Research Colloquiums:



Dr. Dipankar Das, Assistant professor, IIT Indore on 15-05-2024

Three colloquiums were held with talks by: Dr. Dipankar Das, Assistant professor, IIT Indore; Dr. S.T. Senthilkumar, Postdoctoral Research Fellow, Centre for Advanced Materials Research, Research Institute of Science and Technology, University of Sharjah, Sharjah, UAE; and our faculty member - Dr. Lakshya Daukiya.

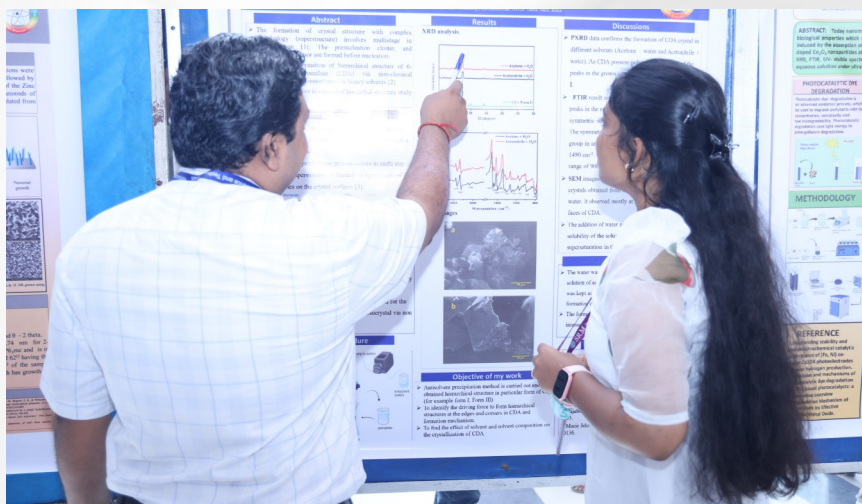
Industry visit:



Prof. S. Venkataprasad Bhat and Prof. P. Malar with their Ph. D. students visited the factory of First Solar India at Sriperumbudur near Chennai on 11th June 2024.

SCICONECT and SCIMEET 2024







Faculty Achievements

Name	Award/ recognition / honor	Awarding agency/event
Dr. Abhay A. Sagade	Keynote Speaker	International Conference on Science and Technology of Synthetic Electronics Materials, Dresden, Germany, June 23-28, 2024.
Dr. Kiran Mangalampalli	Keynote Speaker	19th International Conference on Local Mechanical Properties, Czech Republic, 16th LMP 2024.
Dr. Kiran Mangalampalli	International Travel Grant	SERB, Govt. of India
Dr. K. Shadak Alee	Best Researcher Award	International Research Awards on Atomic, Molecular and Optical Physics
Dr. Ajay Rakesh	Topic Editor	Frontiers in Biomaterials Science
Dr. Ajay Rakesh	Topic Editor	Frontiers in Batteries and Electrochemistry

Ph.D. Students

- Ms. Mani Bharathi awarded with DST-INSPIRE Fellowship on 1st April 2024.
- Ms. S. Divyadharshini got selected for Taiwan Experience Education Program (TEEP) at the National Taipei University of Technology, Taipei, Taiwan for a period of 5 months.
- Ms. G. Kowsalya received CSIR SRF.
- Ms. Vanmathi R received financial assistance from SERB for attending International Conference at USA.

Research—Chemistry

Number of Journal publications : **107**

Average Impact Factor : **5.6**

Highest Impact Factor Journal published : **27.8**

Highest impact factor paper:

Milan Babu Poudel, Mannix P. Balanay, Prakash Chandra Lohani, **Karthikeyan Sekar**, and Dong Jin Yoo, Atomic Engineering of 3D Self-Supported Bifunctional Oxygen Electrodes for Rechargeable Zinc-Air Batteries and Fuel Cell Applications, Advanced Energy Materials, 2024, . (**Impact Factor = 27.8**)

Nature indexed publications : (8)

Sandip Chakraborty, Anivind Kaur Bindra, Anagha Thomas, Yanli Zhao, and **Ayyappanpillai Ajayaghosh**, pH-Assisted multichannel heat shock monitoring in the endoplasmic reticulum with a pyridinium fluorophore, Chemical Science, 2024. (**Impact Factor = 7.6**)

Arif Ali Mandal, Virendra Singh, Sukanta Saha, Silda Peters, **Tumpa Sadhukhan**, Rajesh Kushwaha, Ashish Kumar Yadav, Apurba Mandal, Aarti Upadhyay, Arpan Bera, Arnab Dutta, Biplob Koch, and Samya Banerjee, Green Light-Triggered Photocatalytic Anticancer Activity of Terpyridine-Based Ru(II) Photocatalysts, Inorganic Chemistry, 63 (16), 2024, 7493–7503. (**Impact Factor = 4.6**)

Mani Balamurugan, Jun Ho Jang, Jeong Eun Kim, Won Il Choi, Young In Jo, Sunghak Park, **Elumalai Varathan**, and Ki Tae Nam, Tuning the CO₂ Reduction Selectivity of an Immobilized Molecular Ag Complex beyond CO, Inorganic Chemistry, 63 (17), 2024, 7992–8000. . (**Impact Factor = 4.6**)

Yunjia Zhang, Rongran Liang, Benjamin A. Atterberry, Fangzhou Li Richard J. Staples, Jian Zhang, **Jayanta Samanta**, Aaron J. Rossini, and Chenfeng Ke, Ultradynamic Isoreticularly Expanded Porous Organic Crystals, Journal of the American Chemical Society, 146 (22), 2024, 15525-15537.. (**Impact Factor = 14.4**)

Prince J. J. Sagayaraj, and **Karthikeyan Sekar**, Crystalline/amorphous nickel sulfide interface for high current density in alkaline HER: Surface and Volume confinement matters, Chemical Communication, 60, 2024, 6817-6820 . (**Impact Factor = 11.1**)

Anubhab Das, Anashwara Babu, Sourav Chakraborty, Joachim F. R. Van Guyse, Richard Hoogenboom, and **Samarendra Maji**, Poly(N-isopropylacrylamide) and Its Copolymers: A Review on Recent Advances in the Areas of Sensing and Biosensing, Advanced Functional Materials, 2024, 242432. (**Impact Factor = 18.5**)

Subhajit Dutta, Soumya Mukherjee, Sousa Javan Nikkhah, Omid T. Qazvini, Gourab K. Dam, Matthias Vandichel, **Tarak Nath Mandal**, and Sujit K. Ghosh, Hemilabile Binding of Acetylene in an Amide-Rich Ultramicroporous MOF Enables Strong Acetylene Selectivity, Inorganic Chemistry, 63 (27), 2024, 12404-10408 (**Impact Factor = 4.3**)

Sajan Raj Sasirajan Littleflower, Saraswathi Ramakrishnan, Desai Prashant Hanamantrao, Lena Subair, Karthick Kumar, Kavibharathy Kasiviswanathan, and **Kumaran VEDIAPPAN**, Scalable Metal Free Zinc Ion Capattery Enabled by Interstitial Defect Engineering of Nanoscale n-Type Zinc Vanadate, The Journal of Physical Chemistry Letters , 15 (17), 2024, 4753–4760. (**Impact Factor = 5.7**)




No of Patents granted: **1**




NIMBIN DERIVATIVES AND A PROCESS FOR THEIR PREPARATION - **Dr. P. Gopinath**

No of Patents published: **1**

A TRIMETALLIC NANOCOMPOSITE AND A PROCESS FOR ITS PREPARATION - **Dr. E.Sundaravadivel**

No. of Ph.D. awarded: 14

S. No.	Name of the candidate	Reg. No.	Area of Research	Date of the Award	Supervisor
1.	 Dr. Ananthan, A.	RA1733003011030	Organic Small Molecules for Optoelectronic Applications	7.6.24	Dr. G. T. Senthil Andavan
2.	 Dr. Fayaz TKS	PC2133003013002	Pharmaceutical Chemistry	3.6.24	Dr. Palash Sanphui
3.	 Dr. V. Jeevananthan	RA1833003011032	Polymers	29.5.24	Dr. S. Shanmugan

S. No.	Name of the candidate	Reg. No.	Area of Research	Date of the Award	Supervisor
4.	 <p>Dr. C. Hepsibah Priyadarshini</p>	RA1833003011021	Computational Chemistry	28.5.2024	Dr. V. Sudha
5.	 <p>Dr. M. Sherlin Nivetha</p>	RC2133003011045	Photocatalysts	10.5.2024	Dr. N. Abirami
6.	 <p>Dr. Kale Vaibhav Namdev</p>	RA1933003011019	Electrocatalysts	9.5.2024	Dr. T. Maiyalagan
7.	 <p>Dr. Poornima N</p>	RA1933003011017	Geopolymer	3.5.2024	Dr. R. Jeyalakshmi

S. No.	Name of the candidate	Reg. No.	Area of Research	Date of the Award	Supervisor
8.	 <p>Dr. S. Iniya Prasanthi</p>	RA1933003011015	Superwetting coatings	25.4.2024	Dr. K.K.R. Datta
9.	 <p>Dr. Sreevidya U</p>	RC2033003011011	Composites	24.4.2024	Dr. M. Navaneethan
10.	 <p>Dr. Dasameshwara rao Kavita pu</p>	PA1733003013002	Pharmaceutical Chemistry	22.4.2024	Dr. M. Arthana- reeswari
11.	 <p>Dr. S. Silambarasan</p>	RC2033003011018	Supercapacitors	22.4.2024	Dr. T. Maiyalagan

S. No.	Name of the candidate	Reg. No.	Area of Research	Date of the Award	Supervisor
12.	 <p>Dr. G. Saraswathi</p>	RA1833003011024	Perovskite Solar Cells	12.4.2024	Dr. K. Anantha narayanan
13.	 <p>Dr. S. Saravanan</p>	RA1833003011008	Polymers	4.4.2024	Dr. Samarendra Maji
14.	 <p>Dr. A. Shankar</p>	RA1933003011011	Nanomaterials	5.4.2024	Dr. G. Madu-raiveeran

Research—Mathematics

Number of Journal publications : **70**

Average Impact Factor : **3.75**

Highest Impact Factor Journal published : **7.5**

Highest impact factor paper :

M. Kchaou, M. H. M. Tajudeen, M. Syed Ali, **R. Perumal**, B. Priya, G. K. Thakur, Annular finite-time stability for IT2 fuzzy networked switched system via non-fragile AETS under multiple attacks: Application to tank reactor chemical process model, Expert Systems with Applications, Volume 255, Part B, 2024, 124552, ISSN 0957-4174, **(Impact Factor = 7.5)**

Ms. Jyotirmayee Behera, Ph.D. Full Time Research Scholar, has been promoted to Senior Research Fellow under the DST INSPIRE Project, No: DST/AORC-IF/UPGRD/IF190935.

Patents Published: 2

Dr. R. Senthamarai, Associate Professor, SRMIST and Mr. Mallikarjuna, Research Scholar, SRMIST published a patent on Amperometric Biosensor System With Improved Sensitivity And Accuracy Through Advanced Mathematical Modelling, Application No.202441033676-A; Published Date : 03/05/2024.

Dr. V. Muthukumaran, Assistant Professor, SRMIST published a patent on BLOCKCHAIN-BASED PERSONALIZED MEDICINE PLATFORM WITH IOT-ENABLED GENOMIC DATA COLLECTION AND ANALYSIS, Application No. 202441046930; Published Date : : 21/06/2024

Rank Holders – Outgoing Students.

Rank	B. Sc. Mathematics	M.Sc. Mathematics
1	Anushka kullu	Vivegaa M V
2	B.Suganya Devi	Harshini Vhalli S
3	V.Uvashree	Kamlesh H

No. of Ph.D. awarded: 5

S. No.	Name of the candidate	Reg. No.	Area of Research	Date of the Award	Supervisor
1.	 <p>Dr. Sadham Hussain</p>	RA1933001011008	Fluid Dynamics	04.05.24	Dr. D. Prakash
2.	 <p>Dr. Sumanta Shagolshem</p>	RA2033001011006	Partial Differential Equations	09..05.24	Dr. B. Bira
3.	 <p>Dr. A. Selvam</p>	RC2133001011024	Functional Equations	26.06.24	Dr. S. Sabarinathan
4.	 <p>Dr. Prashant Kumar Pandey</p>	RA1833001011006	Numerical Solutions for Hyperbolic Partial Differential Equations	20.05.24	Dr. Ritesh Kumar Dubey
5.	 <p>Dr. A. N. Revathi</p>	PA1833001012003	Optimization under uncertain environment	20.05.24	Dr. S. Mohanaselvi

Research—Physics and Nanotechnology

Number of Journal publications : 106

Average Impact Factor : 4.89

Highest Impact Factor Journal published : 15.8

Highest impact factor paper:

Changsheng Hou, Yiheng Shen, Qian Wang, Akira Yoshikawa, **Yoshiyuki Kawazoe**, Puru Jena, In-Plane Sliding Ferroelectricity Realized in Penta-PdSe₂/Penta-PtSe₂ van der Waals Heterostructure, ACS Nano, <https://doi.org/10.1021/acsnano.4c02994> (**Impact Factor = 15.8**)

Nature Indexed journal publications (6):

Subhajit Sarkar, Bijay Kumar Agarwalla, and Devendra Singh Bhakuni, Impact of dephasing on nonequilibrium steady-state transport in fermionic chains with long-range hopping, PHYSICAL REVIEW B, <https://doi.org/10.1103/PhysRevB.109.165408> (**Impact Factor = 4.0**)

IKalaiarasan Meganathan, G Mangamma, MJ Swaminadhan, Vijaykumar Murugan, Nitin Babu Shinde, **Saurabh Ghosh**, **Senthil Kumar Eswaran**, Thickness-Dependent Nanoscale Elastic Stiffening of Chemical Vapor Deposited Atomically Thin 2H-MoS₂ Films, The Journal of Physical Chemistry Letters, <https://doi.org/10.1021/acs.jpcclett.3c03512> (**Impact Factor = 16.6**)

Aarti Diwan, Pooja Yadav, Abhishek S. Shekhawat, Akila C, Dhatchayani M, Rituraj Sharma, **Anand M. Shrivastav**, Rajesh Kumar, Tulika Srivastava, and **Shailendra K. Saxena**, Unraveling Exciton–Plasmon Coupling and the PIRET Mechanism in Decorated Silicon Nanowires, The Journal of Physical Chemistry Letters, <https://doi.org/10.1021/acs.jpcclett.4c01010> (**Impact Factor = 5.7**)

Monirul Shaikh, Duo Wang, **Saurabh Ghosh**, Design of magnetic polar double-double perovskite oxides through cation ordering, 2024Physical Review B, <https://doi.org/10.1103/PhysRevB.109.174115> (**Impact Factor = 4.0**)

Changsheng Hou, Yiheng Shen, Qian Wang, Akira Yoshikawa, **Yoshiyuki Kawazoe**, Puru Jena, In-Plane Sliding, Ferroelectricity Realized in Penta-PdSe₂/Penta-PtSe₂ van der Waals Heterostructure, ACS Nano, <https://doi.org/10.1021/acsnano.4c02994> (**Impact Factor = 4.0**)

Dinh Phuc Do, Viet Q Bui, Minh Chien Nguyen, Sohyeon Seo, Van Dam Do, Joosung Kim, Jungsue Choi, HyunKo, Woo Jong Yu, **Yoshiyuki Kawazoe**, Hyoyoung Lee, Insight into Facile Ion Diffusion in Resistive Switching Medium toward Low Operating Voltage Memory, Nano Letters, <https://doi.org/10.1021/acs.nanolett.4c01629> (**Impact Factor = 4.0**)

Book chapters Published: 1 Dr. C. Preferencial Kala, Chemical and Materials Sciences - Developments and Innovation Vol3 (Book Chapter), published by BP International.

Number of Ph.D. completed : 6

S.no	Reg. No.	Scholar name	Supervisor	Date of the award	Area of Research
1	RA1933002011026	Dr. J. Raveena	Dr. G. Bakiyaraj	29.04.24	Dye-sensitized solar cells
2	RC2033003011011	Dr. Sreevidya U	Dr. M. Navaneethan	24.04.24	Composites for room-temperature thermoelectric applications
3	RC2033002011008	Dr. S. Udhaya-kumar	Dr. K. Kamala Bharathi	09.05.24	Thin film materials
4	RA1733002011027	Dr. Mannepalli Sowjanya	Dr. Kiran Mangalamapalli	14.05.24	Indentation-induced high-pressure phase of silicon
5	RA1413014011004	Dr. Arjun Satheesh Chandran Nair	Dr. Alagiriswamy A A	24.05.24	Conventional and in-situ solvent assisted electro-spinning techniques
6	RA1913014011006	Dr. Bhiogade Achal Arvind	Dr. R Vengadesh Kumara Mangalam	03.05.24	Pyroelectric energy conversion

Research Projects : 1

Total lay out of the abovementioned projects : **19.00** lakhs INR

S. No	Name of the PI	Title of the project	Agency/Sanction File No.	Grant amount (in Lakhs)	Period of support
1	Dr. Madhuparna Karmakar	Simulating the quantum phases of iron chalcogenide superconductors	CSIR-ASPIRE-EMR-II	19.00	2024-27

New facilities added:

- Power Generation Efficiency Characteristics Evaluation System PEM-2 (Advance Riko PEM-2), faculty in-charges: Dr. M. Navaneethan, Dr. J. Archana, Dr. E. Senthil Kumar, funded by DST-FIST.
- Z-Scan Facility with Pulsed Nanosecond Laser (NS-450-VRM/Microvec, Poland), location:H407B, faculty In-charge: Dr.R. Annie Sujatha, funded by SRMIST.



Advance Riko PEM-2



Z-Scan Facility

Faculty Corner

Magnetic Domain Wall and Skyrmion Dynamics to Obtain Smarter Solution for Future Memory Technology

As electronic technology advances, our world has firmly entered a digital era where our daily lives rely increasingly on computational resources. From wireless communication to social media, and from banking to e-commerce and healthcare, nearly every aspect of our existence is becoming digital, enhancing convenience. Artificial intelligence (AI) now stands poised to automate decision-making processes traditionally handled by humans. This trend is rapidly accelerating, promising to redefine many facets of civilization through information and communication technology (ICT). However, amid these conveniences lies a significant concern: the enormous energy consumption of data centres supporting our data-driven society. Addressing this challenge requires the urgent development of low-power, high-speed, efficient, and compact memory technologies that can be seamlessly integrated into versatile applications.

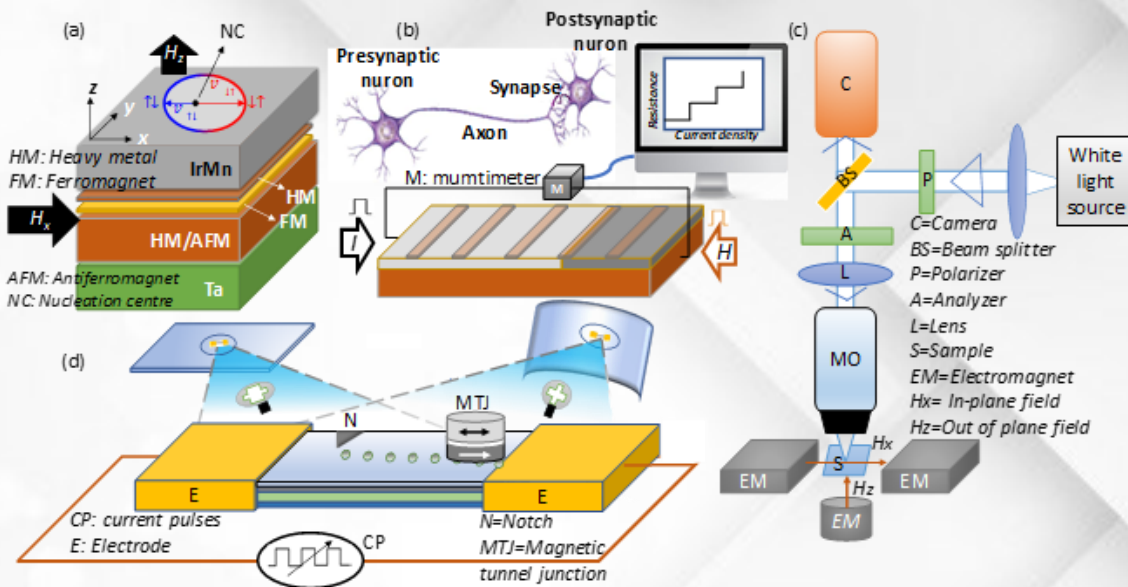


Fig. 1: (a) Thin film heterostructure and magnetic bubble illustrated with field and spin configuration. (b) Biological neural synapse and schematic of artificial magnetic synapse. (c) Configuration of p-MOKE microscope to be used as a detection technique. (d) Schematic diagram of the skyrmion racetrack on a rigid and flexible substrate.

Magnetic racetrack (RT) memory is an innovative concept based on spintronics. This technology shows great promise as a successor to current hard disk drive (HDD) and solid-state drive (SSD) technologies. Known for its durability and reliability in preserving data over extended periods with minimal susceptibility to external forces, RT memory boasts superior energy efficiency, larger storage capacities, faster performance, and lower production costs. These attributes have sparked significant research interest, particularly amidst the growing green revolution in data technology.

[Dr. Arnab Ganguly](#), a Research Assistant Professor at Department of Physics and Nanotechnology, SRMIST and specialist in spintronics research, is at the forefront of advancing RT memory from theory to practical application, overcoming critical bottlenecks. His research delves into magnetic domain wall and skyrmion dynamics, with a focus on fundamental interfacial magnetization and spintronic phenomena such as DMI, chiral damping, spin pumping, spin Hall effect, and Rashba scattering in thin film multilayer superlattices. Dr. Ganguly's work extends to optimizing devices for flexible electronics while aiming to emulate neural synaptic behaviour in spintronic devices for AI applications.

Figure 1 illustrates thin film magnetic heterostructures (Fig 1(a)), artificial magnetic synapses inspired by biological synapses for AI applications (Fig 1(b)), MOKE microscopy as a magnetic imaging technique for thin film investigations (Fig 1(c)), and skyrmion-based RT memory (Fig 1(d)). This pioneering research promises to bring in the next generation of environmentally sustainable supercomputing technologies enhanced by AI.



By

**Dr. Arnab Ganguly,
Research Assistant Professor,
Department of Physics & Nanotechnology,
SRMIST, Kattankulathur.**

Alumni Connect



Dept. of Physics and Nanotechnology, SRMIST
Invites you for
Alumni Talk

By

Dr. Guru Karthikeyan T
Post-Doctoral Researcher,
Institute of the Inorganic
Chemistry of
the Czech Academy of Sciences,
Czech Republic
.Alumni -
(B.Tech. Nanotechnology)
2014



Title of the talk: "Research/Study Opportunities Abroad and Current Perspectives in Nanomaterials for Environmental Applications"

Date: 02nd May 2024, **Time:** 2.30 PM to 3.30 PM IST

Alumni Coordinator:
Dr. Jaivardhan Sinha
Dr. Trilochan Sahoo
Dr. Venkata Ravindra A

Online Meeting Link
meet.google.com/uqb-zvzp-arv



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INSTITUTE OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF CHEMISTRY
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ALUMNI TALK SERIES - 16
**Beyond the Thesis: Navigating
Postdoctoral Opportunities for Success**



DATE & TIME
27 APRIL 2024
10:00 AM

SPEAKER
DR. DINESHKUMAR RAJA
IPDF - IITB, MUMBAI
PH.D. - (2017 - 2022) BATCH

<https://meet.google.com/ewj-tfrt-jdo>

Dr. J. Arockia Selvi
Associate Professor
Alumni Coordinator
Department of Chemistry
SRM IST - KTR

Notifications & Announcements

UNLEASH Hack India

Renewable Energy and Water Access for Rural Development (REWARD)

27th & 28th September 2024



HACKS

Organized by
Department of Physics and Nanotechnology
SRM Institute of Science and Technology (SRMIST)
Kattankulathur-603203, Tamil Nadu, India.



UNLEASH Hack India

Renewable Energy and Water Access for Rural Development (REWARD)
27th & 28th September @ SRMIST Kattankulathur, Chennai



Apply at
Before 20th August



- Selected talents work as teams on SDG6/SDG7 challenges.
- Winners and participants will join the UNLEASH community with access to range of resources and opportunities for realizing their ideas!
- All young (18-35yrs.) energy/water enthusiasts including UG/PG/Ph.D. Scholars across all disciplines are welcome!
- Choose your topic, work in a team to solve a problem and present your solution to win rewards!
- Please visit: <https://unleash.org/hacks> to find us & apply before 20th August!

UNLEASH Hack India: Renewable Energy and Water Access for Rural Development (REWARD) is being organized by the Department of Physics and Nanotechnology, SRM Institute of Science and Technology (SRMIST), Kattankulathur, Tamil Nadu, India on 27th and 28th September 2024 in association with other departments & units of SRMIST and industrial partners.

This localized innovation sprint will bring together up to 60 selected young minds from all over India working on the challenges in promoting renewable energy and providing economic access to water in rural India. The "reward" calls for generous sharing of ideas across disciplines and intense brainstorming around tapping into non-conventional natural resources of energy and water.

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Dr. Ravi Pachamuthu, Pro-Chancellor (Administration), SRMIST
Dr. P. Sathyanarayanan, Pro-Chancellor (Academics), SRMIST
Dr. R. Shiva Kumar, Chairman - Ramapuram & Trichy Campuses, SRMIST

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Prof. A. Karthigeyan, Head, Department of Physics & Nanotechnology, SRMIST
Dr. Shantanu Patil, Director (DEI), SRMIST
Dr. Venkata Sastry N, Director (DCC), SRMIST
Prof. A. Rathinam, Director (Alumni Affairs), SRMIST

ORGANIZING TEAM

Prof. S. Venkataprasad Bhat,
Department of Physics & Nanotechnology, SRMIST (Convener)
Prof. P. Malar, Department of Physics & Nanotechnology, SRMIST
Prof. K. K. R. Datta, Department of Chemistry, SRMIST
Prof. Soumya Ranjan Routray, Department of Electronics and Communication Engineering, SRMIST
Mr. Ramesh Kumar Soni, SRMIST Alumni – Physics & Nanotechnology, Founder & CEO of VayuJal Technologies
Mr. Nikhil Gehlot, SRMIST Alumni - Civil, Founder & CEO - Ideaforage Innovations

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