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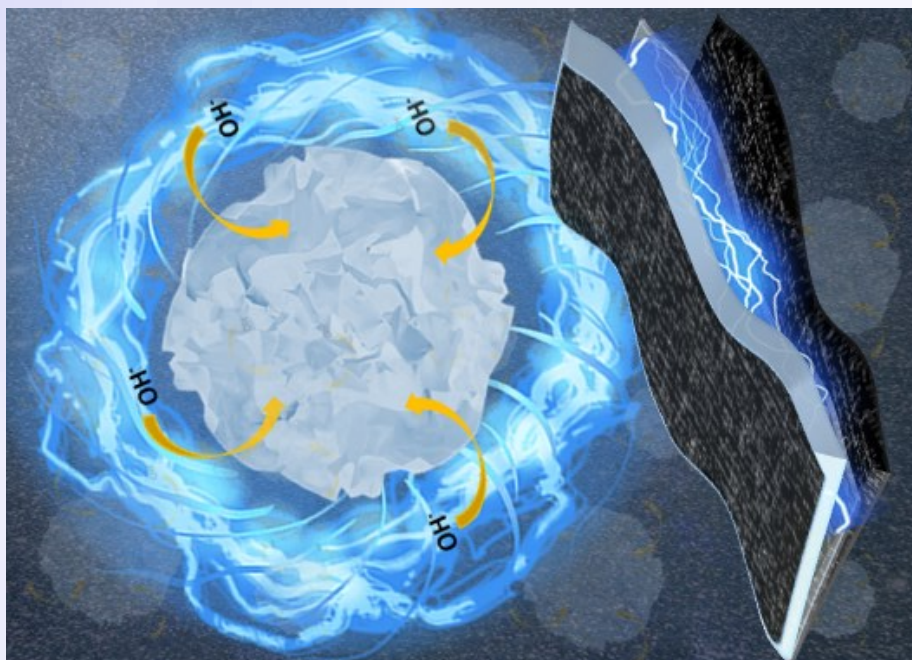
INSTITUTE OF SCIENCE & TECHNOLOGY
Deemed to be University u/s 3 of UGC Act, 1956

Horizon

Quarterly Newsletter

Volume 2, Issue 4

(October to December 2023)



School of Basic Sciences

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



A++



Category 1
with 12B Status



(2023)
Ranked 18th University



(2024) World Ranking
one among 45 Indian Universities



(2023) World Ranking
one among 75 Indian Universities



VERY GOOD
QS 4 Star Rated Globally



(2022) World Ranking
one among 14 Indian Universities

Message from the Dean Sciences



Dr. D. John Thiruvadigal

Professor and Dean Sciences
School of Basic Sciences

College of Engineering and Technology
SRM Institute of Science and Technology
Kattankulathur 603 203

I am happy to note that we are releasing the fourth issue of the newsletter “Horizon” with highlights on the accomplishments and activities of the School of Basic Sciences during October to December 2023. 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.

I take this opportunity to welcome the newly recruited faculty of research track and the newly joined research scholars to the School of Basic Sciences. I certainly feel that the new faculty and scholars will take the onus in strengthening the research ecosystem of the departments / School.

Cover page theme:

The theme of this issue of “Horizon” portrays the highly flexible MOF-based electrode which provides numerous pathways for electron transport, resulting in increased capacitance and superior rate performance of an aqueous asymmetric supercapacitor, as reported in Chemical Communications (nature indexed journal), Nov 2023 by our faculty member Dr. Ajay Rakkesh, Department of Physics & Nanotechnology.



(D. John Thiruvadigal)

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

We are delighted to share our teaching and research accomplishments for the **Horizon** (volume 2, issue 4). Three faculty members from our department have received SERB - CRG projects with an total outlay of ~110 Lakhs for three years.

To motivate the young minds, second edition of SRM crystal growing challenge and quiz contest was conducted on 7th October 2023. In this event, 256 school students (10th, +1 and +2 classes) from 26 different schools actively participated. Awards were given to school students who have grown single crystals beautifully and won Quiz Competition. Motivation from Deans, faculty members enabled them to enrich their scientific knowledge.

Our dynamic faculty members involved in research also lead to various scientific talks and interactions with renowned scientists and industrialists. Dr. Karthikeyan visited United Kingdom under Newton alumni programme.

SRM alumni day was conducted on 23rd Dec 23 at institute level. Later in the afternoon we had a special alumni meeting in which ~60 alumnus actively participated and refreshed their old memories. Various cultural programs were conducted which made their day a memorable one.

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 fourth Issue (Volume II) 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. At this moment, we are proud to share that the department organised its first educational tour for the final year students of B.Sc., and M.Sc., Mathematics. The students visited Sathish Dhanwan Space Centre – SHAR at ISRO, Sriharikota in November 2023.

Proud salutations to Dr. R. Senthamarai and Dr. R. Sriraman for receiving project grants. Hearty congratulations to Ms. Keerthana, Research Scholar for receiving National Fellowship from Government of India. Kudos to all the students who got recruited. 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**

The department is excited and welcomes newly joined faculty members Dr. Muthuganesan R, Dr. Bharath Govindan, Dr. Lakshya Daukiya, Dr. Subhajit Sarkar, Dr. Sougata Mallick and Dr. Srijani Mallik for bringing positive momentum. We hope to benefit from their expertise, energy and enthusiasm. It is really heartwarming to note that the six day Faculty Development Program on “Advances in Modeling and Technology of Novel Materials” brought fresh air and felt that we have started moving in the right direction in upskilling ourselves in the areas of Artificial intelligence and Machine learning. My special appreciations are due to Dr. Ajay Rakesh for obtaining research funding and his thirst for publishing in Nature indexed journals.

We can expect that many others will also join in the club for the publications in Nature indexed journals. One can see a trend of publishing articles in high impact factor ($IF > 10$) journals by our faculty members and I am sure it will grow in the near new future as well. Congratulations to our faculty members and students who have garnered special recognition for their work and we wish them the best to achieve new heights. I am sure we will come out with a lot of recognitions in 2024.

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

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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 2, Issue 4 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 (October 2023 – December 2023).

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.sciences.ktr@srmist.edu.in

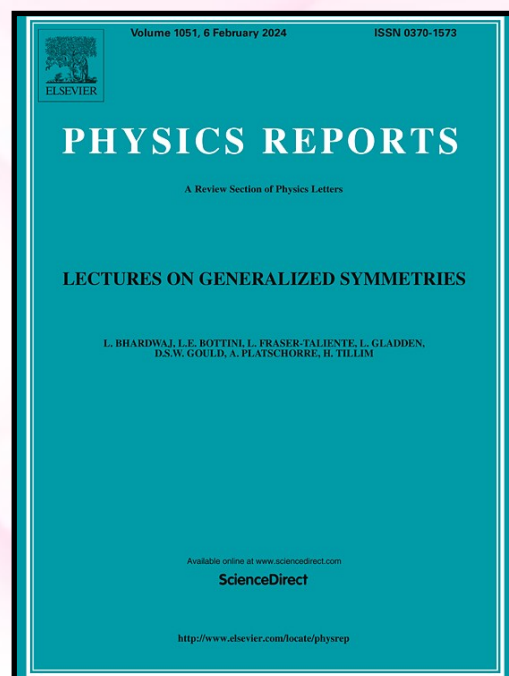
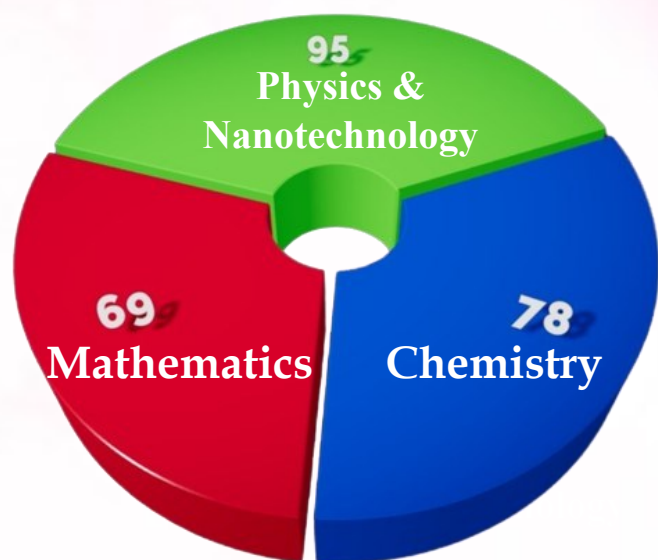
Please enjoy reading our newsletter !!

Highlights

School of Basic Sciences

Key Metrics	July to September 2023	October to December 2023
Total No. of publications (SCI/Scopus)	251	242
Highest Impact Factor Journal Publication	15.0	30.0
No of projects sanctioned	10	6
Total grant outlay	349.22 Lakhs	168.58 Lakhs
No of patents filed / granted	1	3
No of book chapters	6	6
MoUs (International / National)	2	-
Number of Ph.D's completed	30	16

Total number of research publications:
(October to December 2023)



(Impact factor : 30.0)

Academics

Event : Release of '**Horizon**' Newsletter (Vol. 2, Issue 3)

Date : 24-11-2023 (2.30 PM – 3.30 PM)

Venue : Faraday Hall, SRMIST, KTR.



Release of 3rd issue, 2nd volume Newsletter 'Horizon' by (L-R) Dr. L. Kavitha Nair, Professor and Head of the Department of English and Foreign Languages, Dr. M. Arthanareeswari, Professor and Head of the Department of Chemistry, Prof. Dr. D. John Thiruvadigal, Dean Sciences, Dr. A. Karthigeyan, Professor and Head of the Department of Physics at SRMIST and Dr. P. Sambath, Associate Professor and Head in-charge of the Department of Mathematics.

Academics



The faculty meeting of the School of Basic Sciences, College of Engineering and Technology, SRM IST, Kattankulathur was held on 24.11.2023 at Faraday hall, Electrical Sciences Block, Main campus. On this occasion the 3rd issue, 2nd volume of the Newsletter 'Horizon' from the School of Basic Sciences was released by Prof. Dr. D. John Thiruvadigal, Dean Sciences. The event was organized by the Department of Mathematics, CET, SRM IST, Kattankulathur. The newsletter symbolizes the culmination of tireless efforts and innovative ideas from the institutes' brilliant minds. The Master of Ceremony was done by Ms. M. Jenita Mary, Research Scholar. The event commenced at 2.30 p.m. with an invocation by Mrs. Vimala and team, Research Scholars. Subsequently, Dr. M. Arthanareeswari, Professor and Head of the Department of Chemistry, SRMIST, Kattankulathur welcomed the gathering. The atmosphere brimmed with pride and accomplishment during the certificate distribution ceremony, recognizing the hard work and dedication of the faculty members of the Department of Chemistry, Mathematics and Physics and Nanotechnology. Dr. L. Kavitha Nair, Professor and Head of the Department of English and Foreign Languages, announced the stake holders of projects, followed by the announcement of stake holders of research publications in high-impact factor journals by Dr. P. Sambath, Associate Professor and Head in-charge of the Department of Mathematics. The Presidential Address was delivered by Dr. D. John Thiruvadigal, Dean Sciences in which he extended appreciation to all participants, organizers, and supporters who made the event a success. He emphasized the significance of continuous learning, collaboration and adaptation in today's dynamic research landscape. Expressing gratitude and acknowledging the collective effort. Dr. A. Karthigeyan, Professor and Head of the Department of Physics at SRMIST, delivered the Vote of Thanks. The event concluded at 3.30 p.m. The newsletter release event served as a platform to celebrate academic achievements, foster collaboration, and inspire further ground-breaking research endeavours.

Academics - Chemistry

QS world ranking **501 - 550** by subject
Asian university ranking **351 - 400**, 9th position among Indian universities and
2nd under the private institutes.

Awards / recognitions / honors received: Student Achievements

Ms. D. Pavithra (Reg. No. RA2133003011043) Research Scholar, Department of Chemistry got selected for Taiwan's NSTC International Internship Pilot program.



Ms. P. Sivaranjani (RA2131011010015) had successfully participated in the online poetry marathon conducted by Kalam's world records organization



Academics - Chemistry

QS world ranking **501 - 550** by subject
Asian university ranking **351 - 400**, 9th position among Indian universities and
2nd under the private institutes.



The **2nd edition of SRM Crystal Growing Challenge and quiz competition** was conducted on 7th October 2023 to out-reach the high school (11th and 12th) students from the neighbourhood. 252 students appeared and participated from 25 different high schools on the day.



A lecture on **“Lanthanide based Luminescent Materials and their Applications”** under the **“Chemistry Association Event”** on 10th October 2023. The speaker of the event is **Prof. Sivakumar Vaidhyanathan**, Department of Chemistry, Indian Institute of Technology, Hyderabad.



A guest lecture on **“Electrochemical Dimerization of 3-Substituted-2-Oxindoles: Many Routes, One Destination”** under the **“Chemistry Association Event”** on 30th October 2023. The speaker of the event is **Dr. Amit Paul**, Associate Professor, IISER Bhopal, India.



A guest lecture on **“Biological activity of polypyridyl ruthenium complexes”** under the **“Chemistry Association Event”** on 27th November 2023. The speaker of the event is **Dr. Olga Mazuryk**, Scientist, Jagiellonian University, Poland.



A guest lecture on **“Eliminating Systematic Errors in DFT to Derive Accurate Energies for Complex”** under the **“Chemistry Association Event”** on 14th December 2023. The speaker of the event is **Prof. Krishnan Raghavachari**, Distinguished Professor, Department of Chemistry, Indiana University, Bloomington, USA.



Dr. S. Karthikeyan, visited Aston University, Heriot-Watt University, University of Edinburg, Metropolitan University, London, UK as Royal Society Alumni and gave presentations. Dr. S. Karthikeyan with JSPS director (Prof. Naoto Kobayashi), London during his visit as Newton Alumni.

Academics - Mathematics



A one-day Intra Mathematics Festival (IMF 2023) was organized by the Sri Ramanujan Mathematics Club in the Department of Mathematics, SRMIST, on 06.10.2023. The Chief Guest for the Inaugural function was our proud Alumnus, Mr. Jayadev Mahalingam M, Managing Director-CEO and Founder. The Chief Guest for the Valedictory function our proud Alumnus, Mr. Sethupathi M, Deputy Manager, NSE Clearing Limited (Subsidiary of National Stock Exchange of India Limited), Chennai.



To commemorate the contribution of the great Mathematician Srinivasa Ramanujan, a five days Faculty Development Program -Tech Talk series on Computational Mathematics with Computational Intelligence was organized by the Department of Mathematics during 19-23 December 2023. Our proud Adjunct Professor, Dr. Debabrata Datta, Scientist and Professor, Joint Director, R&D, Heritage Institute of Technology, (Former Senior Nuclear Scientist and Professor, Homi Bhabha National Institute(HBNI), BARC, Mumbai) delivered the talks.



The final years students of B.Sc., and M.Sc., Mathematics visited Sathish Dhawan Space Centre – SHAR at ISRO, Sriharikota on 02.11.2023. The Team of students and faculty guides visited the First Launch Pad (FLP), Second Launch Pad (SLP), Mission Control Centre (MCC), Launch Control Centre (LCC) and the museum complex in the ISTRAC centre.

Student Achievements : Placement Details

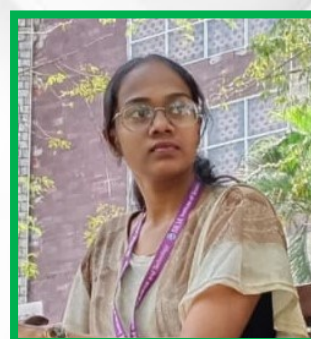
RA2131009010001	PRABHA R	B.Sc., Maths	Tata Consultancy Services, Chennai.
RA2131009010002	SUGANYA DEVI B		
RA2131009010003	UVASHREE V		
RA2131009010004	EZHIL R		



PRABHA R



UVASHREE V



SUGANYA DEVI B



EZHIL R

Academics - Physics and Nanotechnology



Special Talk on December 19, 2023 titled- 'Granular Materials: From Quotidian to Astronomical' by Prof. Karen Daniels, Distinguished Professor of Physics, NCSU, Raleigh, USA



Prof. Piyush Ghosh, IIT Madras, delivering his talk in Six days Faculty Development Program on “Advances in Modeling and Technology of Novel Materials”, from 27th November, 2023 to 2nd December, 2023



Technical talks on "Electroweak Precision tests" on 15th, 16th, and 18th November, 2023 by Prof Gautam Bhattacharyya, the Director of SINP, Kolkata and Adjunct Professor, SRMIST, KTR



Prof . Gautam Bhattacharyya



Dr. Anand M. Shrivastav



Ms. Kowsalya Murugan

Weekly Research Colloquium: 6 Colloquiums were held with talks by: Prof Gautam Bhattacharyya, Director SINP & Adjunct Professor, Department of Physics and Nanotechnology; Faculty members -Dr. Triparno Bandyopadhyay, Dr. Anand M. Shrivastav; PhD Students: Ms. Kowsalya Murugan, Mr. Rajitha J Rajan, Mr. Karthik D R

Value added courses:

UPY20V01J: Solar cells: Basics and Engineering **by Prof. J K Rath (IIT Madras) – Guest faculty,** Prof. S. Venkatasaprasad Bhat, Prof. P. Malar, Dr. Elangovan Elamurugu, Dr. Trilochan Sahoo.

Theory classes held at SRMIST, Demo sessions at SRMIST & IIT Madras.



Research—Chemistry

Number of Journal publications : 78

Average Impact Factor : 5.75

Highest Impact Factor Journal published : 20.6

Highest impact factor paper:

Gayathri Chellasamy, **Elumalai Varathan**, **Karthikeyan Sekar**, Sada Venkateswarlu, Saravanan Govindaraju, and Kyusik Yun, Single-atom catalysts for biosensing: Progress in theoretical and mechanistic understanding, Coordination Chemistry Reviews, 502, 2023, 1, 215606. (Impact factor = 20.6).

Nature indexed publications : (4)

Sundaramoorthy Marimuthu, A. Shankar, and **Govindhan Maduraiveeran**, Ni(OH)₂-decorated FeCoPi nanosheets on NiO heterostructures: Tunable intrinsic electronic structures for improved overall water splitting, Chemical Communications, 2023. (Impact factor = 4.9).

Donghyeok Son, Hyunmin Park, Won-Gwang Lim, Seunghyeok Baek, Seok Hun Kang, Jeong-Chan Lee, **Thandavarayan Maiyalagan**, Young-Gi Lee, Steve Park, and Jinwoo Lee, Ultrathin Mixed Ionic–Electronic Conducting Interlayer via the Solution Shearing Technique for High-Performance Lithium–Sulfur Batteries, ACS Nano, 17, 24, 2023, 25507-25518. (Impact factor = 17.1).

Iniya Prasanthi and **K. K. R. Datta**, Three in One: Superoleophilic, Chemically and Mechanically Resistant ZIF-7 and ZIF-11 Percolation Networks for Selective Permeation of Oils and Chlorinated Solvents, Inorganic Chemistry, 62, 43, 2023, 17791-17803. (Impact factor = 4.6).

Naveen Kumar M, Jayanta Samanta and **Susnata Pramanik**, Excitation wavelength-dependent multi-coloured and white-light emissive pyrene-based hydrazones: suppression of Kasha's rule, Chemical Communications, 59, 2023, 14122-14125, (Impact factor = 4.9).

Total number of Ph.D. completed: 5

Research Projects : 3Total lay out of the abovementioned projects : **105 lakhs INR**

Sl. No.	Name of the PI	Title of the project	Agency/ Sanction File No.	Grant Amount (in lakhs)	Period of support
1.	Dr. Priyadip Das	Design and development of multifunctional self-assembled peptide-based supramolecular coating on common inorganic surfaces with both antifouling and antimicrobial property	<u>CRG/2023/001681</u>	35.00	2023-2026
2.	Dr. M. Prakash	Computational Exploration of Structure, Stability, and Catalytic Activity of Supported Ionic Liquid Phase Catalysts (SILPC-CO ₂ RR)	<u>CRG/2023/002198</u>	47.00	2023-2026
3.	Dr. M. Ganesh Pandian	Development of CD-44 targeted, fluorogenic polydiacetylene-coated silica nanocarrier for metallodrug delivery towards breast tumor microenvironment	<u>CRG/2023/001155</u>	23.00	2023-2026

Research—Mathematics

Number of Journal publications : 69

Average Impact Factor : 2

Highest Impact Factor Journal published : 5.6

Highest impact factor paper :

Majumder, A., Bairagi, N. Is large-scale vaccination sufficient for controlling the COVID-19 pandemic with uncertainties? A model-based study. Nonlinear Dynamics, 112, 2349–2366 (2024). <https://doi.org/10.1007/s11071-023-09077-3> (**Impact factor = 5.6**).

Research Projects :

Total number of new grants received : 2

Total outlay of the above mentioned project : **20.32** lakhs INR

Patents - Published : 1

Mr.S.Satheesh Kumar, **Dr. V. Muthukumar**, Mrs. Radhika E.K, IoT-Driven Wireless Communication System

S.No.	Name of the PI	Title of the project	Agency/ Sanction File No.	Grant Amount (in lakhs)	Period of support
1.	Dr. R. Sriraman	Design And Analysis Of Fractional-Order Clifford-Valued Neural Networks And Its Application To Image Encryption	DST-SERB	19.32	2024-27
2.	Dr. R. Senthamarai	Mathematical Modelling and Analysis on the Dynamics of Rugose Spiraling Whitefly Affecting Coconut Trees	SRMIST	1.0	2023-24

of Wind-Induced Pressure Prediction on Tall Buildings for Smart City.

Number of Ph.D. Completed: 3

Total number of Book Chapters: 1

Awards/ recognitions / honours received by Faculty & Students:

1. **Dr. V. Subburayan**, Associate Professor and Head i/c., gave an invited talk on “Computational Method and Convergence Analysis for Singularly Perturbed Two Dimensional Parabolic Differential Equations” in the National Research University Higher School of Economics, Moscow, Russia.



2. **Dr. L. Shobana**, Associate Professor, was a resource person in the FDP on “Recent Trends in Mathematics and its Association with various Disciplines” at Meenakshi Academy of Higher Education and Research, Chennai on 20.12.2023.



4. **Dr. S. Athithan**, Assistant Professor, was a resource person in the Hands on Training on “Python Programming for Mathematics ” at Dr. Mahalingam College of Engineering and Technology, Chennai on 23-12-2023.

5. **Dr. S. Athithan**, Assistant Professor, was a resource person in the FDP on “Innovative Online Teaching Methods Using ICT Tools” at Dr. M.G.R. Educational and Research Institute, Chennai on 18-19 December 2023.

6. **Dr. S. Thenmozhi**, Assistant Professor, delivered an Invited Talk in the two days Workshop on “Applications of Algebra and Calculus” at Muthayammal Engineering College, Namakkal, during 27-28 November 2023.

Student Projects/Fellowships



Ms. D. Keerthana, research scholar, received the National Fellowship for Backward Classes, Ministry of Social Justice and Empowerment (MoSJE), Govt. of India.

Research—Physics and Nanotechnology

Number of Journal publications : **95**

Average Impact Factor : **5.72**

5 publications with IF greater than 10: Physics Reports, Applied Physics Reviews, JACS, Materials Horizons, Carbon.

Highest Impact Factor Journal published : **30**

Highest impact factor paper:

Chanchal Rani, Manushree Tanwar, Tanushree Ghosh, Suchita Kandpal, **Shailendra K. Saxena** and Rajesh Kumar “Non-linear temperature dependent Raman parametric changes: An identification of Fano intervened systems”, Physics Reports, 2023, 1037, 1-41. DOI: <https://doi.org/10.1016/j.physrep.2023.09.007>
(Impact Factor = 30)

Nature Indexed journal publications (2):

T. B. Naveen, Dhinasekaran Durgalakshmi, Balakumar Subramanian and **Ajay Rakkesh Rajendran**, “High Valence Binary Metal-Organic Framework as Electrode Material for Aqueous Asymmetric Supercapacitor” Chemical Communications, 2024, 60, 208-211. first published 28 Nov 2023, <https://doi.org/10.1039/D3CC05195A>. (Impact Factor = 4.9)

Sudipta Bera, Jerry A Fereiro, **Shailendra K Saxena**, Domenikos Chryssikos, Koushik Majhi, Tatyana Bendikov, Lior Sepunaru, David Ehre, Marc Tornow, Israel Pecht, Ayelet Vilan, Mordechai Sheves, David Cahen, “Near-Temperature-Independent Electron Transport Well beyond Expected Quantum Tunneling Range via Bacteriorhodopsin Multilayers” Journal of the American Chemical Society (JACS), 2023, 145, 24820–24835, <https://doi.org/10.1021/jacs.3c09120>. (Impact Factor = 15.0)

Patents - Granted : 2

Eswaraiah Varrla, Abimannan S, Prasuveera Uppara, A METHOD OF PRODUCING TWO-DIMENSIONAL GRAPHENE NANOSHEETS USING NATURAL SURFACTANT, Indian patent granted on 21/12/2023

Debabrata Sarkar, Agasthiyaraj L, POLYMER BLEND NANOFIBERS AIR FILTER AND FACE MASK MATERIALS AND METHODS, Indian patent granted on 17.11.2023

Research Projects :

Total number of new grants received : 1

Total outlay of the above mentioned project : **43.26** lakhs INR

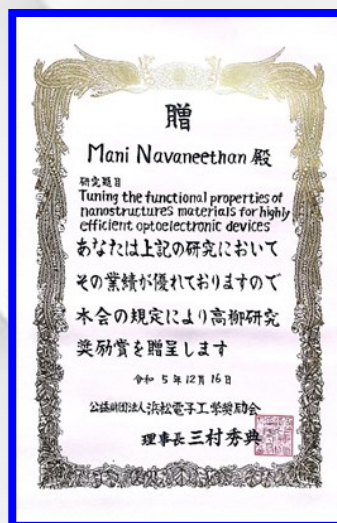
Sl. No	Name of the PI	Title of the project	Agency/ Sanction File No.	Grant Amount (in lakhs)	Period of support
1	Dr.Ajay Rakkesh	Unravelling the Properties of Vanadium based MXene Cathode Materials for High-Performance Zinc-Ion Batteries	SERB-Empowerment and Equity Opportunities	43.26	2023-27

Number of Ph.D. completed : 8

Awards/ recognitions / honours received by Faculty & Students:



Dr. Eswaraiah Varra, Young Scientist award, International Conference on Global Conference for Decarbonization of Energy and Materials (GCCDEM 2023), December 27-31, 2023, at NTU Alumni, Singapore



Dr. M. Navaneethan, Takayanagi Research Encouragement Prize 2023, Hamamatsu Foundation for Promotion of Electronic Science, Japan

Dr. P. Justin Jesuraj, Technical committee member and Session Chair, 10th International Conference on Nanomaterials and Materials Engineering (ICNME)-2023 held in Singapore.

Mr. T. B. Naveen, First prize for poster, International Conference on Advanced Materials (ICAM 2023), St. Joseph's College, Tiruchirappalli.

Ms. B. Priyanka, Best poster presentation award at IEEE Around 2023 –the-Clock Around-the-Globe Magnetics conference organized by IEEE Magnetic Society.

Ms. Sruthy Subash, Financial Assistance from DST-SERB for participating in 244th ECS Meeting, Sweden.



- Ms. S. Tharani, Oral presentation award, International Conference on Advanced Functional Materials (ICAMS 2023), School of Physical Science University of Calicut, 21st - 23rd December, 2023
- Mr. S. Abimannan, shortlisted for Malvern Panalytical Scientific Awards.
- Mr. Ardhendu Dey, upgraded as CSIR-Senior Research Fellow.
- Mr. Gurukaelaiarasu T M, selected for Microphysiological Systems (MPS) bootcamp, organized by the Centre for Predictive Human Model Systems (CPHMS).



- M.Sc. Student - Ms. Snehidha Irudayaraj, Msc-Physics IIInd Year - Kalam's world record through SRM Tamil mandram on own poetry reading for continuously 3 hrs 7 mins 40 sec.
- B. Tech Nanotechnology final year student Mr. HARSH MAL has been accepted for a SAP Intern Project as a Visiting Research Student at Flinders University in Australia for a period of six months with stipend.

Faculty Corner

Revolutionizing Modern Architecture with Smart Electrochromic Windows

Modern-day building architecture faces a significant challenge in energy conservation and sustainability, primarily due to the widespread use of glass in construction (see Figure left side). The expansive use of glass in contemporary buildings, often termed as "glass curtain walls" is associated with several energy-related concerns. Glass has inherently poor thermal insulation properties, leading to increased heat gain in warmer climates and heat loss in colder regions. This thermal inefficiency required high energy consumption for maintaining comfortable indoor temperatures, which further contributing to elevated greenhouse gas emissions. Additionally, excessive sunlight penetration through glass surfaces can result in glare and overheating, demanding increased use of artificial lighting and air conditioning to counter these effects.

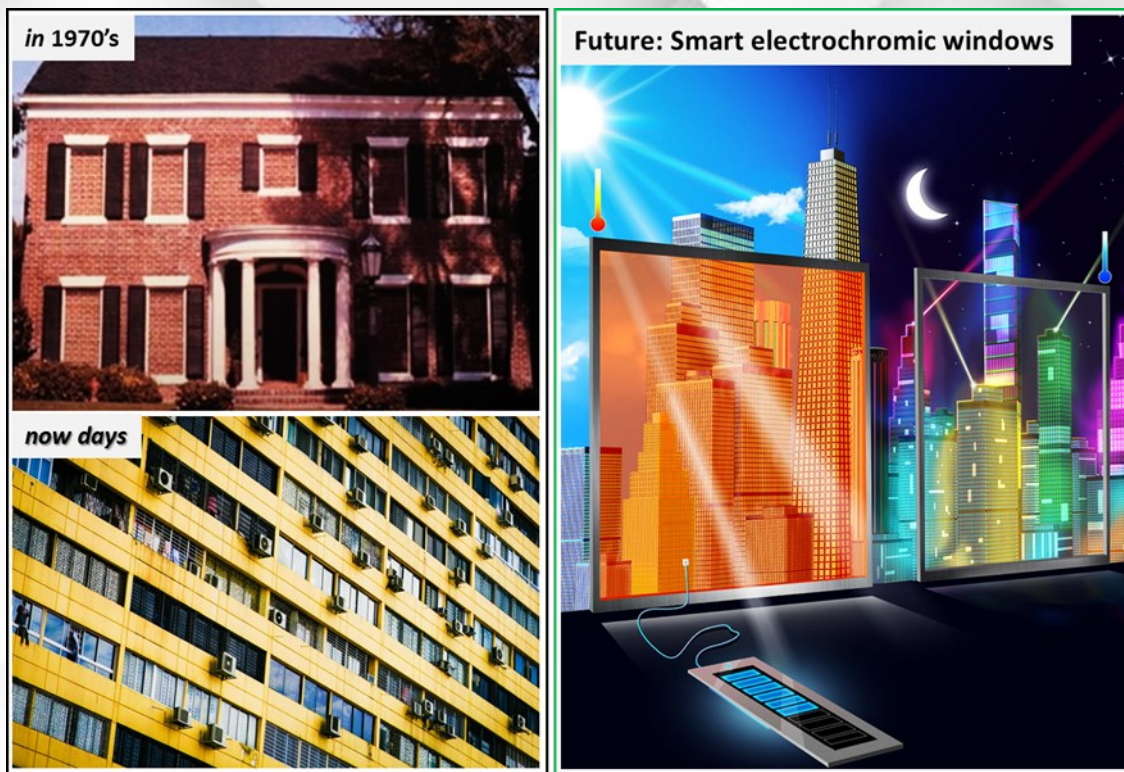


Figure: Contrasting traditional and contemporary architectural styles (left side). The advancements in modern design, with a particular focus on showcased electrochromic smart windows (right side).

Source:

<https://www.science.org/content/article/new-smart-windows-darken-sun-and-generate-electricity-same-time>

Smart windows, particularly those utilizing electrochromic technology, offer an effective solution to these challenges. The electrochromic phenomenon was first observed in the late 1970s, revealing a unique property where materials undergo reversible color changes in response to an applied voltage. The breakthrough in electrochromic technology occurred with the discovery of materials applied to smart windows. This innovation enables real-time control over the tint and transparency of the glass, empowering occupants to regulate the amount of incoming sunlight and heat (see Figure right side). By providing precise control over the building's transparency and heat-absorbing properties, smart windows contribute to significant reductions in energy consumption. This dynamic adjustment responds to changing environmental conditions, optimizing energy usage throughout the day. During peak sunlight hours, the windows can darken to reduce glare and heat gain, mitigating the need for air conditioning (see Figure right side). On the contrary, during overcast or low-light periods, the windows can lighten to maximize natural light and reduce the reliance on artificial lighting. In recent decades, advancements in materials science, nanotechnology, and smart technologies have further refined electrochromic smart windows. These windows now offer improved response times, durability (= life time), and energy efficiency. As a result, architects and designers increasingly integrate electrochromic windows into their projects, fostering a more sustainable and eco-friendly approach to building design.

In conclusion, while the prevalent use of glass in modern architecture presents challenges to energy conservation, smart windows, particularly those employing electrochromic technology, offer a forward-thinking solution. These windows empower architects, builders, and occupants to strike an optimal balance between aesthetic appeal and sustainable energy-efficient design. As the demand for greener buildings continues to grow, the integration of smart windows represents a crucial step towards achieving a more sustainable future for modern architecture.



By

**Dr. Naveen Malik,
Research Assistant Professor,
Department of Chemistry,
SRMIST, Kattankulathur.**

Alumni Connect

Alumni events@Department of Physics and Nanotechnology



Research Colloquium by Dr. Parikshit Sahatiya (SRMIST M. Tech. Nanotechnology 2014), Assistant Professor, Department of Electrical and Electronics Engineering, Birla Institute of Technology and Science Pilani, Hyderabad Campus, Telangana in offline mode on 13th December 2023 Wednesday at 12:30 PM in Hi-Tech Building H402 titled " 2D Materials Based Optoelectronics and Wearable Devices"



Talk by Dr. Madzokere Tatenda Crispin (SRMIST M Tech Nanotechnology 2015), Chairperson - Department of Metallurgical and Materials Engineering, Faculty of Engineering and Geosciences, Midlands State University, Zvishavane, Midlands Province, Zimbabwe, in offline mode on 17th November 2023 Friday at 2:30 PM in: Hi-Tech Building. H402 titled "Nanotechnology in Mineral Extraction & Intellectual Property Generation".

Alumni Connect

DEPARTMENT OF CHEMISTRY
Cordially invites to
Alumni Talk series - 12
Virtual mode
OPPORTUNITIES IN JAPAN AND BEYOND

Abilesh Kumar
Research Fellow
(Mext Fellowship)
WPI-Nano Life Science
Institute, Japan

21 OCTOBER 2023 AT 10 AM
M.Sc. Chemistry
(2018-2020 Batch)

<https://zoom.us/j/986541577637>
pwd=M2xHK3RDKIJFWE00WEtjRXRTdy9HUT09
Meeting ID: 986 5415 7763
Passcode: 028882

DR. J. AROCKIA SELVI
ASSOCIATE PROFESSOR
ALUMNI COORDINATOR
DEPARTMENT OF CHEMISTRY
SRM INSTITUTE OF SCIENCE AND TECHNOLOGY-KTR

The Department of Chemistry, SRM Institute of Science and Technology (SRMIST) organized the Alumni talk series 12 (Virtual Mode) on the topic "Opportunities in Japan and Beyond" on 21st Oct. 2023 at 10.00 am by Mr. Abilesh Kumar, WPI-Nano Life Science Institute, Japan the alumnus of Chemistry department (M.Sc. Chemistry 2018-2020).

DEPARTMENT OF CHEMISTRY
SRM IST - KTR
Alumni Talk series - 13
(Virtual mode)
BEING ENTREPRENEUR - A PRACTICAL APPROACH

Dr. B. JOSEPH VINCENT
Founder Partner and
Senior Consultant
Lobo Consultant

LOBO
Consultant

Saturday
25th November
10 : 00 am - 11.00 am

<https://zoom.us/j/976835865407>
pwd=VUdlaGhCK3LUMhthkHozZViz2MAUp4z09
MEETING ID: 976 8358 6540
PASSCODE: 173681

ALUMNI COORDINATOR
DR. J. AROCKIA SELVI
ASSOCIATE PROFESSOR
DEPARTMENT OF CHEMISTRY
CET, SRMIST - KTR

Ph.D. Chemistry (2010-2015)

The Department of Chemistry, SRM Institute of Science and Technology (SRMIST) organized the Alumni talk series 13 (Virtual Mode) on the topic "Being Entrepreneur - A practical approach" on 25th Nov. 2023 at 10.00 am by Dr. B. Joseph Vincent, Entrepreneur, Founder Lobo Consultant, the alumnus of Chemistry department (Ph.D. Chemistry 2010-2015)

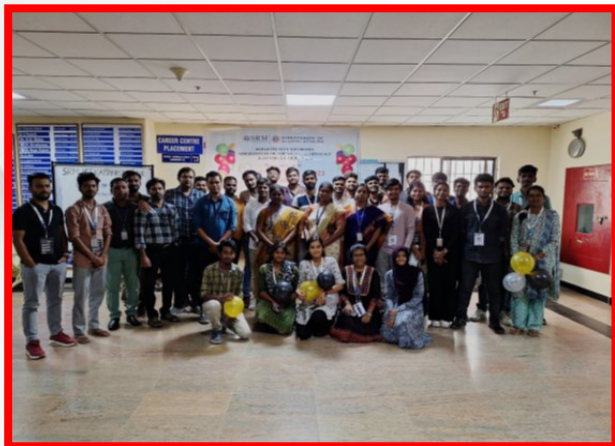
Alumni Connect



“SRM Alumni Day 2023” was celebrated in a grand manner on 23rd December 2023. The forenoon session witnessed the gathering of all guests – our alumni from all disciplines – at TP Ganesan Auditorium, SRMIST. Around 35 alumni members from the Department of Mathematics joined the event. In the afternoon, the Department of Mathematics invited the Mathematics alumni to visit the Department. Dr. N. Parvathi, Professor, addressed the alumni and talked on the recent developments and happenings at the department and the institution. The alumni students then shared about their present status in their career and remembered joyfully on their happy days at SRMIST. Dr. L. S. Senthil Kumar, Dr. Meena Parvathy Sankar and Dr. A. Anuradha, Alumni Coordinators, Department of Mathematics, had one-one interactions with the alumni and invited them to actively participate in more events and contributions. The meet ended with a Remembrance Walk around the campus ending at Tech Park, SRMIST at 4.00 PM.



Alumni Connect



The Department of Chemistry organized the alumni meet in the afternoon session on 23.12.2023 at the UB1317 Seminar Hall with the faculty members and the current student volunteers (office bearers) after the mega gathering at the institution level. The alumni members were formally welcomed by one of the student members, Ms. Smrithi, II M.Sc. Chemistry. The Head of the Department addressed the gathering.

Notifications & Announcements

New research facilities added:



Multichannel electrochemical workstation with battery tester (In charge: Dr. Kamala Bharathi, Venue: H402) funded by SRMIST (33.2 Lakhs)