

SRIBS NEWSLETTER

QUARTER - I / JAN-MAR, 2025 | VOL 1, NO:1

Welcome to the inaugural edition of SRIBS Quarterly Newsletter, your gateway to the latest developments, achievements, and innovations from the world of science and research at SRIBS. As a hub for cutting-edge discoveries and academic excellence, SRIBS is committed to fostering interdisciplinary collaboration, advancing knowledge, and shaping the future of scientific inquiry. Stay connected as we bring you inspiring stories, research breakthroughs, and exciting events from our vibrant academic community.

KSCSTE  SRINIVASA RAMANUJAN
Institute for Basic Sciences

Theoretical and Computational
Chemistry, Physics, Biology
Mathematics and Computer Science


SRIBS
Research

From Local Brilliance to Global Excellence

DIRECTOR'S MESSAGE



It is with great enthusiasm that I welcome you to the inaugural edition of SRIBS Quarterly Newsletter. This newsletter marks a significant step in our journey to share knowledge, celebrate achievements, and foster collaboration within our growing academic community.

At SRIBS, we believe that science thrives in an environment of open dialogue and interdisciplinary exploration. Through this publication, we aim to highlight pioneering research, showcase faculty and student contributions, and provide updates on events and initiatives that shape our institute's dynamic landscape.

This first edition is a reflection of our collective efforts, and I invite each of you to engage with its contents, contribute your insights, and be an integral part of this evolving platform. Together, let us build a culture of innovation and knowledge-sharing that extends beyond our walls.

Thank you for your continued support, and I look forward to the exciting journey ahead!

Dr. Suresh C. H.
Director, SRIBS

SRIBS Research Council

The SRIBS Research Council was constituted in January 2025 to guide and strengthen the institute's research ecosystem. Comprising distinguished academicians and experts, the council aims to foster innovation, promote interdisciplinary collaboration, and shape the strategic direction of research at SRIBS.



PROF. SHER ALI
(MEMBER)



PROF. SUMATHI RAO
(MEMBER)



PROF. SHRIDHAR R. GADRE
(CHAIRMAN)



PROF. MYTHILY
RAMASWAMY
(MEMBER)



PROF. RAJEEVA
L. KARANDIKAR
(MEMBER)



PROF. BEENA MATHEW
(MEMBER)



PROF. SURESH C. H
(DIRECTOR, SRIBS)
(MEMBER)



PROF. SABU A
(MS - KSCSTE)
(PERMANENT INVITEE)



PROF. T. K. MANOJ KUMAR
(MEMBER)

The first council meeting was successfully conducted on 17 January 2025, setting the foundation for impactful research initiatives and policy frameworks. Through regular deliberations, the council will continue to provide valuable insights, ensuring SRIBS remains at the forefront of scientific inquiry and technological advancement.



SRIBS Management Committee

The SRIBS Management Committee plays a vital role in overseeing the strategic and administrative framework of the institute. Comprising key leadership and experts, the committee is dedicated to ensuring efficient governance, institutional growth, and academic excellence at SRIBS.

1.	Prof. Suresh C. H. Director, KSCSTE-SRIBS	Chairman
2.	Prof. A. Sabu, Member Secretary, KSCSTE	Member
3.	Prof. Manoj. P. Samuel, Executive Director, KSCSTE-CWRDM	Member
4.	Smt. Bindu C. Varghese, Additional Secretary, S&T Department	Member
5.	Dr. C. Anil Kumar, Senior Principal Scientist, Science Education Division, KSCSTE	Member
6.	Sri. Uday Kumar S., Controller of Administration, KSCSTE	Member

In its recent meeting, the committee deliberated on key operational priorities and long-term institutional goals, laying the groundwork for future initiatives. Moving forward, it will continue to play a pivotal role in decision-making, policy implementation, and fostering an environment conducive to learning and research.



K-STAR: Kerala's First Supercomputing Centre at SRIBS

The Srinivasa Ramanujan Institute for Basic Sciences (SRIBS), Kottayam, will host K-STAR (Kerala Supercomputing for Technological Advancement and Research), a prestigious project supported by the Government of Kerala.

K-STAR aims to establish a world-class supercomputing facility that will empower researchers, universities, and industries with cutting-edge computational resources. It will foster collaborative research and enable breakthroughs in areas like AI, climate modelling, drug discovery, and data science.

With a projected budget of ₹100 crore over five years, K-STAR is envisioned as a transformative step in Kerala's journey towards technological advancement and innovation. The Government of Kerala has already sanctioned ₹10 crore in the first phase for 2025-26. This landmark initiative is expected to significantly strengthen Kerala's research ecosystem and contribute to addressing key societal challenges through technology-driven solutions.



SRIBS Shines at the 37th Kerala Science Congress

The Kerala Science Congress, organized annually by the Kerala State Council for Science, Technology & Environment, serves as a premier platform for researchers, academicians, and technologists to share their research findings and innovations relevant to the State of Kerala. The 37th edition of this prestigious event was held during 7-10 February 2025 at the Kerala Agricultural University, Thrissur and SRIBS made its presence felt with remarkable achievements.

SRIBS was awarded the Second Best Stall Award in the National Science Expo conducted as part of the Kerala Science Congress. The SRIBS stall attracted enthusiastic participation from visitors of all age groups, effectively bridging the gap between cutting-edge research and the general public.



The exhibits showcased the recent research works carried out at SRIBS, presented in an accessible and engaging manner. In addition to research exhibits, the stall featured interactive puzzles and general science displays, making scientific concepts relatable and enjoyable. Winners of the puzzles were rewarded with prizes, adding to the excitement.



Adding to the laurels, Post Doctoral Fellows from SRIBS excelled in the technical sessions of the Congress:

Dr. Arjun K. received the Best Paper Award in Physics (Scientist Delegate Category) for his work titled 'Deriving the temperature-dependent coupling constant in φ^4 theory'. This work is now accepted in the Journal of High Energy Physics.

Dr. Sreejith M.M. received the Best Paper Award in Mathematics (Scientist Delegate Category) for his work titled 'On the algebraicity of certain partial sums related to hecke eigenvalues of siegel cusp forms of degree two'.

These recognitions stand as a testament to SRIBS's growing research culture and its commitment to promoting science and technology among the wider community.



SRIBS Colloquium Series

The **SRIBS Colloquium Series** is an initiative by the Srinivasa Ramanujan Institute for Basic Sciences aimed at fostering intellectual engagement in various areas of science. As part of SRIBS's commitment to promoting research and higher education, this colloquium series will feature distinguished speakers who will provide insights into diverse scientific disciplines, inspiring students and educators alike. This series will cover fundamental and emerging topics in mathematics, physics, chemistry, biology and computer science. The SRIBS Colloquium Series aligns with institute's mission to advance knowledge in the basic sciences and create a stimulating academic environment.

The institute organized the first session of the SRIBS Colloquium Series on 6th March 2025, in collaboration with the Department of Mathematics, TKM College of Arts and Science, Kollam. The session, titled "What is Mathematics?", featured a keynote lecture by Prof. M. Manickam, Adjunct Professor at IISER Bhopal, a renowned mathematician known for his contributions to Number theory and Modular forms.

The program began with a welcome address by Prof. Suresh C. H., Director, SRIBS, who introduced the objectives of the colloquium series and emphasized its role in creating an academic culture of dialogue and exploration. In his talk, Prof. Manickam offered an insightful perspective on mathematics as a creative and evolving discipline, far beyond calculations and formulas. He discussed the historical growth of mathematical ideas, its philosophical depth, and its vital role in understanding the world around us.

An interactive discussion followed the lecture, where students engaged actively with the speaker, raising questions and sharing their thoughts. The session provided them with valuable insights into the nature of mathematics and its broader significance. The event was well-received by students and faculty members, marking a promising start to the SRIBS Colloquium Series.



National Workshop & Conference on Mathematics and Its Applications

The National Workshop and Conference on Mathematics and Its Applications was successfully organized from 3rd March 2025 to 6th March 2025 at the Department of Mathematics, TKM College of Arts and Science, Kollam. The event was jointly organized by KSCSTE - Srinivasa Ramanujan Institute for Basic Sciences (SRIBS), Kottayam, and the Department of Mathematics, TKM College of Arts and Science, Kollam.

The primary objective of the program was to provide a comprehensive platform for academicians, researchers, and students to gain exposure to fundamental mathematical techniques and explore their applications in various domains of science, engineering, and technology. The program comprised a three-day workshop followed by a one-day national conference.





കിരകെ. കോളേജിൽ സംഘടിപ്പിച്ച ദേശീയ കോൺഫറൻസിന്റെയും ശില്പശാലയുടെയും സമാപന സമ്മേളനം. ശ്രീനിവാസ രാമാനുജൻ ഇൻസ്റ്റിറ്റ്യൂട്ട് ഡയറക്ടർ ഡോ. സി.എച്ച്.സുരേഷ് ഉദ്ഘാടനം ചെയ്യുന്നു.

ടി.കെ.എമ്മിലെ ദേശീയ കോൺഫറൻസ് സമാപിച്ചു

കൊല്ലം. • കിരകെ. കോളേജ് ഓഫ് ആർട്സ് ആൻഡ് സയൻസ് ഗണിതശാസ്ത്ര വിഭാഗം, ഓഗസ്റ്റ് ഇന്ത്യൻ ഇൻസ്റ്റിറ്റ്യൂട്ട് ഓഫ് സയൻസ് എഡ്യൂക്കേഷൻ ആൻഡ് റിസർച്ച്, ശ്രീനിവാസ രാമാനുജൻ ഇൻസ്റ്റിറ്റ്യൂട്ട് ഓഫ് ബോസിക് സയൻസ് എന്നിവയുടെ സംഘടനയോടൊത്ത് സംഘടിപ്പിച്ച ദേശീയ കോൺഫറൻസ് സമാപിച്ചു.

4 ദിവസങ്ങളിലായി നടന്ന കോൺഫറൻസിൽ വിവിധ സംസ്ഥാനങ്ങളിൽ നിന്നുള്ള പ്രതിനിധികൾ പങ്കെടുത്തു.

ഓഗസ്റ്റ് ഒമ്പതിൽ നിന്നുള്ള എം.ജി.എസ്. കോളേജ്, കരം ശങ്കാർ, രാഹുൽ ഗാർഗ്, അഞ്ജൽ പാണ്ടേയ തുടങ്ങിയവർ വിവിധ സെഷനുകൾക്ക് നേതൃത്വം നൽകി.

എം.എം.എസ്.എൽ. മണിപ്പാൽ ഇൻസ്റ്റിറ്റ്യൂട്ടിലെ സന്ദീപ്, എന്നിവർ ശില്പശാല നൽകി. സമാപന സമ്മേളനം, ശ്രീനിവാസ രാമാനുജൻ ഇൻസ്റ്റിറ്റ്യൂട്ട് ഡയറക്ടർ ഡോ. സി.എച്ച്.സുരേഷ് ഉദ്ഘാടനം ചെയ്തു.

പ്രിൻസിപ്പൽ പ്രൊഫ. എം.ജെ. ഷിബു അധ്യക്ഷത വഹിച്ചു. ബോണി ടി.എഡ്വിൻ, എസ്. അനസ്, ജി.എസ്. മുസ്തഫ, എൽ. ആർ. അപർണ, ആർ. അനിൽകുമാർ, എൻ.എൻ.എൽ, നിസാബ് ദീൻ ആദിത്യ, ടി.എ.റിസാ, ഐക്യഎസ്. കോളേജിലെ നൂറ് വർഷ ആഘോഷം, ഗണിതശാസ്ത്ര വിഭാഗം, ഡോറാബി എം.ആർ. അശ്വതി തുടങ്ങിയവർ പ്രസംഗിച്ചു.



The workshop sessions were handled by distinguished faculty members from reputed institutes like IISER Bhopal, Manipal Institute of Technology, SRIBS, and TKM College of Arts and Science, Kollam. The sessions covered a wide range of topics in Mathematics such as Abstract Algebra, Number Theory, Analysis, and Calculus for Machine Learning and Data Science. Apart from these, tutorials were also conducted for the participants.

The lectures and tutorials were handled by:

Dr. M Manickam, IISER Bhopal (Abstract Algebra – Groups in Action)

Dr. Karam Deo Shankhadar, IISER Bhopal (Number Theory – Quadratic Reciprocity and its Applications)

Dr. Rahul Garg, IISER Bhopal (Analysis – Infinite Series and its Applications)

Dr. Sandeep E M, Manipal Institute of Technology (Calculus for Machine Learning and Data Science)

Dr. Adersh V K, TKM College of Arts and Science (Tutorial)

Dr. Sreejith M M, SRIBS, Kottayam (Tutorial)

The final day of the program featured a National Conference which provided a platform for researchers to present their work and exchange ideas. The program witnessed the participation of around 50 participants, including research scholars, postgraduate students, and faculty members. The participants benefitted greatly from the expert lectures, hands-on sessions, and discussions during the conference.

The workshop and conference were well appreciated by all participants for their academic content, resource persons, and overall organization. The program successfully fulfilled its objective of enhancing mathematical knowledge and fostering collaboration among academicians, researchers, and students.

Programs



Workshop on "Computational Tools in Scientific Research" at SRIBS, January 30, 2025

A Short-Term Programme on "Chemistry of Explosives" was conducted for VSSC employees on March 21, 2025, by Dr. Suresh C. H. The session focused on fundamentals, safety, and recent advances, including computational studies on explosive materials, providing valuable scientific insights to participants from Vikram Sarabhai Space Centre, Thiruvananthapuram.



Expert Talk on Computational Quantum Chemistry by Dr. C. H. Suresh at TKM College, Kollam on February 21, 2025.

Workshop on "Computational Quantum Chemistry" at SRIBS, February 19, 2025.



Interactive session By Dr. Suresh C. H. at Baselius College, January 27, 2025

Programs

Dr. Suresh C.H. gave a talk on “The Quantum Edge: Unleashing India's Youth for Global Scientific Leadership” at St. Berchmans College, Changanacherry on February 28, 2025



Talk by Dr. C. H. Suresh in International Conference on Advances in Materials Science, January 9-10, 2025 at St. Dominics College, Kanjirappally.

Interactive Session on “Mathematics Beyond Formulas and Exams” at Baselius College, Kottayam on March 19, 2025



An interactive session on “Beyond Theorems: Bridging Theory and Research in Mathematics” by Dr. Sreejith M.M. at TKM College, Kollam on February 21, 2025.

The National Science Day Celebrations

As part of the National Science Day Celebrations 2025, SRIBS, in association with KG College, Pampady, organized a series of vibrant and engaging events aimed at fostering scientific curiosity and creativity among students. A theme-based video-making competition was conducted, encouraging participants to creatively present scientific concepts through short videos. The competition provided a platform for students to combine scientific accuracy with innovation and effective communication.



A seminar on India's remarkable journey in space technology was delivered by Dr. Vijayalakshmi Suresh, Scientist-SG, VSSC, Thiruvananthapuram. The session covered India's pioneering missions like Chandrayaan, Mangalyaan, and Gaganyaan, inspiring participants with insights into India's contributions to global space exploration.

An inter-school and inter-college Science Quiz was organized for students across Kottayam district. The quiz featured multiple rounds covering diverse topics in science and technology, sparking enthusiasm, teamwork, and healthy competition among participants.

These events successfully brought together young minds to celebrate science, promoting curiosity, creativity, and a passion for scientific discovery.

Public outreach : Science Beyond Classrooms

As part of its continued efforts in science communication and public outreach, SRIBS participated in IHRD Tharang 2k25, the first National Level Techno-Cultural-Entrepreneurial fest organized by the Institute of Human Resources Development (IHRD). The event was held on February 22nd and 23rd, 2025, at IHRD KKM Model Polytechnic College, Kallettumkara, Thrissur. The SRIBS Exhibition Stall showcased a variety of science exhibits and demonstrations aimed at sparking curiosity and scientific temper among students and the general public. The stall attracted significant footfall and appreciation from visitors for its efforts to present scientific ideas in a simple and engaging manner. Participation in events like IHRD Tharang reflects SRIBS's commitment to promoting science beyond academic boundaries, inspiring young minds, and fostering a culture of curiosity-driven learning.



MoU Signing

As part of its mission to advance scientific research and education, SRIBS has established Memoranda of Understanding (MoUs) with various academic and research institutions. These collaborations aim to foster joint research initiatives, faculty development programs, knowledge exchange, and interdisciplinary academic activities. Through these partnerships, SRIBS seeks to enhance research opportunities, organize conferences and workshops, facilitate faculty and student exchanges, and promote resource sharing. By building strong institutional networks, SRIBS continues to create a dynamic platform for scientific inquiry, innovation, and capacity building in the basic sciences.



MoU signed with K. G. College, Pampady on 22/01/2025.



MoU signed with Basilius College, Kottayam on 27/01/2025 .



MoU signed with TKM College, Kollam on 21/02/2025



MoU signed with Catholicate College, Pathanamthitta on 11/02/2025.

Publications

Since April 2024, SRIBS has a total of 15 publications to our credit. The following are the publications from this quarter.

1. **Ardra Ajith, Eapen Thomas, C. H. Suresh, Rachel Reena Philip**, (2025) Advances and Strategies in Nanoarchitected TiO₂ Based Electrodes for Supercapacitors, Journal of Energy Storage. <https://doi.org/10.1016/j.est.2025.115289>
2. E. Hiba Rahman, Priya S. Nair, V. K. Shinoj, Sadasivan Shaji, Andrew Bunnell, Nathaniel Jobson and **Rachel Reena Philip**, Enhanced photocatalytic degradation efficiency of TiO₂ nanotubes by potassium doping, Journal of Materials Science: Materials in Electronics (2025) 36, 236. <https://doi.org/10.1007/s10854-025-14259-3>
3. R Thushara, **C. H. Suresh** (2025) Ladderenes as Covalently Condensed Acetylene: A DFT Investigation of Gold (I)-Catalyzed Mechanism, Substituent Effects and Energy Storage Potential, Journal of Computational Chemistry 46 (7), e70078. <https://doi.org/10.1002/jcc.70078>
4. **K. Arjun**, A. M. Vinodkumar, Vishnu Mayya Bannur (2025), Equation of state of quark-gluon plasma in the presence of magnetic field with a modified liquid drop model, The European Physical Journal Plus, 140, 215. <https://doi.org/10.1140/epjp/s13360-025-06146-x>
5. **K. Arjun**, A M Vinodkumar, Vishnu Mayya Bannur, Munshi G. Mustafa, (2025) Self-Energy Approximation for the Running Coupling Constant in Thermal ϕ^4 Theory using Imaginary Time Formalism, Journal of High Energy Physics



KSCSTE - Srinivasa Ramanujan Institute for Basic Sciences (SRIBS)
Nedumkuzhy, Pampady
Velloor P.O, Kottayam 686 501
Kerala, INDIA.

Tel: +91-481-2500200 | Email: sribs.kscste@gmail.com

www.sribs.kerala.gov.in

