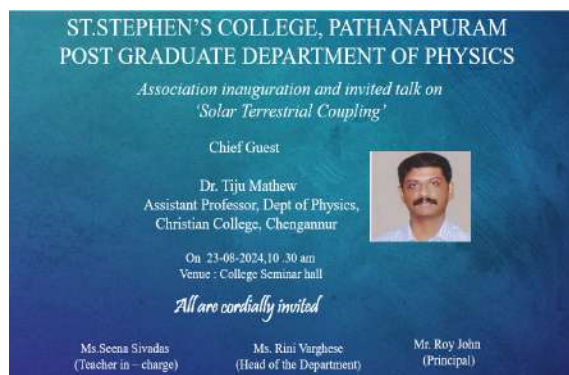


ST.STEPHEN'S COLLEGE, PATHANAPURAM

DEPARTMENT OF PHYSICS,

Report on department activities (2024-25)

1.Inauguration of the Physics Association 2024-25 and one day seminar



The Physics Association of St. Stephen's College, Pathanapuram, for the academic year 2024-25, was inaugurated on August 23, 2024, in a grand ceremony organized by the Department of Physics. The event was graced by distinguished guests, faculty members, and enthusiastic students. The program began with a serene *Prayer Song* performed by the III B.Sc. Physics students, creating a solemn and reflective ambiance. This was followed by a warm and engaging *Welcome Address* by Ms. Rini Varghese, Head of the Department of Physics, who highlighted the department's vision and the objectives of the Physics Association. The *Presidential Address* was delivered by Mr. Roy John, Principal of the college, who stressed the importance of scientific inquiry and encouraged students to actively engage in the association's activities to broaden their academic horizons.



The inaugural session reached its peak with the *Inaugural Address* and formal inauguration by the Chief Guest, Dr. Tiju Mathew, Assistant Professor, Department of Physics, Christian College, Chengannur. Dr. Tiju emphasized the transformative power of physics in understanding the universe and inspired students to delve deeper into their studies and research pursuits. Fr. Dr. Roy John, Management Council member and Assistant Professor in the Department of Botany, delivered a heartfelt *Felicitation*. His words underscored the importance of interdisciplinary collaboration and the integration of science and ethics in education.

The event's highlight was the *Keynote Address* by Dr. Tiju Mathew, who delivered an enlightening lecture on the topic "*Solar-Terrestrial Coupling*." He explained the intricate relationship between the Sun and the Earth, shedding light on phenomena such as solar winds, geomagnetic storms, and their impact on Earth's atmosphere and technological systems. His engaging presentation, filled with insights and recent research findings, captivated the audience and deepened their understanding of this critical area of study. The program concluded with a *Vote of Thanks* by Ms. Seena Sivadas, Teacher in Charge of the Physics Association. She expressed her heartfelt gratitude to the dignitaries, faculty members, and students for making the event a grand success. The inauguration was a resounding success, marked by intellectual stimulation and inspiration. It laid a strong foundation for the Physics Association's activities in the academic year 2024-25, leaving participants motivated to explore new frontiers in physics.

2. Visit to IISER, Thiruvananthapuram



A group of students and teachers from St. Stephen's College, Pathanapuram, embarked on an educational excursion to IISER Thiruvananthapuram and Ponmudi Hill Station on 4th October 2024. The primary objective of the excursion was to provide students with practical exposure and enhance their understanding of academic concepts through real-world applications and interactions. At IISER Thiruvananthapuram, the group had the opportunity to explore the Physical Science and Chemical Science Divisions.



Sputtering unit in the physical science division

Students observed advanced experiments and state-of-the-art equipment used in physics research in the physical science division. Faculty members at IISER provided insightful explanations on concepts such as quantum mechanics, material science, and optics, sparking curiosity among students.



Cryostat in the chemical science division

The visit to chemical science division highlighted the role of chemistry in everyday applications and advanced research. Students learned about cutting-edge techniques in chemical synthesis, analysis, and spectroscopy. Interactive sessions allowed students to ask questions, enriching their knowledge and inspiring them toward research-based careers.

Visit to Ponmudi Hill Station



Following the academic visit, the group proceeded to Ponmudi Hill Station, a serene destination known for its natural beauty and biodiversity. The visit provided a refreshing break and an opportunity to observe the ecological balance in the Western Ghats. Students learned about the region's flora and fauna, emphasizing the importance of environmental conservation. The scenic views and relaxing atmosphere helped rejuvenate the group after the day's academic engagements.

3. World Space week celebration



As part of the World Space Week 2024 celebrations, St. Stephen's College organized a special program on 8th October 2024 to inspire and educate students about space science and technology. This program was not only attended by students and faculty members of the college but also welcomed participants from nearby schools, fostering a broader outreach to young minds. The highlight of the event was an inspiring keynote address delivered by Ms. Aiswarya Samridh, a distinguished Scientist SG working in the Human Rating Certification Group for GAGANYAAN at ISRO. With an illustrious career since joining ISRO in 2004, her expertise spans across aerospace batteries, chemical systems, space ordnance, and composites.

During her talk, Ms. Aiswarya shared:

1. Insights into the GAGANYAAN Mission: She elaborated on the rigorous processes involved in human-rating spacecraft systems, emphasizing the critical role of safety and reliability in ensuring mission success.
2. Technical Expertise: Ms. Aiswarya explained the importance of aerospace batteries, chemical propulsion systems, and space ordnance in enabling advanced space exploration.
3. Inspiration to Students: Through anecdotes from her career, she motivated students to pursue careers in science and technology, stressing the importance of innovation and perseverance.

Her engaging presentation was followed by an interactive Q&A session where students enthusiastically asked questions about space exploration and the role of ISRO in advancing India's position in the global space sector.

4.Two-Day National Seminar on Modern Trends in Physics Research (NSMTPR-2024)



Dear Sir/Madam,

The Department of Physics at St. Stephen's College, Pathanapuram, cordially invites you to the **National Seminar on Modern Trends in Physics Research** scheduled to be held on **December 16 and 17, 2024**. This two-day event aims to bring together scholars, researchers, and students from across the nation to explore and discuss the latest advancements and trends in various fields of physics. The seminar will feature keynote lectures by eminent physicists, interactive sessions, and presentations. We believe your participation will enrich the discussions and contribute to a vibrant exchange of knowledge. We look forward to your presence and active involvement.

Thanking you

Ms Rini Varghese
(Convener and IAC, Physics)

Dr Biju A
(Principal)

About the College and Department

St. Stephen's College, Pathanapuram is one of the prominent institutions in Kerala, offering a range of undergraduate and postgraduate programs. The college is affiliated to the University of Kerala and is renowned for its academic excellence, having a strong tradition in science and arts. St. Stephen's College, Pathanapuram, established in 1958 and located in the scenic town of Pathanapuram, is celebrating its Diamond Jubilee this year, commemorating 65 years of academic and institutional excellence. The Department of Physics at St. Stephen's College, Pathanapuram has been a center of excellence in physics education for its students. It offers both undergraduate (B.Sc) and postgraduate (M.Sc) programs, designed to provide students with a comprehensive understanding of both classical and modern physics.

About the seminar

The seminar on 'Modern Trends in Physics Research' provides a platform for an exciting experience, bringing together leading experts and researchers in diverse specialized areas. In the field of physics, this seminar explores cutting-edge research, latest trends and future perspectives, participants will gain valuable insights into the latest research trends and foster connections with peers and professionals in the field.

Resource persons



Dr. Sajeev Philip
Associate Professor
Department of Physics, St. Stephen's College, Pathanapuram



Dr. Sudesh N
Assistant Professor
Department of Physics, St. Stephen's College, Pathanapuram



Dr. P Anand
Associate Professor
Department of Physics, St. Stephen's College, Pathanapuram



Dr. Muradetharan K R
Principal & Associate Professor
Department of Physics, St. Stephen's College, Pathanapuram



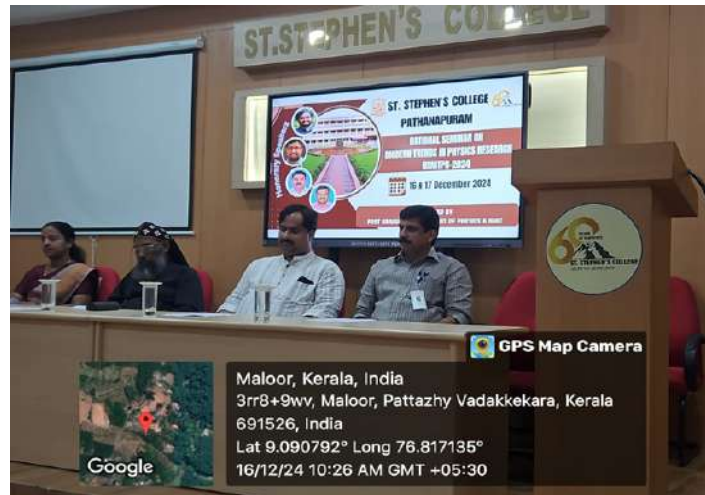


The Department of Physics at St. Stephen's College, Pathanapuram, successfully organized the Two-Day National Seminar on Modern Trends in Physics Research (NSMTPR-2024) on December 16 and 17, 2024. The seminar aimed at fostering discussions on contemporary advancements in various domains of physics and provided a platform for scholars, researchers, and students to interact with eminent scientists in the field.

Inauguration Ceremony

The seminar commenced on December 16, 2024, with a registration session from 9:30 AM to 10:00 AM, where participants from various institutions registered their attendance. The inaugural session was held from 10:00 AM to 10:45 AM and was presided over by Dr. Biju A, Principal of St. Stephen's College. Ms. Rini Varghese, the Head of the Department of Physics and Convenor of the seminar, welcomed the dignitaries, participants, and attendees. In his

address, Dr. Biju A emphasized the importance of research in physics and the significance of such seminars in advancing knowledge and fostering collaboration. Very Rev. M.M. Samuel Kutty Remban, Manager of Mount Tabor Institutions inaugurated the seminar.



Day 1: Technical Sessions and Paper Presentations

Following the inaugural session, the seminar proceeded with the technical sessions.

Technical Session 1 (11:00 AM – 12:30 PM):



Dr. Sajeev Philip, Assistant Professor at the Centre for Atmospheric Sciences, IIT Delhi, delivered a session on "Tracking Atmospheric Composition from Space." He provided valuable insights into space-based monitoring of atmospheric changes and their implications for climate science.

- **Technical Session 2 (1:30 PM – 3:00 PM)**



Dr. Smijesh N, Associate Professor at the Raman Research Institute, Bengaluru, led a session on "AMO Science Using Attosecond Pulses." His presentation covered groundbreaking developments in attosecond pulse generation and their applications in atomic, molecular, and optical physics.

Paper Presentations (3:15 PM – 4:00 PM):



Several researchers and scholars presented their papers on various aspects of modern physics, ranging from quantum mechanics to material sciences. The session was an engaging discussion between presenters and attendees.

Day 2: Advanced Research Discussions and Poster Presentations

The second day of the seminar featured additional technical sessions and interactive presentations.

- **Technical Session 3 (9:30 AM – 11:00 AM):**



Dr. P Anand from the DRDO-Naval Physical and Oceanographic Laboratory, Kochi, delivered an insightful talk on "Physical Oceanography in Naval Applications." He discussed the role of physics in understanding oceanic behaviors, which are crucial for defence and naval operations.

Technical Session 4 (11:15 AM – 12:30 PM):

Dr. Muraleedharan K R, Principal Scientist and Associate Professor at CSIR-National Institute of Oceanography, presented a lecture on "Role of Oceans in a Climate Change Scenario." His session explored the effects of climate change on oceanic systems and its broader impact on global weather patterns.



Paper & Poster Presentations (1:30 PM – 3:00 PM):

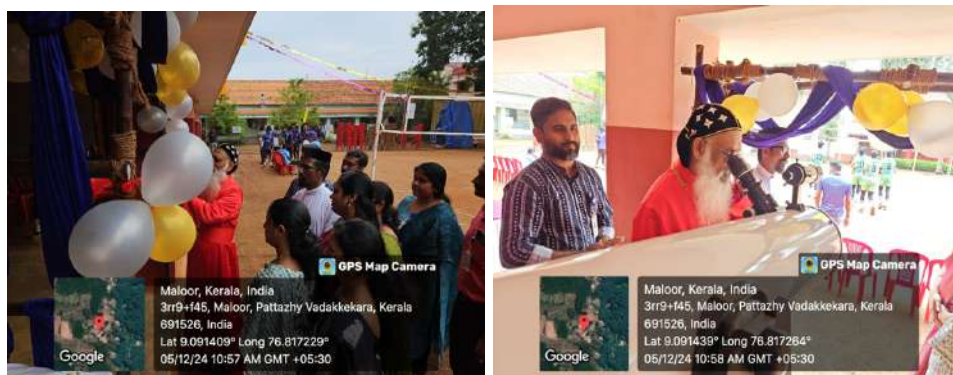


The seminar provided an opportunity for young researchers and students to showcase their research findings through paper and poster presentations. This session facilitated meaningful discussions and knowledge exchange between participants and experts.

Valedictory Session and Conclusion

The seminar concluded with a valedictory session from 3 PM to 4:00 PM, which included a summary of the discussions, feedback from participants, and a vote of thanks by the organizing committee. Certificates of participation were distributed to attendees.

5.Inauguration of Professional Dobsonian Telescope



The Department of Physics at St. Stephen's College marked a momentous occasion as part of its Diamond Jubilee celebrations with the acquisition and installation of a Professional Dobsonian Telescope. This remarkable addition to the department's astronomical resources signifies a major leap in fostering scientific curiosity and research among students. The grand inauguration ceremony took place on 5th December 2025 in the presence of distinguished guests, faculty, and students. The event was graced by, H.G Dr Joseph Mar Dionysius officially inaugurated the telescope. In his inspiring address, he emphasized the significance of astronomy in understanding the universe and commended the college's commitment to advancing scientific learning. The ceremony began with a warm welcome from the Head of the Physics Department, who highlighted the telescope's capabilities and its potential impact on academic exploration. Faculty members and students expressed their enthusiasm for this invaluable addition, which will enhance observational astronomy and practical learning experiences. Following the formal inauguration, attendees were given an exclusive demonstration of the telescope's functions. The Dobsonian

Telescope, known for its superior deep-sky viewing capabilities, is expected to open new avenues for astronomical research and sky-watching events at the college. The installation of the telescope is not just a technological enhancement but a milestone in the history of St. Stephen's College, reinforcing its dedication to scientific excellence.

6.St. Stephen's College Hosts Grand Synergia Exhibition: A Stellar Showcase by the Department of Physics



As part of the grand Synergia Exhibition at St. Stephen's College, the Department of Physics captivated audiences with an inspiring and interactive display of scientific marvels. The exhibition, organized in connection with the Diamond Jubilee celebrations, showcased the department's commitment to fostering curiosity, innovation, and scientific exploration. The highlight of the exhibition was the newly installed Professional Dobsonian Telescope, inaugurated by H.G Dr Joseph Mar Dionysius . Visitors were given an exclusive opportunity to witness its advanced capabilities and understand its significance in astronomical studies. The exhibition featured a diverse range of engaging exhibits, including live physics experiments, working models, and interactive sessions designed to make complex scientific concepts accessible and exciting. Students and faculty members enthusiastically explained topics such as quantum mechanics, electromagnetism, optics, and astrophysics, sparking interest among aspiring young minds. With such a remarkable display, the Department of Physics at St. Stephen's College once again proved its dedication to excellence, setting new benchmarks for interactive and innovative learning.

7. Very. Rev. T M Samuel Ramban Memorial Lecture Series

ST. STEPHEN'S COLLEGE
PATHANAPURAM, KOLLAM

VERY REV. T. M. SAMUEL RAMBAN MEMORIAL LECTURE SERIES

24th & 25th FEBRUARY 2025 at 10 AM
Agrem Ramban Seminar Hall

DR. JAYAKRISHNAN R. & MR. SARATH PRABHAV J.

Organized by
POSTGRADUATE DEPARTMENT OF PHYSICS
IN ASSOCIATION WITH ISAC

Sponsored by
Mr. JACOB EMMANUEL (former H.O.D., Dept. of Physics)

Dr. Jayakrishnan R.
Associate Professor & Head of the Department of Physics, University of Kerala, Thiruvananthapuram. He is a member of the Indian Academy of Sciences (FASc) and has been awarded the National Award for Best Teacher in the field of Physics. He is also a member of the Indian Academy of Sciences (FASc) and has been awarded the National Award for Best Teacher in the field of Physics.

Mr. Sarath Prabhav J.
Mr. Sarath Prabhav J. is a popular science communicator and has been invited to deliver lectures in various schools and colleges. He is also a member of the Indian Academy of Sciences (FASc) and has been awarded the National Award for Best Teacher in the field of Physics.

24-02-2025
10 am: Inauguration
Session 1: Invited talk on "Scientific Contributions of the Trivandrum Observatories" by Dr. Jayakrishnan R.

25-02-2025
Session 2: Invited talk on "Astronomy and Life" by Mr. Sarath Prabhav J.

Organizing Committee
Mr. Shibi Kishan
Dr. Rakesh Chandran
Mr. Suresh Sridhar
Dr. Pinar Ananthi Mohan
Dr. Mary Varughese

We welcome you all to the Lecture Series

Dr. Biju A. Principal Mr. Rini Varughese H.O.D. Mr. Sachithran S Co-ordinator

Department of Physics, St. Stephen's College, Pathanapuram, successfully conducted the *Very Rev. T. M. Samuel Memorial Lecture Series* on the 24th and 25th of February 2025 in memory of T. M. Samuel Remban. The event was organized under the initiative of the former Head of the Department, **Prof. Jacob Thomas**, who played a key role in curating the sessions.



The event featured distinguished speakers who delivered insightful lectures on various scientific topics. **Dr. Jayakrishnan, Associate Professor**, University of Kerala, presented an invited talk on the *Scientific Contributions of Trivandrum observatories*, highlighting the historical and contemporary significance of astronomical research in the region. His session was well-received by students and faculty alike as he elaborated on the pioneering work done at these observatories.



Another thought-provoking session was led by **Mr. Sarath Prabhav J.**, a popular science communicator who delivered a lecture on *astronomy and life*. His talk explored the vastness of the universe and its connections to

human existence, sparking curiosity and discussions among the attendees. The lecture series served as an excellent platform for students and faculty members to engage with scientific discussions and commemorate the contributions of **T. M. Samuel Remban**. The program was a great success, enriching the academic environment of the college and inspiring young minds toward scientific inquiry.

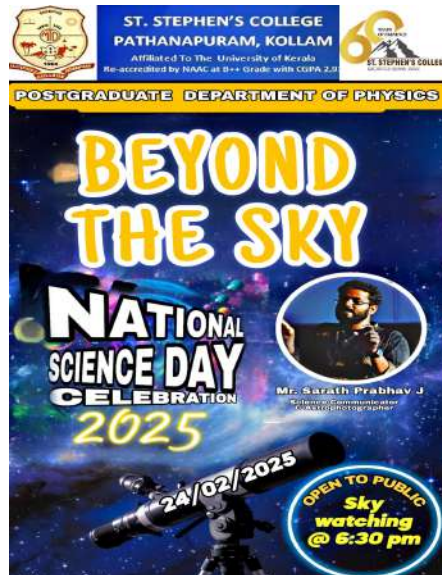
8.LED Making Workshop

The Department of Physics, **St. Stephen's College, Pathanapuram**, successfully organized an *LED Making Workshop* on **24th March 2025** for the general public. The workshop aimed to provide hands-on training in assembling and understanding the working principles of **Light Emitting Diodes (LEDs)** while promoting energy efficiency and sustainability.



Dr. Ragesh Chandran, Assistant professor, Dept of Physics handled the session. The session was designed to be interactive, allowing participants to gain practical knowledge of LED circuit design, soldering techniques, and applications of LED lighting. Faculty members and student volunteers actively guided the participants through each step of the process, ensuring an engaging and informative experience. The workshop received an enthusiastic response from the attendees, who appreciated the opportunity to learn about cost-effective and eco-friendly lighting solutions. The event also emphasized the importance of **renewable energy and energy conservation**, aligning with the department's commitment to scientific awareness and community outreach. The initiative was a resounding success, fostering a spirit of learning and innovation among participants while reinforcing the role of **science and technology in everyday life**.

2.Sky Watching Program-Beyond the sky



The **Department of Physics, St. Stephen's College, Pathanapuram**, successfully organized a *Night Sky Watching Program* on **24th March 2025** for students and the general public. The event, which began at **6:30 PM**, was conducted using the newly installed **Dobsonian Telescope**, offering a remarkable stargazing experience. Participants had the opportunity to observe celestial wonders, including the **closest views of Venus, Jupiter, and stunning nebulae**. The event was met with great enthusiasm, as attendees marveled at the breathtaking sights of the night sky. Faculty members and student volunteers provided explanations about the observed celestial objects, making the session both educational and engaging. The program attracted a large number of astronomy enthusiasts and the general public, making it a memorable experience. The overwhelming response highlighted the growing interest in **astronomy and space science**, reinforcing the department's commitment to promoting scientific curiosity and exploration. The event was a resounding success, leaving participants fascinated by the beauty of the universe and eager for more such opportunities in the future.