



**Sree Krishna College, Guruvayur, Kerala**

**Indian Nuclear Society (INS), Mumbai  
&  
Atomic Energy Retirees' Association, Kerala (AERA)**

**Jointly convene a National Symposium  
on**

**Nuclear Energy for a Sustainable  
Tomorrow  
NEST-25**

**Organised by**

**Post Graduate Department of Physics & Research Centre  
Sree Krishna College, Guruvayur**



**Sree Krishna College, Guruvayur, Ariyannur, 680 102, Kerala  
on  
March 20 and 21, 2025**



## Preamble

A two-day seminar on nuclear energy is being organized at Sree Krishna College in Guruvayur, Kerala, to raise awareness and generate interest in nuclear sciences, particularly among students, academicians, and the general public. The seminar aims to provide an overview of India's current nuclear program and its applications across various technological fields and scientific areas.

The threat of climate change is becoming increasingly urgent, underscoring the need to move away from fossil fuels. In this context, nuclear energy stands out as a critical component for a sustainable future. Nuclear power has several key attributes:

**Reliability and Baseload Power:** Unlike intermittent renewable energy sources such as solar and wind, nuclear power plants can deliver consistent, round-the-clock electricity generation.

**Low Carbon Emissions:** The process of nuclear fission produces electricity with almost no greenhouse gas emissions, making it an essential tool in combating climate change.

**Energy Density and Efficiency:** Nuclear power has an exceptionally high energy density, allowing it to generate significant electricity with minimal fuel.

**Technological Advancements:** New nuclear technologies, such as small modular reactors (SMRs) and advanced reactors, provide enhanced safety, efficiency, and solutions for waste management, thereby addressing many concerns associated with traditional nuclear energy.

These topics will be discussed during the seminar



Sree Krishna College, Guruvayur



## Sree Krishna College

Department of Physics



Sree Krishna College, located in Guruvayur, Thrissur district, Kerala, India, is a prestigious institution that specializes in arts and sciences. Established in 1964, the college is affiliated with the University of Calicut and is managed by the Guruvayur Devaswom.

Over the years, it has developed into a leading educational institution, offering 13 undergraduate programs and 6 postgraduate programs. The departments of Physics and Botany at the college are dedicated research departments. Recently, Sree Krishna College received national re-accreditation with an 'A' grade from NAAC.

### Department of Physics

The Physics Department at Sree Krishna College Guruvayur has significantly grown and evolved since its establishment in 1964 under the University of Calicut. In 2015, the department was recognized as a research centre by the University of Calicut. All faculty members are recognised research guides at the university and are involved in various areas of physics. The department primarily focuses its research on atmospheric physics and materials science.

In addition, the Centre for Atmospheric and Climate Research, a specialized laboratory dedicated to advancing research in climate science, was established in 2017 under the Department of Physics. The center's primary research areas include studying extreme climate events, variations in trace air pollutants, long-term changes in particulate matter, thunderstorm dynamics, and boundary layer dynamics.

### Guruvayur

Guruvayur is a pilgrimage town in Kerala and one of the most sacred destinations in India. At the center of the town stands the renowned Guruvayur Temple, which is celebrated for its intricate architecture and vibrant rituals. Dedicated to Lord Krishna, this ancient temple attracts millions of devotees each year, creating an awe-inspiring atmosphere that fills visitors with a sense of spirituality and divinity.



In addition to the main temple, you can also visit the Mammiyur Mahadeva Temple and the nearby Parthasarathy Temple. Other attractions in and around Guruvayur include Chavakkad Beach, Melpathur Mana, the Chettuva backwaters with boating options, and the Elephants Fort.

## How to Reach Guruvayur

The nearest airport to Guruvayur is Cochin International Airport (COK), which is approximately 80 kilometers away. Guruvayur has its own railway station that is part of the Southern Railway network. The town is well connected to major cities in Kerala and other parts of India by both road and rail.

## INDIAN NUCLEAR SOCIETY, MUMBAI

The Indian Nuclear Society (INS) is a registered professional body of nuclear scientists, engineers and technologists in India, with its headquarters at Mumbai and branches at Hyderabad, Kalpakkam, Rawatbhata, Mysore and Narora. It has more than 5,000 life members and 80 corporate members on its roll. The Society was inaugurated in January 1988 by late Shri J.R.D. Tata. The Society aims to promote advancement of nuclear science and technology together with the other sciences and arts and to aid in the integration of several disciplines constituting Nuclear Science, Engineering and Technology. The Society also aims to create awareness among general public about the benefits of atomic energy to mankind. The society has so far conducted twenty-five annual conferences, several seminars and special lectures. Under its public awareness Program, the INS and its branches have conducted several one-day seminars about nuclear energy and its applications. This activity mainly organized for students and faculty of academic institutions is conducted through lectures in English and regional languages by arranging visits to the nuclear power station and by organizing open sessions and exhibitions. The INS also regularly conducts technical workshop for industry. To recognize outstanding contributions made by individuals and industries in the field of nuclear science and technology, the Society has instituted annual INS awards since the year 2001.



## ATOMIC ENERGY RETIREES' ASSOCIATION

The Atomic Energy Retirees' Association (AERA) was established in 2009 by a vibrant community of former Department of Atomic Energy (DAE) employees who chose to settle in Kerala. This non-profit, non-political, and secular organization brings together engineers, scientists, administrators, and technicians who have dedicated their careers to advancing the field of atomic energy. The association serves as a platform for continued interaction among DAE retirees.

AERA is committed to promoting public awareness and understanding of nuclear energy. Through educational initiatives, including the recent publication of resource books and booklets, the association aims to provide the public a realistic picture on nuclear science and technology and their social significance.

## ABOUT THIS SEMINAR

This seminar will serve as a forum for scientists and engineers to discuss the role of nuclear energy in transitioning to clean energy sources and its contribution to sustainable development and climate change mitigation.

## OBJECTIVES

It is essential to raise awareness about nuclear energy and its applications, particularly among young students in science and engineering. This seminar aims to address the misconceptions surrounding the use of nuclear energy, especially within the younger generation. The main objective is to enhance and expand the contributions of atomic energy toward promoting peace, health, and prosperity around the globe.

## WHO CAN ATTEND THIS SEMINAR?

Faculty and students from the arts, science, and engineering colleges in Kerala, as well as professionals and engineers in the industry around Thrissur, are the target audience for this seminar.

## EXHIBITION

In conjunction with the seminar, an exhibition on Nuclear Energy will be held on March 20-21, 2025, at the seminar venue. The exhibition will feature materials, models, and posters from the Department of Atomic Energy (DAE) and the Indian Rare Earths Limited (IREL). Experts from the DAE will be available to interact with students and visitors.



## EXPECTED OUTCOME

- 1) Get an overview of the current nuclear energy program in the country.
- 2) Exposure to the challenges involved in nuclear power generation.
- 3) Information about application of nuclear technology in the fields like agriculture, biology, medicine etc.
- 4) Information on how plastic waste can be handled using nuclear technology.
- 5) Exposure to the industrial applications of nuclear technology.
- 6) Opportunity to interact with senior nuclear scientists in the country.
- 7) Research and Development in Nuclear Field as a career option.

## THEME AREAS

- a) Nuclear fission and fusion
- b) Technologies in nuclear power generation
- c) Combating climate change using nuclear power
- d) Radioisotopes and its applications
- e) Accelerator technologies for linear (Linacs) and circular accelerators like cyclotrons and synchrotrons.
- f) Nuclear Medicines
- g) Advanced nuclear materials for improving safety, efficiency and longevity of nuclear reactors
- h) Thorium Utilization
- i) Nuclear biology and agriculture
- j) Nuclear technologies to tackle plastic pollution
- k) Rare Earths and its uses

## REGISTRATION

A nominal fee of Rs. 200 will be charged to student delegates from all institutions. Research scholars and faculty will be charged a nominal fee of Rs. 1000.

## TRAVEL & ACCOMMODATION

Expenditure for travel and accommodation must be borne by the participants. We are happy to book accommodation for the participants on request.



## List of Speakers and Topics

- **Dr. Raghavendra Tewari**  
Director, Materials Group,  
BARC  
**Energy Scenario in the Country  
and Changing Role of Nuclear  
Energy in India**
- **Shri. S. K. Malhotra**  
Senior Scientist, BARC  
(retd.), Former Head, Public  
Awareness Division, DAE  
**Achieving Net-Zero Targets of  
India – Inevitable Role of  
Nuclear Power**
- **Dr. S. V. G. Menon**  
Senior Scientist (retd.) &  
former Group Director,  
BARC  
**Nuclear fusion: Current  
Research & Prospects**
- **Dr. M. M. Musthafa**  
Professor,  
Department of Physics,  
Calicut University, Kozhikode  
**Nuclear Reactors -  
Towards Energy with zero  
waste**
- **Dr. A. Rhine Kumar**  
Asst. Professor,  
Department of Physics  
CUSAT, Kochi  
**Artificial Intelligence in  
Nuclear Physics**
- **Dr. Haridas G. Nair**  
Head, Health Safety  
Section, Health Physics  
Division, BARC, RRCAT,  
Indore  
**Nuclear Radiation Safety**
- **Dr. M. R. Iyer**  
Senior Scientist (retd) &  
former Head RSSD, BARC:  
IAEA  
**The Need for Radiation  
Protection Professionals to  
Revisit its Norms?**
- **Shri. G. D. Mittal**  
Secretary, INS  
**Indian Nuclear Society (INS):  
Aim and Objectives**



- **Shri. Muktha Kant Ray**  
Head, Radiopharmacy Section,  
Radiation Medicine Centre,  
BARC, Tata Memorial Hospital,  
Mumbai
- **Dr. Bhaktsingh**  
Head, Accelerator and  
Pulse Power Division,  
BARC
- **K. N. S. Nair**  
Ex-Chief Design Engineer and  
Head, Technology  
Development Division, BARC  
(Retd) & Director of Facilities  
Management, Molecular  
Cyclotron Pvt Ltd.
- **Shri. M. Bhaskaran**  
Senior Scientist, Former,  
chief executive, HWB (Retd)
- **Shri. Anand Gangadharan**  
Head, Waste Management  
Division, BARC
- **Shri. R. V. Viswanath**  
Chief General Manager & Head,  
Rare Earth Division, IREL, Kochi
- **Dr. Susan Eapen**  
Senior Scientist, BARC (Retd),  
Adjunct Professor, Bioscience  
Group, Union Christian College,  
Aluva.

**Radiopharmaceuticals in  
medical Diagnosis and Therapy:  
Societal Benefits**

**Particle Accelerators and their  
applications**

**Experience of setting up a  
medical Cyclotron Facility in  
Kerala**

**Separation of Isotopes:  
Overview of Heavy Water  
production in India**

**Managing Nuclear Waste**

**The Fascinating World of  
Rare Earths**

**Nuclear Technologies for feeding  
the world**





## National advisory committee

1. Shri. Vivek Bhasin (Director, Bhabha Atomic Research Centre, Trombay, Mumbai)
2. Dr. V. K. Vijayan (Chairman, Guruvayur Devaswom Managing Committee)
3. Dr. Komal Kapoor (Chief Executive, Nuclear Fuel Complex, Hyderabad)
4. Shri. S. Bansal (Vice President, Indian Nuclear Society, Mumbai)
5. Shri. G. D. Mittal (Secretary, Indian Nuclear Society, Mumbai)
6. Dr. C. V. Krishnan (Retd Professor, Stony Brook University, USA)
7. Dr. P. S. Vijoy (Principal, Sree Krishna College, Guruvayur)
8. Dr. R. Ratheesh (Director, C-MET, Hyderabad)
9. Shri. K. U. Agarwal (Joint-Secretary, Indian Nuclear Society, Mumbai)
10. Dr. A. Harindranath (Retd Scientist, Saha Institute of Nuclear Physics, Kolkata)
11. Shri. K. P. Viswanathan (Member, Guruvayur Devaswam Managing Committee)
12. Shri. R. V. Viswanath (Chief General Manager and Head, Rare Earths Division, IREL (India), Aluva)

## Local Organising Committee

1. **Dr. R. Vishnu**  
(Asst. Professor, Dept. of Physics, Sree Krishna College, Guruvayur)  
**Convenor**
2. **Dr. K.R. Rajesh**, Head, Dept. of Physics, Sree Krishna College, **Joint Convenor**
3. **Dr. T. Nishanth**  
(Asst. Professor, Dept. of Physics, Sree Krishna College, Guruvayur)
4. **Dr. K. M. Manu**  
(Asst. Professor, Dept. of Physics, Sree Krishna College, Guruvayur)
5. **Dr. Padmanabhan Balasubramanian**  
(Asst. Professor, Dept. of Physics, Sree Krishna College, Guruvayur)
6. **Dr. Dharsana M. V.**  
(Asst. Professor, Dept. of Physics, Sree Krishna College, Guruvayur)
7. **Dr. Devanarayanan V. P.**  
(Asst. Professor, Dept. of Physics, Sree Krishna College, Guruvayur)
8. **Dr. Pravin Kumar (Joint Convenor)**
9. **Dr. T R Govindan Kutty (Joint Convenor)**
10. **Shri. O.P. Rai** (Treasurer, INS)
11. **Shri. K. T. P. Balakrishnan**  
(Member Executive Committee, INS)
12. **Dr. K.K. Surendranathan**  
(President, AERA)
13. **Shri. K.V. Das** (Vice President, AERA)
14. **Shri. K.K.P. Nair** (Secretary, AERA)
15. **Shri. K. R. Viswambharan**  
(Treasurer, AERA)
16. **Dr. T. S. Muraleedharan**
17. **Shri. K. Unnikrishnan**
18. **Dr. A. Venugopalan**
19. **Shri. K.G. Panicker**
20. **Shri. S. Krishna Prasad**
21. **Shri. P. K. S. Pillai**
22. **Dr. M.P. Rajan**
23. **Dr. P. M. Ravi**
24. **Dr. R. K. Gopalakrishnan**
25. **Dr. John T. John**
26. **Dr. I. K. Gopalakrishnan**

# Sree Krishna College, Guruvayur

(Affiliated to the University of Calicut)



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