

PHYS I SPECTRA

Volume 2 | Issue 1 | January 2025

A BI-ANNUAL E-NEWSLETTER OF DEPARTMENT OF PHYSICS
MANIPAL INSTITUTE OF TECHNOLOGY, MANIPAL ACADEMY OF HIGHER EDUCATION, MANIPAL, KARNATAKA, INDIA

About Department of Physics, MIT, Manipal

Manipal Institute of Technology (MIT) is known far and wide as an excellent technical institute in the country. It started in 1957 as a self-financed engineering college by Dr. T. M. A. Pai. Department of Physics is one of the founder departments of the Institute. Currently the department has grown and developed into a center of PG studies and research with a faculty strength of 22. Faculty are specialized in various fields such as Condensed Matter Physics, Thin Film Devices and Theoretical Physics. The total external funds received by the Department for various research projects is over Rs. 6 Crore. The department offers open elective subjects to BTech students apart from teaching Engineering Physics. The department offers MSc (Physics) and PhD programs. Presently about eighty students are pursuing fulltime PhD in the department.

Message from Head of the Department



Dear Readers,

It gives me immense pleasure to extend my heartfelt congratulations to the editorial team on the successful release of the third edition of the bi-annual newsletter Physi-Spectra. This newsletter not only highlights the academic and research achievements of the department but also serves as a platform for encouraging collaboration, innovation, and the exchange of ideas among students, faculty, and researchers.

I am proud of the team's commitment to showcasing the diverse talents and endeavors of our department. Your efforts in collecting and presenting insightful content have made this newsletter a valuable resource for our academic community.

Congratulations once again to the editorial team for their tireless efforts and a job well done. I look forward to many more successful editions in the future.

Best regards,

Dr. Sudha D Kamath
Professor & Head, Department of Physics
MIT, MAHE, Manipal

Editorial Board

Mentors:

Cdr. (Dr.) Anil Rana
Director, MIT, Manipal

Dr. Somashekara Bhat
Joint Director, MIT, Manipal

Chairperson:

Dr. Sudha D Kamath

Editor in Chief:

Dr. Ismayil

Sub Editors:

Dr. B V Rajendra
Dr. Raviprakash Y
Dr. Dhananjaya Kekuda
Dr. Nagaraja K K
Dr. Bhaghyesh

Department of Physics : Faculty Members

Dr. Ashok Rao	Senior Professor
Dr. Mohan Rao K	Professor
Dr. Sudha D. Kamath	Professor & HOD
Dr. Pramoda Kumara Shetty	Professor
Dr. B. V. Rajendra	Professor
Dr. Raviprakash Y	Professor
Dr. Dhananjaya Kekuda	Associate Professor
Dr. Mahesha M. G	Associate Professor
Dr. Poornesh P	Associate Professor
Dr. Ashwatha Narayana Prabhu	Associate Professor
Dr. Ismayil	Associate Professor
Dr. Gowrish Rao K	Associate Professor
Dr. Akhilesh Ranjan	Associate Professor
Dr. Mamatha D.Daivajna	Associate Professor
Dr. Gurumurthy S. C	Associate Professor
Dr. Nagaraja K. K	Associate Professor
Dr. Kalpataru Panda	Associate Professor
Dr. Suchand Sandeep C. S	Associate Professor - Research
Dr. Bhaghyesh	Assistant Professor - Senior Scale
Dr. Dinesh Negi	Assistant Professor - Senior Scale
Dr. Raghavendra K. G	Assistant Professor
Dr. Vikash Mishra	Assistant Professor

Non- Teaching Staff

Mr. Surendra Shettigar	Sr. Clerk
Mr. Sarvotham Prabhu	Sr. Technician
Ms. Kavan S Kunder	Technician
Mrs. Sowmya	Technician
Mr. Sachin Vasanta Shet	Assistant Radiological Safety Officer
Mr. Yadava Kanchan	Sr. G.D.W
Mrs. Shrimathi R. Thakoor	G.D.W.- II
Mr. Sushanth	G.D.W

Contact Details:

Department of Physics

Manipal Institute of Technology, Manipal – 576 104, Karnataka, India

Phone: 0820 2925621 (HOD), 0820 2925624 (Office) e-mail: physics@manipal.edu

Editorial

Dear Reader,

Warm greetings to you !

In the ever-expanding landscape of technical education, the Manipal Institute of Technology (MIT) stands tall as an enduring beacon of academic excellence. Since its founding in 1957 by the visionary Dr. T. M. A. Pai, MIT has evolved from a self-financed engineering college to a prestigious institution that continually sets benchmarks in education and research. At the heart of MIT's distinguished academic legacy lies the Department of Physics, one of the institute's founding departments that has played a pivotal role in shaping its identity. From its modest beginnings, the Department of Physics has risen to prominence, becoming a distinguished center for postgraduate education and groundbreaking research. Today, the department boasts a dedicated faculty of 22 experts specializing in diverse fields such as Condensed Matter Physics, Nuclear Physics, and Theoretical Physics. This broad spectrum of expertise positions the department at the forefront of scientific inquiry and innovation, making significant strides in the pursuit of knowledge.



One of the most remarkable aspects of the department of Physics is its commitment to research. With over Rs. 6 Crore secured in external funding for various projects, the department exemplifies its unwavering dedication to advancing scientific understanding. This pursuit of excellence has not gone unnoticed - over the past three years, the Department of Physics has consistently been awarded the prestigious Best Research Award at MIT, a testament to the caliber of work being carried out within its walls. In addition to its research endeavors, the department remains deeply invested in holistic education. The department offers specialized knowledge in Engineering Physics and provides open elective subjects to BTech students, contributing to their well-rounded academic development. It is also home to MSc (Physics) and PhD programs, currently hosting around eighty full-time PhD students, fostering a culture of academic rigor and intellectual curiosity.

The past six months have been a period of significant activity and achievement for the department. One of the highlights was the successful conduction of the national-level conference CMPA-2024, the 12th edition in an ongoing series. This conference exemplifies the department's commitment to facilitating high-level academic exchanges. In addition to this, three webinars were organized on diverse and relevant topics, further expanding the department's reach and impact. Our faculty members and research scholars have also excelled at various research conferences, bagging prestigious awards such as Best Oral and Best Poster presentations, further cementing the department's reputation for excellence in research.

As we present to you the third edition of *Physi-Spectra*, it is with great pride that we celebrate the department's journey - its vibrant academic environment, its research successes, and its contributions to the broader scientific community. We hope you enjoy reading the latest edition of *Physi-Spectra*, and we look forward to sharing more updates on the ongoing success of our department in future editions.

Warm regards,

Dr. Ismayil
Editor in Chief

HODs of Physics Department (Since 1959)

Sl. No.	Name	From	To
01	Prof. H. N. Udupa	July 1959	June 1961
02	Prof. G. N. Bhat	July 1961	June 1962
03	Prof. (Dr.) John Alexander	July 1962	July 1963
04	Prof. G. N. Bhat	August 1963	August 1969
05	Prof. K. Mohan Pai	September 1969	July 1992
06	Prof. I. Narayana	August 1992	November 1997
07	Prof. U. K. Rajgopal Rao	December 1997	August 2001
08	Prof. (Dr.) K. S. Aithal	September 2001	October 2005
09	Prof. (Dr.) Thukaram M	October 2005	October 2009
10	Prof. (Dr.) Ashok Rao	November 2009	September 2015
11	Prof. (Dr.) Vyasa Upadhyaya	October 2015	September 2018
12	Prof. (Dr.) Mohan Rao K	October 2018	September 2023
13	Prof. (Dr.) Sudha D Kamath	October 2023	-



Department of Physics, MIT, Manipal

VISION

To provide state-of-the-art infrastructure to the Centre for Excellence in Physics Education with a blend of basic as well as applied research.

Research Highlights (JULY - DECEMBER 2024)

Scholarly Output

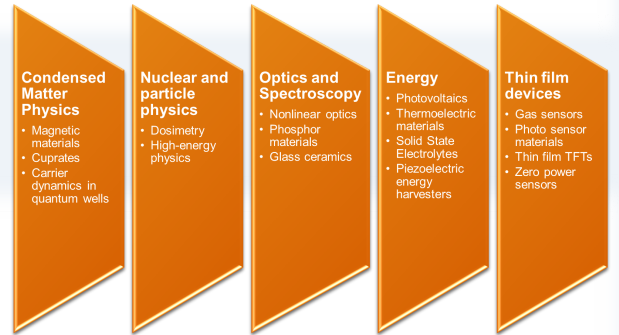
69

number of publications by authors
in last 6 months - 2024

Quartiles	Publications	Publication share (%)
Q1 (top 25%)	41	59.4
Q2 (26% - 50%)	27	39.1
Q3 (51% - 75%)	0	0.0
Q4 (76% - 100%)	1	1.4



Metric	Scholarly Output	Citations	Citations per Publication	Field-Weighted Citation Impact	
International collaboration	43.5%	30	24	0.8	0.56
Only national collaboration	30.4%	21	20	1.0	0.80
Only institutional collaboration	26.1%	18	2	0.1	0.07
Single authorship (no collaboration)	0.0%	0	0	0.0	-



Social Sciences & Management (1.5%)

Engineering & Technology (68.1%)

Natural Sciences (92.8%)

Life Sciences & Medicine (7.3%)

Publication share by Subject Area

Courses offered by Department of Physics

B.Tech.

Engineering Physics
 Applied Physics for Engineers
 Fundamentals of Astronomy & Astrophysics (OE)
 Radiation Physics (OE)
 Solid State Physics (OE)
 Modern Optics (OE)
 Physics of low dimensional materials (PE)

M.Sc. (Physics)

Electives:

Condensed Matter Physics
 Optoelectronics
 Nuclear Physics
 Theoretical Physics

Ph.D. Course works

Advanced Materials Characterization Techniques
 Advanced Methods in Theoretical Physics

Courses offered for other institutions of MAHE:

International Center For Applied Sciences (ICAS)

Physics - I
 Physics - II

Bachelor of Optometry (BOPT)

Geometrical Optics - I
 Geometrical Optics - II
 Physical Optics

M.Sc. (Medical Radiation Physics)

Modern Physics

B.Sc. (Health Sciences)

Physics - I
 Physics - II

B.Sc. (Nursing)

Physics

Salient features of M.Sc. (Physics) program Dept. of Physics, MIT, Manipal

- Revised Programme Structure and Curriculum 2024
- Choice Based Credit System
- Duration: 2 years, 4 Semesters
- First year for theory and lab courses (40 credits)
- Second year devoted entirely to Project/Research Internship (40 credits).
- Opportunity to work on collaborative research projects at industries/ institutes of national and international repute.

Collaboration with industry and institutes for internships and placement opportunities for MSc. Physics (PG) students

- Elvikon India Pvt. Ltd., Hyderabad
 (MOU is signed b/n MAHE and Elvikon India, on March 11, 2024)
- Center For Advanced Learning (CFAL), Mangalore
- Blackfrog Technologies Pvt. Ltd., Manipal.
- Manipal Skill Development Center (MSDC), Manipal



12th National Conference on Condensed Matter Physics and Applications (CMPA 2024)

The 12th National Conference on Condensed Matter Physics and Applications (CMPA 2024) took place on December 13–14, 2024, at the Library Auditorium of the Manipal Institute of Technology (MIT), Manipal. Organized by MIT's Department of Physics, the conference centered on the theme "Functional Materials for Green and Clean Energy," which underscores the growing importance of sustainable materials in tackling global energy challenges. The primary goal of CMPA 2024 was to provide a platform for researchers, academicians, and industry professionals to discuss recent developments in condensed matter physics and functional materials, particularly those with applications in clean energy technologies. The event also aimed to foster collaborations between academic institutions and industries, encouraging innovations that could drive the transition to greener energy solutions. The event was spearheaded by a dedicated core committee, with Dr. Sudha D. Kamath, President of the organizing committee, offering strong support throughout the event. Convener Dr. Gurusurthy S C provided strategic direction, while co-convener Dr. Nagaraja K K ensured smooth coordination. The financial management was expertly handled by Dr. Raghavendra K G, contributing to the event's seamless execution.



The conference commenced with an inaugural session, which included a lamp lighting ceremony by all keynote speakers and a video introduction of distinguished guests, including Dr. Satish Rao B S (Chief Guest) and Prof. G U Kulkarni (Guest of Honor). In her welcome address, Dr. Sudha Kamath emphasized the urgent need for functional materials in addressing global energy sustainability. Dr. Gurusurthy S C provided an overview of the conference, highlighting the importance of interdisciplinary approaches to tackle complex energy challenges. Keynote sessions featured some of the brightest minds in the field. Prof. G U Kulkarni, President of JNCASR, Bangalore, delivered a talk on "Volatile Memristor: A Potential Circuit Element for Dynamic Neural Networks," while Dr. Sreedhara M B presented insights on "Misfit Layered Compound: A Heavily Doped Platform for Unconventional Properties." The afternoon sessions continued with engaging presentations, such as Dr. Suchand Sandeep's talk on "Carrier Multiplication for Improved Quantum Dot Solar Cells." For the first time in CMPA history, the conference included parallel oral presentation sessions, where 48 participants were divided into four groups.

On the second day, presentations continued with talks by experts like Dr. Sajan Daniel George on "Interface Engineering at Nanoscale" and Dr. Mahadeva Bhat on "Materials Engineering for High-Speed Electronic Devices." Dr. Vinaya Kumar K B also discussed "Polymer Piezoelectrics for Self-Powered Wearable Sensing," while Dr. Venkataramana B presented on erosion-resistant coatings for gas compressor blades. After lunch, the poster presentation session featured 60 participants, whose work was evaluated by judges. The conference concluded with a valedictory session where awards were presented for the best oral and poster presentations across undergraduate, postgraduate, and Ph.D. categories. Dr. Mahadeva Bhat presided over the closing ceremony, with Dr. Sudha D. Kamath delivering the concluding remarks. In total, over 140 delegates from across the country participated in CMPA 2024, including students at various academic levels, who presented their research and engaged in stimulating discussions with senior researchers. This diverse mix created a vibrant atmosphere for networking and collaboration.



Technical Talk by Dr. Nagesh S Kini on “New Age Electric Power Grid”

Department of Physics, MIT Manipal, organized a technical talk under the Industry Advisory Committee (IAC) initiative at Sir M.V. Seminar Hall on September 12, 2024. Dr. Nagesh S Kini, Chief Technology Officer and Co-Founder of Vima-no EWA Pvt Ltd., Bangalore delivered an engaging lecture titled *New Age Electric Power Grid – The Role of Storage*. Dr. Kini’s presentation highlighted the modernization of traditional power grids to accommodate renewable energy sources, improve efficiency, and ensure reliability. He explained that energy storage plays a vital role in stabilizing and optimizing grid performance, enabling clean energy to be accessible when needed. The evolving grid aims not just to generate sustainable energy but also to ensure availability at the right time and place, making the system more resilient and flexible. The event opened with welcoming remarks by Dr.



Dr. Sudha Kamath, Head of the Department of Physics. Dr. Raghavendra K. G., faculty member, introduced the speaker to the audience. Faculty members, M.Sc. students, and research scholars attended the session, engaging in insightful discussions with Dr. Kini. The talk provided a valuable platform for knowledge-sharing, emphasizing the significance of energy storage in shaping a sustainable and future-ready power grid.

Second Webinar 2024 Organized by the Department of Physics at MIT

Department of Physics at Manipal Institute of Technology (MIT), Manipal hosted its second webinar in 2024 focused on "Material Devices" on September 2, 2024. The event aimed to explore the applications and future research scope of material devices. Keynote speaker Dr. Rajesh Kumar from IIT Indore delivered an enlightening presentation on "Electrochromic Smart Windows: Materials, Devices, and Multifunctional Applications." Participants recognized the significant role material devices will play in future technology. Presided over by Prof. Sudha D. Kamath, Head of the Department of Physics, the webinar saw participation from around 50 attendees, including M.Sc. students, research scholars, and faculty members. The event was coordinated by Dr. Akhilesh Ranjan and Dr. Vikash Mishra, who ensured a productive discussion on this critical topic.



Yoga Session to Promote Relaxation and Focus

Department of Physics at MIT, Manipal, hosted a yoga session titled "Yoga: Relaxation and Focus," led by Dr. Lavya Shetty on September 28, 2024. A total of 34 attendees, including faculty members, research scholars, and postgraduate students, participated in the event. Dr. Sudha D. Kamath, Head of the Physics Department, opened the session by welcoming participants and highlighting the importance of yoga in daily life. Dr. Lavya Shetty delivered an engaging and practical session, focusing on techniques to improve mental clarity and physical relaxation. The session was well-received, leaving participants with valuable insights on incorporating yoga into their daily routines for enhanced mental and physical health.



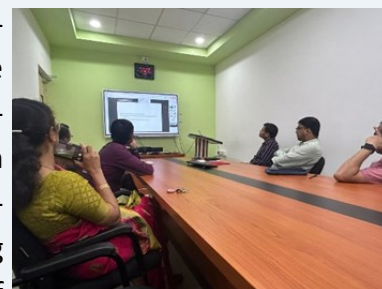
Orientation Program for First Year M.Sc (Physics) Students

Department of Physics at MIT Manipal organized an orientation program for the first-year M.Sc. students of the 2024-26 batch at the MIT KEF R&D Centre on July 30, 2024. The event aimed to introduce the newly enrolled students to the department and familiarize them with the M.Sc (Physics) program's academic regulations. The program commenced at 9:00 AM, attended by the Head of Department (HoD), faculty members, and students alongside their parents. After an invocation led by second-year M.Sc. students and a ceremonial lighting of the lamp, Head of Department Dr. (Prof.) Sudha Kamath welcomed the guests and provided an overview of the department's history, facilities, and activities. She introduced faculty members and explained the rules and regulations of the restructured M.Sc. program and the evaluation process. Following the HoD's address, several faculty members presented on various topics, including Dr. Dhananjaya Kekuda on research facilities, Dr. Nagaraja K. K. on M.Sc. project details, Dr. Rajendra B. V. on alumni achievements and interactions, Dr. Mamma D. Daivajna on placement and internship opportunities, Dr. Ismayil on the Physi-spectra newsletter, Dr. Sandeep Suchand on industry-academia connections, and Dr. Raghavendra K. G. on the Nano to Infinity Club. Following this, four research scholars shared their experiences in the Physics department, encouraging the new students. Guest speakers, Dr. Harinakshi Karkera and Dr. Dhanya Sunil, delivered engaging sessions on "Goal Setting" and "Research Opportunities," respectively, motivating students to pursue their academic goals. The program concluded with a vote of thanks from Dr. Bhagyesh, the M.Sc. Physics Coordinator. After the orientation, students toured the M.Sc. classrooms, laboratories, and research facilities, marking a productive start to their academic journey at MIT Manipal.



Third webinar 2024 on the topic Quantum Computing : A paradigm shift

In the series of webinars third webinar was organized on October 3, 2024 by Department of Physics, Manipal Institute of Technology, Manipal Academy of Higher Education, Manipal. The theme of this webinar was quantum computations. The main aim of the webinar was to understand and explore the application of quantum computations and its future research scope. Therefore, the webinar was advertised among students, research scholars, and faculties of MIT Manipal. In the webinar Dr. Sunil Kumar Mishra from IIT BHU Varanasi gave a talk on Quantum Computing : A paradigm shift. In the webinar it was realised that in present and future quantum computation based techniques and technologies are going to play an important role. This webinar was presided by the head, department of Physics, Prof. Sudha D. Kamath. MAHE Manipal provided technical and administrative support to conduct the webinar. Around 49 participants including students, research scholars, and faculties attended the webinar. Dr. Akhilesh Ranjan and Dr. Vikash Mishra were convener and co-convener of this webinar respectively.



Fourth Webinar 2024 on the topic Experimental Nuclear Facilities in India and Abroad

The fourth webinar in a series was organized by the Department of Physics at the Manipal Institute of Technology, Manipal Academy of Higher Education, Manipal, on October 17, 2024. The theme of the webinar was "Experimental Nuclear Facilities," with the goal of exploring and gaining a deeper understanding of nuclear physics research facilities around the world. The event was targeted at students, research scholars, and faculty members of MIT Manipal. Dr. Dinesh Negi from Department of Physics, MIT, MAHE, Manipal delivered a comprehensive talk on the "Overview of Experimental Nuclear Facilities in India and Abroad." During the webinar, it was highlighted that experimental nuclear facilities are large, complex, and costly endeavors, often requiring extensive collaboration. These facilities are continuously advancing, and the future of experimental nuclear physics is promising. The webinar was presided over by Prof. Sudha D. Kamath, Head of the Department of Physics at MIT Manipal. The event was supported both technically and administratively by MAHE Manipal. A total of 21 participants, including students, research scholars, and faculty members, attended the session. The webinar was coordinated by Dr. Akhilesh Ranjan, the convener, and Dr. Vikash Mishra, the co-convener.



Faculty Members of Physics Department, MIT Manipal Pay Tribute to Late Prof. I. Narayan

The faculty members of the Department of Physics at MIT Manipal, led by Prof. Sudha D. Kamath, gathered to pay tribute to the late Prof. I. Narayan, former Head of the Department, who passed away on December 24, 2024. Prof. Narayan served as the Head of the Department from 1992 to 1997, contributing significantly to the growth and development of the department during his tenure. In a heartfelt tribute, the faculty reflected on Prof. Narayan's leadership, dedication to academics, and his role in shaping the future of the department. His contributions to both the academic community and the department will be remembered by all those who worked with him.



SYNERGIA-2024: A Celebration of Unity and Collaboration

SYNERGIA-2024, an event dedicated to fostering unity and collaboration within the Department of Physics, was held on October 28, 2024 at *KEF Auditorium*. Organized by a dedicated committee led by Mr. Shivakumar, Ms. Manasa, Mr. Vipin, and Mr. Chandra, the day was packed with activities designed to encourage social interaction and cultural exchange. The event began with a Sharada Pooja in the Characterization Lab, led by Ms. Shreepooja and Mr. Raghavendra, followed by a group photo session. Research scholars organized a delightful lunch fostering a sense of community. Cultural programs included musical performances by faculty, a logo competition won by Mr. Sanketh, and games led by the Game Committee. The day concluded with a snack session organized by faculty members. SYNERGIA-2024 successfully united faculty, staff, and scholars, leaving everyone with fond memories of a day filled with joy and camaraderie.



Faculty Accomplishments

Dr. Sudha Kamath Receives Exceptional Women Researchers Award from ICSSR and Springer Nature

Dr. Sudha Kamath, Professor and Head of the Department of Physics at MIT, Manipal, was honored with the Exceptional Women Researchers Award by the Indian Council of Social Science Research (ICSSR) and Springer Nature as part of the “Research Tour 2024” initiative. The award was presented on October 7, 2024, during the “India Bus Tour”, which focused on the western and southern regions of the country. Dr. Kamath was one of five top researchers selected from Manipal Academy of Higher Education (MAHE) to receive this prestigious recognition. The award ceremony was part of a broader initiative aimed at recognizing excellence in research and fostering a culture of inclusivity and diversity in academia. In his opening remarks, Lt. Gen. (Dr.) M. D. Venkatesh, Vice Chancellor of MAHE, praised the initiative by ICSSR and acknowledged the importance of such recognitions in nurturing and expanding India's research ecosystem.



Dr. Ismayil delivered a Guest talk at St. Aloysius deemed-to-be University, Mangalore

St. Aloysius (Deemed to be University), Mangalore hosted an insightful guest talk for its MSc students, organized by the Department of PG Physics and the Phoenix Association. The event, held on October 1, 2024, was graced by Dr. Ismayil, Associate Professor, Department of Physics, MIT, Manipal, an expert in the field of energy storage technologies. The topic of the talk, "From Lithium to Alternatives: Sodium and Magnesium Ion Conducting Polymer Electrolytes for Energy Storage Devices," was aimed at expanding the students' understanding of cutting-edge developments in energy storage systems. The event was well-received by the MSc students, faculty, and members of the Phoenix Association of St. Aloysius (Deemed to be University), Mangalore.



Dr. Ismayil Delivered an Invited Talk at National Level Symposium on Materials for Sustainability-2024

Dr. Ismayil, Associate Professor in the Department of Physics at MIT, Manipal, was an esteemed speaker at the National Level Symposium on “Materials for Sustainability-2024”, held at Poornaprajna College (Autonomous) in Udupi on October 9, 2024. Dr. Ismayil delivered the first invited talk of the symposium, titled “Sustainable Polymer Electrolytes for Energy Storage Devices.” The symposium brought together experts, researchers, and students from across the country to discuss the latest trends and innovations in materials science for sustainability.



Doctorate Awardees of Physics Department

(List continued from previous issue...)

Sl. No.	Name of the Candidate	Thesis Title	Guide / Co-guide	Date of Award
44	Ms. Adithya Prakash 	Evaluation of Copper Oxide Thin Films Grown by Spray Pyrolysis Technique for Solar Cell Applications	Dr. Mahesha M G	25 NOV 2024
45	Ms. Jayalakshmi K 	Investigation on Magnesium Ion Conducting Solid Polymer Electrolyte Films for Energy Storage Applications	Dr. Ismayil	5 DEC 2024
46	Ms. Sabhya 	Investigation of Codoped Hafnia Thin Films for Device Applications	Dr. Mohan Rao K	16 DEC 2024
47	Ms. Sindhu D G 	Regge Trajectories and Decay Properties of Multiquark Hadrons	Dr. Akhilesh Ranjan	30 DEC 2024

PhD Student Achievements

Mr. Pradeep Nayak Wins Best Poster Award at International Conference held in Malaysia

Pradeep Nayak, a Senior Research Fellow in the Physics Department at MIT Manipal, has received the Best Poster Award at the 8th International Conference on Functional Materials and Devices (ICFMD-2024) organised by Universiti Malaya held in Kuala Terengganu, Malaysia during August 6-8, 2024. Pradeep Nayak's research, titled "Chitosan-Poly(vinyl alcohol) (PVA) Solid Blend Polymer Electrolyte Membranes for Developing Primary Magnesium Ion Cells," was supervised by Dr. Ismayil, Associate Professor in the Physics Department.



Ms. Adithya Prakash received the Best Oral Presentation Award at International Conference held in Australia

Ms. Adithya Prakash, Research scholar from the Department of Physics, MIT Manipal, has received the Best Oral Presentation Award for her work at the 4th International Conference on Advanced Materials Synthesis, Characterization, and Applications (AMSCA-2024), held at Queensland University of Technology, Brisbane, Australia, from September 25-27, 2024. The award, sponsored by Wiley Publications, recognizes her research conducted under the mentorship of Dr. Mahesha M G, Associate Professor, MIT Manipal.



Mr. Kiran R received the award for Best Oral Presentation at International Conference held in Bengaluru

Mr. Kiran R, Research scholar from the Department of Physics, MIT Manipal, has received the Best Oral Presentation Award for his work at the 4th International Conference on Global Trends in Sustainable Technology and its Applications in Applied Sciences (ICGTSTAS-2024), held at REVA University, Bengaluru, from October 24-25, 2024. The award recognizes his research conducted under the mentorship of Dr. Sudha D Kamath, Professor & HOD, Department of Physics, MIT Manipal.



Mr. Kiran R Wins Best Oral Presentation Award at Energy Harvesting Conference

Mr. Kiran R, Research scholar from the Physics Department of MIT, Manipal, received the Best Oral Presentation Award at the conference *Energy Harvesting Technologies: Tapping the Power of Nature* held on July 23-24, 2024 at St. Aloysius (Deemed to be University), Mangaluru. The conference, hosted at the Fr. Robert Sequeira Auditorium, LCRI Block, brought together researchers and experts to discuss advancements in sustainable energy solutions. Kiran's presentation stood out for its innovative approach and practical significance, earning him the top honor in the oral presentation category. His work was guided by Dr. Sudha D Kamath, Head of the Physics Department at MIT, Manipal.



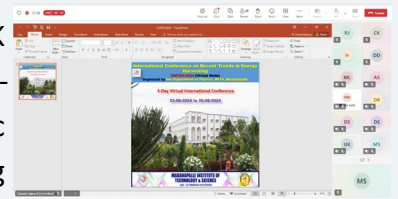
Mr. Tejas received the award for Best Poster Presentation at International Conference held in Bengaluru

Mr. Tejas, Research scholar from the Department of Physics, MIT Manipal, has received the Best Poster Presentation Award for his work at the 4th International Conference on Global Trends in Sustainable Technology and its Applications in Applied Sciences (ICGTSTAS-2024), held at REVA University, Bengaluru, from October 24-25, 2024. The award recognizes his research conducted under the mentorship of Dr. Sudha D Kamath, Professor & HOD, Department of Physics, MIT Manipal.



Mr. Madhu S received Best Poster presentation Award

Madhu S, Research scholar from the Physics Department, guided by Dr. Nagaraja KK and co-guided by Dr. Ashok Rao, received Best Poster presentation Award for his paper titled "Optimization of Sputtered Copper Nitride Thin Films for Thermoelectric Application" in the International Conference on Recent Trends in Energy Harvesting (ICRTEH-2024) organized in virtual mode by the Department of Physics at the Madanapalle Institute of Technology and Science, Andhra Pradesh during September 23 - 25, 2024.



Mr. Pradeep Nayak received CSIR Foreign Travel Grant

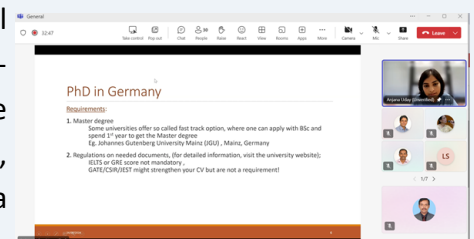
Mr. Pradeep Nayak, Research Scholar of Physics Department has received prestigious Council for Scientific Industrial Research (CSIR) Foreign Travel Grant to attend and present his research paper at 8th International Conference on Functional Materials and Devices (ICFMD-2024) organised by Universiti Malaya held in Kuala Terengganu, Malaysia during August 6-8, 2024.



Alumni Talk

Department of Physics Hosted International Alumni Talk

The Department of Physics organized an International Alumni Talk featuring Ms. Anjana Uday, an alumna from the M.Sc. Physics batch of 2015-17 and a Ph.D. scholar at the Institute of Physics II, University of Cologne, Germany. The webinar, titled "My Journey from Manipal to Germany," took place on August 24, 2024, at 4:30 PM IST via MS Teams. Sudha D. Kamath, Head of the Department, welcomed the speaker and participants, followed by an introduction by Dr. Gurumuthy S. C., Associate Professor. Ms. Anjana shared her experiences at MIT, Manipal detailed her research work, and discussed the academic requirements for pursuing higher studies in Germany. She provided insights into the research opportunities, university selection process, and benefits of studying in Germany compared to other countries. Ms. Anjana also addressed challenges international students face and what universities expect from research scholars. The webinar offered valuable insights for PG students, who engaged actively during the session. A total of 30 participants, including students and research scholars, attended. Dr. B. V. Rajendra, Alumni Coordinator, concluded the session with a vote of thanks, appreciating the speaker and participants for their involvement.



Faculty Conference Presentations

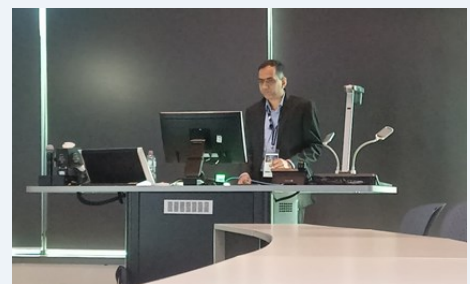
Dr. Ismayil Presented Research Paper at International Conference in Malaysia

Dr. Ismayil delivered an oral presentation on his research, titled *“Beyond Lithium: Exploring Magnesium Ion Conducting Polymer Electrolytes for Energy Storage Devices”*, at the 8th International Conference on Functional Materials and Devices (ICFMD-2024) during August 6-8, 2024. The prestigious event, organized by Universiti Malaya, was held at the Permai Hotel in Kuala Terengganu, Terengganu, Malaysia.



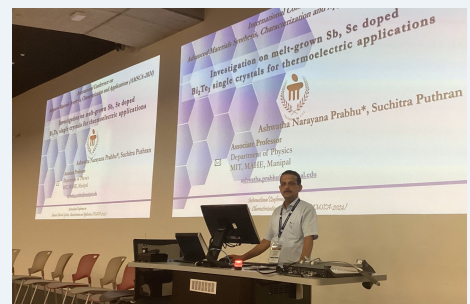
Dr. Mahesha M G Presented Research work at AMSCA-2024 in Australia

Dr. Mahesha M G has presented paper titled *‘Design optimization of CuO/TiO₂ solar cell using SCAPS 1D simulation software’* in 4th International Conference on Advanced Materials Synthesis, Characterization and Applications (AMSCA-2024) held during September 25-27, 2024 at Queensland University of Technology, Brisbane, Australia.



Dr. Ashwatha Narayana Prabhu Presented Research work at AMSCA-2024 in Australia

Dr. Ashwatha Narayana Prabhu participated in the 4th International Conference on Advanced Materials Synthesis, Characterization, and Applications (AMSCA-2024), held at the Queensland University of Technology in Brisbane, Australia during September 25-27, 2024. He delivered an oral presentation on his research paper titled *“Investigation on Melt-Grown Sb, Se Doped Bi₂Te₃ Single Crystals for Thermoelectric Applications”*.



Dr. B V Rajendra Presented Research work at AMSCA-2024 in Australia

Dr. B V Rajendra has presented paper titled *‘Tuning optical and electrical properties of spin coated Nickle Oxide thin films by doping Zinc’* in 4th International Conference on Advanced Materials Synthesis, Characterization and Applications (AMSCA-2024) held during September 25-27, 2024 at Queensland University of Technology, Brisbane, Australia.



Dr. Dhananjaya Kekuda Presented Research work at AMSCA-2024 in Australia

Dr. Dhananjaya Kekuda participated and presented the research findings titled *“Study of ZrO₂ thin films grown by magnetron sputtering for gate oxide applications”* at the 4th International Conference on Advanced Materials Synthesis, Characterization, and Applications (AMSCA 2024), held at Queensland University of Technology, Brisbane, Australia, during 25-27 September 2024.



Faculty Conference Presentations

Dr. Poornesh P Presented Research work on Thermoelectric Materials at AEM 2024 in London

Dr. Poornesh P showcased research on Samarium Doped Cu₂SnSe₃ Thermoelectric Materials at the prestigious International Conference on Advanced Energy Materials (AEM 2024), held at the Holiday Inn in London, United Kingdom during October 9-11, 2024.



Dr. Sudha D Kamath Presented Research work at CCESG 2024 in Sydney, Australia

Dr. Sudha D Kamath participated in the International Conference on Clean Energy and Smart Grid (CCESG 2024) held in Sydney, Australia during November 27-29, 2024, where she presented her research work on advanced glass materials for energy applications. Her research paper, titled “Physical, Optical, Mechanical, and Radiation Attenuation Performance: Eu³⁺- Gd³⁺ Co-doped B₂O₃-SiO₂-TeO₂-Bi₂O₃-BaO-ZnO Glass System,” explored the unique properties of a new glass composition doped with Europium (Eu³⁺) and Gadolinium (Gd³⁺) ions.



Dr. Mamatha D Daivajna Presented Research paper at CCESG 2024 in Sydney, Australia

Dr. Mamatha D Daivajna participated and presented research paper titled “Investigation on spin-coated YMnO₃ Hexamanganite thin film for their suitability in photovoltaics” in the International Conference on Clean Energy and Smart Grid (CCESG 2024) held in Sydney, Australia during November 27-29, 2024.



Dr. Suchand Sandeep delivered an invited talk at the international conference nanoman 2024 in Singapore

Dr. Suchand Sandeep delivered an invited talk titled “Micro and nano manufacturing using ultrafast lasers” at the international conference on nanomanufacturing 2024 (nanoman 2024) held at Concorde Hotel, Singapore. The conference was jointly organized by ISNM and National university of Singapore during December 01- 04, 2024.



Dr. Raghavendra K. G Presented Research work at IBMEC - 2024 in New Delhi

Dr. Raghavendra K. G Participated and presented a paper in International Conference on “Ion Beams in Materials Engineering and Characterization” (IBMEC - 2024) at Inter-University Accelerator Centre, New Delhi, India during December 3- 6, 2024



Dr. Akhilesh Ranjan delivered a contributory talk in the International Conference in Meghalaya

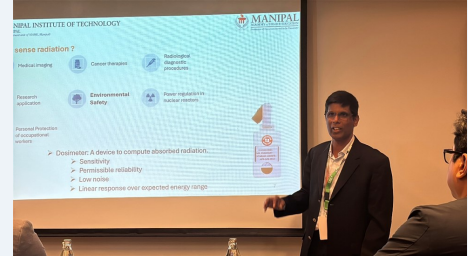
Dr. Akhilesh Ranjan gave a contributory talk on “Regge Trajectories of Some Exotic Hadrons” in the “International Conference on Celebrating 100 Years of Quantum Mechanics” on the 21st - 22nd November 2024, jointly organized by the Department of Physics, National Institute of Technology Meghalaya (NIT M) and St. Anthony’s College (SAC), Shillong in collaboration with the Research and Development Cell (RDC, SAC) under the aegis of IQAC, SAC.



Faculty Conference Presentations

Dr. Pramoda Kumara Shetty, presented a research paper in SEGT 2024 in Bangkok, Thailand

Dr. Pramoda Kumara Shetty, presented a research paper in an “International Conference on Sustainable Energy and Green Technology 2024 (SEGT 2024)” held at Bangkok, Thailand during 15 - 18 December 2024. The title of the paper is “Structural And Optical Properties of Tungsten Doped Indium Oxide Thin Film for Environmental Radiation Monitoring Applications”.



Dr. Raghavendra K. G. Participated in National Kannada Science Conference 2024 held at Bengaluru

Dr. Raghavendra K. G. participated in the National Kannada Science Conference 2024, organized by the National Aerospace Laboratories (NAL) in Bengaluru. The event, held on November 28, 2024, featured a paper presentation by Dr. Raghavendra on the topic "Development of Radiation-Tolerant Alloys for Nuclear Power Applications." The conference brought together leading scientists and experts to discuss the latest advancements in various fields of science, with a special focus on promoting the Kannada language in scientific discourse.



MSc Student Achievements

Mr. Sandeep Shetty Wins Best Poster Award at CMPA-2024

Mr. Sandeep Shetty, second year MSc(Physics) student, has received the Best Poster Award at the 12th National Conference on Condensed Matter Physics and Application (CMPA 2024) organised by Manipal Institute of Technology, MAHE, Manipal during December 13-14, 2024. His research, titled “Structural and Electrochemical Insights into Sodium acetate Doped α -Carrageenan Solid Polymer Electrolytes” was supervised by Dr. Ismayil, Associate Professor in the Physics Department.



Ms. Channamma presented research paper in CMPA-2024

Ms. Channamma, second year MSc(Physics) student, has presented her research paper at the 12th National Conference on Condensed Matter Physics and Application (CMPA 2024) organised by Manipal Institute of Technology, MAHE, Manipal during December 13-14, 2024. Her project was supervised by Dr.Dhananjaya Kekuda, Associate Professor in the Physics Department.



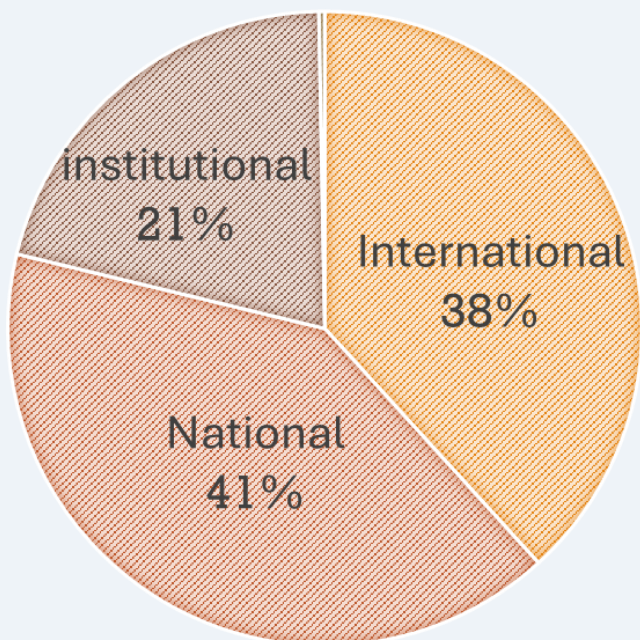
Research Scholars Conference Presentations

Student Name	Research Guide	Conference Details	Conference Dates	
RAGHAVENDRA KAUSHAL	Dr. Bhaghyesh	17 th International Conference on Interconnections between Particle Physics and Cosmology. Organized by University of Hyderabad and Indian Institute of Technology Hyderabad. Held at Indian Institute of Technology Hyderabad, Telangana.	14-18, October 2024	
CHAITANYA ANIL BOKADE	Dr Bhaghyesh	17 th International Conference on Interconnections between Particle Physics and Cosmology. Organized by University of Hyderabad and Indian Institute of Technology Hyderabad. Held at Indian Institute of Technology Hyderabad, Telangana.	14-18, October 2024	
MANASA R SHANKAR	Dr. Ashwatha Narayana Prabhu	RAM-2024, Bikaner technical University, Bikaner, Rajasthan	15-16, November 2024	
RAMSEENA THUNDIYIL	Dr. Poornesh P	17 th International Conference on Nanostructured Materials (NANO 2024), held at Khalifa University, Abu Dhabi, UAE.	3-8, November 2024	
JYOTHILAKSHMI R	Dr. Nagaraja K.K	International Union of Materials Research Society-International Conference in Asia, 2024 organized by UGC-DAE CSR Indore held at Devi Ahilya University (DAVV) Auditorium, Indore, Madhya Pradesh.	3-6, December 2024	
SRIHARI N V	Dr. Nagaraja K K	International Union of Materials Research Society-International Conference in Asia, 2024 organized by UGC-DAE CSR Indore held at Devi Ahilya University (DAVV) Auditorium, Indore, Madhya Pradesh.	3-6, December 2024	
SREELAKSHMI M	Dr. Akhilesh Ranjan	DAE symposium on Nuclear Physics organised by Department of Atomic Energy held at IIT Roorkee, Uttarakhand.	7-12, December 2024	

Research Scholars Conference Presentations

Student Name	Research Guide	Conference Details	Conference Dates	
NANDITHA T K	Dr. Gurumurthy S C Dr. Raghavendra K G (Co-guide)	12 th National Conference on Condensed Matter Physics and Applications CMPA-2024 held at Manipal Institute of Technology, Manipal	12-13, December 2024	
JYOTHILAKSHMI R	Dr. Nagaraja K.K	12 th National Conference on Condensed Matter Physics and Applications CMPA-2024 held at Manipal Institute of Technology, Manipal	13-14, December 2024	
ANUSHREE JOGI	Dr. Mamatha D Daivajna	12 th National Conference on Condensed Matter Physics and Applications CMPA-2024 held at Manipal Institute of Technology, Manipal	13-14, December 2024	
JYOTHILAKSHMI R	Dr. Nagaraja K.K	68 th DAE Solid State Physics Symposium (DAE-SSPS) organized by Bhabha Atomic Research Centre (BARC) held at DAE Convention Centre Anushaktinagar, Mumbai	18-22, December 2024	
SRIHARI N V	Dr. Nagaraja K K	68 th DAE Solid State Physics Symposium (DAE-SSPS) organized by Bhabha Atomic Research Centre (BARC) held at DAE Convention Centre Anushaktinagar, Mumbai	18-22, December 2024	
SREELAKSHMI M	Dr. Akhilesh Ranjan	DAE symposium on High Energy Physics organised by Department of Atomic Energy held at BHU, Varanasi	19-23, December 2024	
CHANDRA	Dr. Pramoda Kumara Shetty	International Conference on Nanoscience and Nanotechnology held at Department of Chemistry, IIT Madras.	23-25, September 2024	

Research Collaborations of Physics Department:



- Universiti Putra Malaysia
- Nanyang Technological University, Singapore
- Imam Abdulrahman Bin Faisal University, Saudi Arabia
- University of New South Wales, Australia
- National Dong Hwa University, Taiwan
- Częstochowa University of Technology, Poland
- MISIS, Moscow, Russia
- Al-Isra Private University, Jordan
- Kyongpook National University, South Korea
- Technical University of Denmark
- RAS - P.N. Lebedev Physics Institute, Moscow, Russia
- International Iberian Nanotechnology Laboratory, Portugal
- Flinders University, Adelaide, Australia
- Chungnam National University, South Korea

- Indian Institute of Science (IISc), Bangalore
- Bhabha Atomic Research Centre (BARC), Mumbai
- Raja Ramanna Centre for Advanced Technology (RRCAT), Indore
- UGC-DAE Consortium for Scientific Research, Indore
- Mangalore University, Mangalore
- Karnatak University, Dharwad
- Vellore Institute of Technology, Vellore
- Sikkim Manipal University, Sikkim
- Indian Institute of Technology, Palakkad
- National Institute of Technology Karnataka, Surathkal

