PHYSI SPECTRA

Volume 1 | Issue 1 | January 2024

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 sixty students are pursuing fulltime PhD in the department.

Message from the Director

It gives me immense pleasure to note that the Department of Physics is launching bi-annual newsletter titled “Physi-Spectra” from the month of January 2024. I am fully confident that the newsletter will prove to be a valuable source of information on research and events in the Physics department and at the same time will motivate faculty members and students to publish interesting articles in the subject area. I wish the editorial team of newsletter and the Physics department “all the very best”.

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

Message from the Joint Director

I am delighted to know the launch of bi-annual newsletter, "Physi-Spectra," set to captivate readers starting January 2024. This newsletter promises to serve as a significant repository of information, highlighting the latest research developments and events within the Physics department. Additionally, I am confident that it will inspire both faculty members and students to contribute compelling articles within the realm of physics. I extend my heartfelt best wishes to the dedicated editorial team behind "Physi-Spectra" and the entire Physics department. May this newsletter be a catalyst for fostering a vibrant academic community and promoting the outstanding work carried out by our talented individuals.

Warm regards,

Dr. Somashekara Bhat
Joint Director
MIT, MAHE, Manipal

The young man of today will be the source of strength tomorrow.
I always consider them to be the wealth of the country.

- Dr. T M A Pai

Message from Head of the Department

Dear Physi-Spectra Team,

Congratulations on the Launch of Physi-Spectra Newsletter !

It is with immense pleasure that I extend my heartfelt congratulations on the launch of Physi-Spectra, exciting e-newsletter of the department of Physics. The name of the newsletter itself evokes a sense of comprehensive exploration and a spectrum of information within the fascinating domain of Physics. As the name suggests, let this newsletter become a dynamic platform for physics community to connect, collaborate and share the academic and research accomplishments of their dedicated faculty, post graduate students and research scholars. May this newsletter become a source of inspiration, knowledge, and connection for all who engage with it.

Once again, congratulations on the exciting milestone! Wishing you all the best as you venture into this new chapter.

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

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	Additional 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
Prof. Surjit Mukherjee	Adjunct Faculty

Non- Teaching Staff

Mr. Surendra Shettigar	Sr. Clerk
Mr. Sarvotham Prabhu	Sr. Technician
Ms. Kavan S Kunder	Technician
Mrs. Sowmya	Technician
Mr. Yadava Kanchan	Sr. G.D.W
Mrs. Shrimathi R. Thakoor	G.D.W.- II
Mr. Sushanth	G.D.W

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Editorial

Dear Reader,

Warm greetings to you!

In the expansive landscape of technical education, Manipal Institute of Technology (MIT) proudly stands as an enduring symbol of excellence. Founded in 1957 by the visionary Dr. T. M. A. Pai, MIT began as a self-financed engineering college and has since remained steadfast in delivering top-notch education. At the heart of MIT's academic legacy lies the Department of Physics, an integral founding department that has played a pivotal role in shaping the institute's identity. From its modest origins, the Department of Physics has evolved into a distinguished hub for postgraduate studies and cutting-edge research. Bolstered by a dedicated faculty of 22 experts specializing in fields such as Condensed Matter Physics, Thin Film Devices, and Theoretical Physics, the department stands at the forefront of academic excellence. The department's commitment to advancing the boundaries of knowledge is evident in its noteworthy achievement of securing over Rs. 6 Crore in external funds for various research projects. This financial support underscores the department's unwavering dedication to contributing meaningfully to the scientific community. Beyond its research endeavors, the department is equally devoted to holistic education. In addition to imparting knowledge in Engineering Physics, the department offers open elective subjects to BTech students, ensuring a well-rounded learning experience. Further enriching the academic landscape, the department provides MSc (Physics) and PhD programs, currently hosting around sixty full-time PhD students. This environment fosters a culture of academic rigor and scholarly pursuit. It is with immense enthusiasm that we introduce "Physi-Spectra," a newsletter that encapsulates the spirit and essence of MIT's Department of Physics. The very name evokes a sense of comprehensive exploration and a spectrum of information within the captivating domain of Physics. More than just a newsletter, "Physi-Spectra" is a dynamic platform for the physics community at MIT to connect, collaborate, and share the remarkable academic and research accomplishments of our esteemed faculty, postgraduate students, and research scholars. We envision this newsletter as a central hub of information and ideas, fostering a sense of unity and shared purpose among physics enthusiasts within our MIT family. As we embark on this exciting journey with "Physi-Spectra," our hope is that it becomes a source of inspiration, knowledge, and connection for all who engage with it. We encourage each member of our physics community to contribute, participate, and celebrate the collective achievements that make MIT's Department of Physics a hallmark of academic excellence.

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	-	

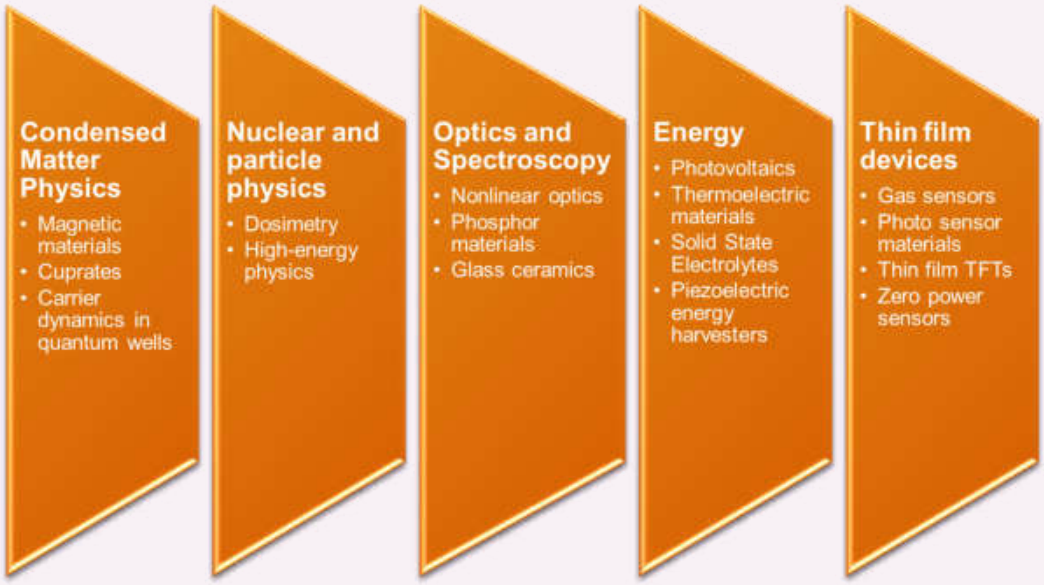
Department of Physics, MIT, Manipal

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.

22	64	41	450	700+	46
Faculty Members	Current Ph.D. Students	Ph.D. Awarded	Lac INR Grant Amount	Research Publications	Department h - index

Current research field in the department :



Courses offered by the Department of Physics

B.Tech.
Engineering Physics
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

Revised PG Programme Structure and Curriculum 2024

M. Sc. (Physics) - 4 Semesters
Choice Based Credit System (2024)

Second year devoted entirely to project (research) work for those who have completed the 3-year Bachelor's programme.

This will be implemented in *July 2024*.

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

Extramural Funded Projects of Physics Department

Physics Department has obtained funding for projects from various national agencies like DST, SERB, BRNS, CSIR, CSR, VGST, etc. and has completed 28 funded research projects and 9 are ongoing. The project details are listed below.

Sl. No	Project Title	Funding Agency	Principal Investigator	Amount (INR in lakhs)	Year	Status
1	Developing Printable and ultralow gas sensors in mixed environment using reduced Graphene/ Metal Oxide Composites	SERB-DST	Dr. Poornesh P.	50	2023	Ongoing
2	Exploration of quantum cutting process in phosphors for luminescent solar concentrator application	CSIR, New Delhi	Dr. Sudha D. Kamath	21.55	2023	Ongoing
3	Investigation of gamma-ray strength function at low energy in atomic nuclei	SERB-DST	Dr. Dinesh Negi	25.08	2023	Ongoing
4	SAT Z'PiezoS:Scandium doped AlN Thin Films for Zero-power Piezoelectric Sensors	DST-SERB	Dr. Nagaraja K. K.	32.06	2020	Ongoing
5	Photoemission spectroscopy of monovalent doped $Nd_{0.5}Sr_{0.5}MnO_3$ manganities	UGC-DAE CSR	Dr. Mamatha D. Daivajna	6.8	2020	Ongoing
6	Synthesis and characterization of novel chalcogenide TE materials for Peltier Cooling applications	UGC-DAE CSR	Dr. A. N. Prabhu	1.35	2020	Completed
7	Synthesis and characterization of lanthanum doped zinc oxide thin films	UGC-DAE CSR	Dr. B. V. Rajendra	9	2020	Ongoing
8	Study of correlations between free volume related microstructure and ionic conductivity in metal salt doped polymer electrolyte films	UGC-DAE CSR	Dr. Ismayil	1.35	2019	Completed
9	FIST Program - 2017	DST, GoI	Dr. Ashok Rao, Coordinator	132	2018	Ongoing
10	Spectroscopic measurement of neutral & ion temperatures from Aditya Tokamak	DAE-BRNS, GoI	Dr. Sripathi Punchithaya, Dr. Ismayil (Co-PI)	13	2018	Completed

Extramural Funded Projects of Physics Department

Sl. No	Project Title	Funding Agency	Principal Investigator	Amount (INR in lakhs)	Year	Status
11	To setting up facility of direct measurement of MCE	UGC-DAE CSR	Dr. Mamatha D. Daivajna	6.5	2018	Completed
12	Irradiation effects in Er and Yb doped BaO-ZnO-B_2O_3 glasses	UGC-DAE CSR	Dr. Sudha D. Kamath	6.5	2018	Ongoing
13	Characterization of II – VI compound ternary semiconductors for photodetector applications	UGC-DAE CSR	Dr. Mahesha M. G.	6.5	2018	Completed
14	Development of low-cost thin film solar cells using CZTSSe as absorber layer	DST-SERB	Dr. Raviprakash Y. Dr. Dhananjaya Kekuda (Co-PI)	26.09	2018	Completed
15	W-LEDs and Glass Ceramics by Dy^{3+} sensitized Eu^{3+}/Sm^{3+} doped glasses	DST-SERB	Dr. Sudha D. Kamath	42.69	2018	Ongoing
16	Study of MCE, kinetic arrest in Bi doped PSMO & LSMO manganites	UGC-DAE CSR	Dr. Mamatha D. Daivajna	5.07	2017	Completed
17	Synthesis of novel TE materials for low & high TEMP application	CSIR, New Delhi	Dr. Ashok Rao	10.33	2017	Completed
18	Development of low cost thin film solar cells with earth-abundant kesterite absorber	VGST, Karnataka	Dr. Raviprakash Y.	5	2017	Completed
19	Effect of Neutron Irradiation on Silicon Materials	UGC-DAE CSR	Dr. Pramoda K. Shetty	1.35	2017	Completed
20	Study of structural & phase transition using LTHM XRD	UGC-DAE CSR	Dr. Mamatha D. Daivajna	0.45	2016	Completed
21	Alternatives for Window layer to Improve the efficiency of CdTe based solar Cells	VGST, Karnataka	Dr. Mahesha M. G.	20	2015	Completed
22	Magnetic & optical properties nano films grown by spray pyrolysis method	UGC-DAE, CSR	Dr. B.V. Rajendra	8.8	2015	Completed
23	Effect of substitution in the system of Manganites for enhancement of applicability for devices	UGC-DAE, CSR	Dr. Ashok Rao	0.35	2015	Completed
24	Effect of Micro Structural Changes due to EBI	UGC-DAE CSR	Dr. Pramoda K. Shetty	1.35	2015	Completed

Extramural Funded Projects of Physics Department

Sl. No	Project Title	Funding Agency	Principal Investigator	Amount (INR in lakhs)	Year	Status
25	Evaluation of nuclear data including covariance error matrix ...	DAE-BRNS, GoI	Dr. Sripathi Punchithaya (C0-PI)		2015	Completed
26	The study of effects of radiation in rare earth doped Zinc Bismuth Borate glasses	SERB-DST	Dr. Sudha D. Kamath	40.94	2014	Completed
27	Effects of electron irradiation on n-ZnS/p-Si and ZnS-Au visible-blind UV photodetectors	DAE-BRNS, GoI	Dr. Gowrish Rao K.	14.77	2014	Completed
28	Influence of EBI on Tungstate Nanophosphors	DAE-BRNS, GoI	Dr. Ashok Rao (Co-PI)		2013	Completed
29	Development of modern computer code with up-to-date databases	DAE-BRNS, GoI	Dr. Pramod K. Shetty (Co-PI), Dr. Mahesha M. G. (Co-PI)		2013	Completed
30	Transparent Metal Oxide TFTs grown by magnetron sputtering	DAE-BRNS, GoI	Dr. Dhananjaya Kekuda	16.6	2012	Completed
31	The study of effects of radiation on Eu2O3 doped lead fluoroborate Glasses	DAE-BRNS, GoI	Dr. Raviprakash Y. Dr. Sudha D. Kamath (Co-PI)	17.52	2012	Completed
32	Nonlinear optical studies of organic materials using CW laser	DAE-BRNS, GoI	Dr. Poornesh P.	18.5	2011	Completed
33	Effect of electron beam irradiation on electrical & transport properties of cobaltites & manganites	DAE-BRNS, GoI	Prof. Ashok Rao	22.61	2011	Completed
34	EBI effect on electrical switching properties of glass chalcogenides	DAE-BRNS, GoI	Dr. Mahesha M. G., Dr. Pramod Kumar Shetty (Co-PI)	10.64	2011	Completed
35	Low power optical limiting studies on organic materials using CW laser	VGST, Karnataka	Dr. Poornesh P.	5.5	2010	Completed
36	Preparation & characterization of metal particulate films on modified polymers	DAE-BRNS, GoI	Dr. Mohan Rao K.	23.7	2010	Completed
37	Study of self-compacting concrete compositions of accelerator shielding	DAE-BRNS, GoI	Dr. Sripathi Punchithaya (Co-PI)		2009	Completed

Patents Granted/Filed

Dr. Poornesh P has been granted a Indian patent for his innovative invention titled "A Dental Chair Integrated Curing Light Apparatus." The patent, numbered 397300 and filed under Application No. 5416/CHE/2013 on the 25th of November 2013, has been officially certified for a duration of 20 years in adherence to the provisions of the Patents Act, 1970.

Exciting advancements in thermoelectric technology have emerged with the filing of a patent for the invention titled "Tin and tellurium co-doped bismuth selenide thermoelectric generator module" on October 5, 2023, at the Indian Patent Office (Application No. 202341066866). The innovative minds behind this breakthrough are Dr. Ashwatha Narayana Prabhu and Dr. Ganesh Shridhar Hegde.

Research Performance Award

Department of Physics has been awarded for the excellent research performance by the institute for the two consecutive years i.e., 2022 and 2023.

11th National Conference on Condensed Matter Physics and Applications (CMPA- 2023)

In a remarkable two-day event on December 14th and 15th, 2023, the 11th National Conference on Condensed Matter Physics and Applications (CMPA-2023) unfolded with a grand inauguration by Dr. Sudhindra Rayaprol, Scientist-G at UGC-DAE Consortium for Scientific, Bhabha Atomic Research Centre, Mumbai. The event, graced by luminaries such as Dr. Narayan Sabahit, Pro Vice Chancellor of Technology and Science at MAHE, Manipal, Sri M G Pandit from Canara Bank, Manipal, and Prof. Somashekara Bhat, Joint Director at MIT, set the stage for a series of captivating talks and discussions.

Dr. Narayan Sabahit, the chief guest, emphasized the pivotal role of physics in technical and basic science education, underscoring the need for interdisciplinary research in today's academic landscape. Dr. Sudhindra Rayaprol delved into the realm of applied research, shedding light on its role in finding practical solutions to existing problems. Prof. Somashekara Bhat, President of the inaugural function and Joint Director of MIT, expounded on the relevance of Condensed Matter Physics in both engineering and basic education.

The inaugural function paved the way for three insightful invited talks, starting with Dr. Sudhindra Rayaprol's keynote on "Neutron Diffraction." Dr. Gurumurthy Hegde followed, addressing the concept of "Waste to Wealth" in nanotechnology for a sustainable society. Dr. Ashutosh Kumar Singh concluded the series by discussing efforts toward designing affordable and functional electrochromic smart windows. After a day filled with academic insights, the conference participants were treated to a 90-minute cultural program featuring captivating performances by research scholars and M.Sc. students, showcasing their talents in dance, skits, and magic shows. The second day of CMPA-2023 featured four engaging talks by eminent speakers, covering topics ranging from entrepreneurship and advances in phosphors for photonic applications to the development of thermoelectric generators and intelligent packaging solutions in food and pharma industries.

The conference concluded with a valedictory function on December 15th, where Dr. Harish Kumar S, Director-Corporate Relations at Manipal Academy of Higher Education, served as the Chief Guest. Prof. Ashok Rao, Associate Director – Research and Consultancy at MIT, Manipal, presided over the ceremony. Dr. Sudha D Kamath, Convener of CMPA-2023 and HOD of the Department of Physics, expressed gratitude to all participants, delegates, research scholars, MSc students, invitees, guests, and faculty members for their active and enriching participation. Dr. Gurumurthy S C, Co-Convener of CMPA 2023, delivered a heartfelt vote of thanks during both the inaugural and valedictory functions, concluding the two-day intellectual extravaganza on a high note.

"A problem is something to be solved, an obstacle is something to be overcome."

- Dr. T. M. A. Pai

Synergistic Training program Utilizing the Scientific and Technological Infrastructure (STUTI)

Seven days Synergistic Training program Utilizing the Scientific and Technological Infrastructure (STUTI) was successfully conducted by Departments of Physics and Chemistry, MIT, Manipal in joint collaboration with Shivaji University, Kolhapur, Maharashtra during January 5 to January 11, 2023. This prestigious event was sponsored by the Department of Science and Technology (DST), Ministry of Science and Technology, Government of India, New Delhi. The STUTI Scheme is intended to build human resource and its capacity building through open access to S&T Infrastructure across the country by organizing training program on DST supported R&D equipment targeting Scientists/Professors/PhDs and PDFs actively involved in research across various institutions in the country.

The training program was inaugurated on 5th January 2023 by Prof. R G Sonkawade, PMU Coordinator, STUTI Program, Shivaji University, Kolhapur, Maharashtra accompanied by Dr. Vinod V Thomas, Registrar Evaluation, Manipal Academy of Higher Education, Manipal, Cdr. (Dr.) Anil Rana, Director, MIT, Manipal, Conveners of STUTI program Prof. Mohan Rao K, Prof Suma A Rao, Coordinators Dr. Ismayil, Dr. Gurumurthy S C and Sudhakar Y N. Participants from Maharashtra, Andra Pradesh, Kerala, Karnataka, Assam and Tamil Nadu attended this national level training program. In this seven days long training program, total 14 plenary lectures were delivered on the Instrumentation & Practical Aspects of various scientific instruments such as X-ray Photoelectron Spectroscopy (XPS), XRD, Transmission Electron Microscope (TEM), Nuclear Magnetic Resonance (NMR) etc. by different resource persons from Academia and industry namely, Prof. R G Sonkawade and Dr. Maqsood Waikar from Shivaji University, Kolhapur; Dr. Aseefali and Dr. Unnikrishnan V K from Department of Atomic and Molecular Physics, MAHE, Manipal; Dr. Balakrishna K, Dr. Dhananjaya Kekuda, Dr. Vishwanath Managuli from MIT, Manipal; Dr. Sankeerth Hebbar from Kumaraswamy College, Subrahmanya; Dr. Ismayil, Dr. Srinivasulu M and Dr. Gurumurthy S C From MIT, Manipal; Mr. Satya Srinivas, Application Specialist from Carl Zeiss India Pvt. Ltd., Bangalore; Dr. Sudhakar Y N from MIT, Manipal and Dr. Shyam Prasad K from NMAM Institute of Technology, Nitte. In these 7 days, 18 lab sessions were conducted. The lab sessions were coordinated by Dr. Ismayil, Dr. Gurumurthy S C, Dr. Sudhakar Y N and lab sessions are conducted by Dr. Subrahmanya Bhat, Dr. Santhosh Gaonkar, Research Scholars and Technicians of Departments of Physics, Chemistry, Civil Engineering, Innovation center of MIT; Faculty and research scholars of Department of Atomic and Molecular Physics, MAHE, Manipal.

During the lab sessions participants undergone hands-on training on 24 research grade instruments namely X-ray diffractometer (XRD), Atomic Absorption Spectroscopy (AAS), Inductively Coupled Plasma (ICP), UV-Visible spectrometer, Profilometer, Laser Induced Breakdown Spectroscopy (LIBS), Laser induced Fluorescence (LIF), Raman Tweezer, Atomic Force Microscopy (AFM), Impedance Analyzer, DC/RF Sputtering, NMR, FTIR, DSC/TGA, Scanning Electron Microscope (SEM), Photoluminescence Spectroscopy, thin film fabrication by thermal evapouration set up, Spray Pyrolysis unit, Spin coating unit, Electrochemical work station, Hall effect, Seebeck effect and Resistivity measurement set up. As a part of STUTI training program, a field trip was conducted and participants visited Dr. T. M. A. Pai Planetarium, Manipal; Manipal Museum of Anatomy & Pathology and Light house, Kaup.

The valedictory program of the STUTI was held at Sir M V Seminar Hall, MIT, Manipal on 11th January 2023. Dr. Ashok Rao, Associate Director (R&C), MIT, Manipal was the Chief guest for the program. Dr. Somashekara Bhat, Joint Director, MIT, Manipal presided over the function.

Awareness Session on Occupational Balance

In a bid to shed light on the crucial aspect of maintaining a healthy balance between professional and personal life, an awareness session on Occupational Balance was conducted at the KEF Hall, Manipal Institute of Technology (MIT), Manipal Academy of Higher Education (MAHE). The talk, organized by the Department of Physics at MIT, featured Mr. Amar Nishad from the Department of Occupational Therapy at MCHP, MAHE, as the esteemed speaker. The event, held on November 7, 2023, drew the attention of 75 attendees, comprising a diverse audience from various departments of MIT, along with ten students from the Manipal College of Health Professions (MCHP), MAHE. The venue, KEF Hall at MIT, provided an ideal setting for an interactive and insightful session.

Mr. Amar Nishad, an expert in Occupational Therapy, led the talk, which spanned an engaging one-hour duration. The highlight of the session was the live demonstration of activities illustrating the importance of maintaining a balance between different aspects of one's daily life. Attendees actively participated in the talk, contributing to a dynamic and enriching experience. The awareness session not only provided an overall view of the significance of occupational balance but also equipped the audience with practical insights into implementing these principles in their daily routines. Mr. Nishad's expertise and the interactive format of the session left a lasting impact on the attendees, fostering a deeper understanding of how to harmonize various aspects of their professional and personal lives.

Hands-on workshop on electrical characterization using Keithley source-measure units

A hands-on workshop on ”Electrical characterization using Keithley source-measure units” was conducted in Physics Department on November 30, 2023 in association with Tektronix Bengaluru and Convergent Technologies India Private Ltd. Close to 45 participants from the department as well as from the other departments of MIT registered for this event. The application Engineer and product specialists were present at the workshop.

Application Engineer Mr. Navaneet Raghunath from Tektronix discussed on the different techniques for low and high resistance measurements and related equipment and configurations. General practices suited to specific applications were also discussed. Product specialist Mr Gururaj from Convergent Technologies India presented different models offered by Keithley/Tektronix for these purposes.

Later, in the second session, the Application Engineer gave hands-on training for the registered students using the user samples. The Engineer from Tektronix demonstrated simple troubleshooting of the equipment available at the Central Characterization Lab, Department of Physics, viz., Dual Chanel Sourcemeter, Hall Effect Card, Nanovoltmeter etc. Different two-terminal and three-terminal devices were characterized. Registered participants interacted with the Application Engineer and cleared their doubts. The participants were divided into two batches for the smooth conduction of session 2 of the workshop. Most participants actively participated in the workshop and cleared their doubts, FAQs, and learnt about the electrical characterization of different materials and devices.

Institute Visit Program by students of Government Brennen College, Kerala to the Department of Physics, MIT

MSc & BSc students of Government Brennen College (affiliated to Kannur University), Kerala visited the Department of Physics on 12/12/2023 as a part of their Institute Visit Program. Their group consisted of forty-five students (33 BSc and 12 MSc) along with four faculty members. The program comprised of an interaction session followed by visit to various research labs of our department.

The interaction session was held at the seminar hall (Dept. of Media Technology). In this session, Prof. (Dr.) Sudha D Kamath, HoD Physics, welcomed the gathering and introduced them to MAHE and MIT. Madam also gave an overview on Department of Physics, departmental facilities and activities, and introduced the faculty members to the gathering. In her presentation, Madam also familiarised the guests with the academic programs offered by our department and research accomplishment of our students and alumni. This was followed by a talk by Dr. Gurumurthy S C (Associate Professor, Dept. of Physics). In his talk, Dr. Gurumurthy motivated the students to take up physics research as a career. Dr. Bhaghyesh (Assistant Professor, Dept. of Physics) coordinated the entire program and presented the vote of thanks. Mr. Kiran R and Mr. Bhavya Bharadwaj (Research Scholars, Dept. of Physics) were also present in this session. After the interaction session, the students were taken to various research labs of our department and were briefed about the instruments and research undertaken at the respective labs. They also interacted with research scholars of our department. The overall program inspired and motivated the visiting students.

Guest Talk by Professor Narayanasastri Somanathan

The Department of Physics at Manipal Institute of Technology (MIT), Manipal, had the honour of hosting a distinguished guest lecture by Professor Narayanasastri Somanathan, former Head and Senior Principal Scientist of the Polymer Lab at the CSIR-Central Leather Research Institute in Adyar, Chennai. The lecture, titled "*Polymeric Semiconductors for Flexible Organic Electronics*," took place on September 4, 2023, at the esteemed Sir M V Seminar Hall at MIT, Manipal. Professor N. Somanathan is committed to a noble mission of sharing knowledge by delivering lectures at various educational institutions across the nation, with a particular focus on rural areas, to enrich the academic experience of students.

This enlightening lecture attracted an audience comprising faculty members, research scholars, and postgraduate students from the Departments of Physics, Chemistry, Printing, and Electronics of MIT, Manipal. During the lecture, Professor Somanathan provided a comprehensive overview of conducting polymers, their diverse applications, and the profound impact of chemical structural modifications on optimizing organic semiconductors for achieving white light emission from single polymers. Furthermore, he delved into the significance of structural variations in polarized electroluminescence, particularly in the context of LCD displays. Professor Somanathan also shared his valuable contributions to the field of polymers in this regard. The event commenced with a warm welcome from Professor Mohan Rao K, the Head of the Physics Department at MIT, who expressed gratitude to the esteemed speaker. Dr. Ismayil, a faculty member of the Department of Physics, played a role in coordinating the program, ensuring its smooth execution and success. This distinguished lecture was a testament to the academic excellence and dedication to knowledge dissemination at MIT, Manipal.

Guest Lecture by Dr. Karel Katovsky

Department of Physics, Manipal Institute of Technology organized a guest lecture on “Modern trends in nuclear energy utilization and accelerators applications” on 26th of October 2023 in MV seminar hall AB2, MIT. The guest lecture was delivered by eminent speaker Dr. Karel Katovsky, Associate professor at Brno University of Technology, Czech Republic. The entourage of guest including Dr. Karel Katovsky, and Dr. Mukarjee, adjunct faculty of Department of Physics, MIT, Manipal was escorted by the Dr. Sudha D Kamath, Head of the department of physics.

Dr Katovsky described the various generations of nuclear programs and current challenges in nuclear plant installation, the political hustle and public reaction towards the nuclear energy after Fukushima nuclear accident. He spoke about the new generation small nuclear reactors its power output and feasibilities over the conventional nuclear reactors, which costly and time consuming for installation and susceptible incompletion on political instabilities. He elaborated on deferent types of reactors that are working and being installed all over the globe. Dr. Katovsky also spoke about the nuclear fusion reactors, its changes and present scenario. The session was ended through an interaction with the students on nuclear fusion rector, and nuclear waste management. Dr. Gurumurthy raised a vote of thanks to each and every on who are responsible for the success of the program. Dr Mamatha D Daivjna moderated the entire session.

Details of National Conference on Condensed Matter Physics and Applications

Cmpa

1st CMPA 2012:
Date: December 27-28, 2012
Chairman : Prof. Ashok Rao
Convener : Prof. Thukaram M
Co-Convener : Dr. Mohan Rao K
No. of Registered Participants: 60
No. of papers presented : 46
Keynote Speaker: Dr. G K Shivakumar
Professor, NITK, Surathkal

2nd CMPA 2013:
Date: December 27-28, 2013
Chairman : Prof. Ashok Rao
Convener : Dr. Mohan Rao K
Co-Convener : Dr. Mahesha M G
No. of Registered Participants: 85
No. of papers presented : 76
Keynote Speaker: Dr. A.M. Rajendran
Chair and Professor, Department of Mechanical Engineering, University of Mississippi, Oxford, MS, 38655, USA

3rd CMPA 2015:
Date: March 27- 28, 2015
Chairman : Prof. Ashok Rao
Convener : Dr. Mahesha M G
Co-Convener : Dr. Ismayil
No. of Registered Participants: 130
No. of papers presented : 107
Keynote Speaker: Dr. S Asokan
Professor, Department of Instrumentation and Applied Physics, IISc, Bangalore

4th CMPA 2016:
Date: May 23-24, 2016
Chairman : Dr. Vyasa Upadhyaya
Convener : Dr. Ismayil
Co-Convener : Dr. Poornesh P
No. of Registered Participants: 88
No. of papers presented : 67
Keynote Speaker: Dr. M R Anantharaman
Professor of Physics, Cochin University of Science and Technology (CUSAT), Cochin, India

Details of National Conference on Condensed Matter Physics and Applications

Cmpa

5th CMPA 2017:
Date: September 22-23, 2017
Chairman : Dr. Vyasa Upadhyaya
Convener : Dr. Poornesh P
Co-Convener : Dr. Ashwatha Narayana Prabhu
No. of Registered Participants: 120
No. of papers presented : 55
Keynote Speaker: Prof. Reji Philip
Raman Research Institute (RRI) , Bangalore

6th CMPA 2018:
Date: September 10-11, 2018
Chairman : Dr. Vyasa Upadhyaya
Convener : Dr. Ashwatha Narayana Prabhu
Co-Convener : Dr. Rajendra B V
No. of Registered Participants: 95
No. of papers presented : 63
Keynote Speaker: Dr. Kattera A Suresh
Honorary Professor (Formerly Director), Centre for Nano and Soft Matter Sciences, Autonomous Institute under the Dept. of Science and Technology, Govt. of India.

7th CMPA 2019:
Date: September 27-28, 2019
Chairman : Dr. Mohan Rao K
Convener : Dr. B V Rajendra
Co-Convener : Dr. Dhananjaya Kekuda
No. of Registered Participants: 182
No. of papers presented : 55
Keynote Speaker: Dr. Anil Kumar P S
Professor, Indian Institute of Science, Bangalore

8th CMPA 2020 (Online):
Date: September 26, 2020
Chairman : Dr. Mohan Rao K
Convener : Dr. Dhananjaya Kekuda
Co-Convener : Dr. Pramoda Kumara Shetty
No. of Registered Participants: 105
No. of papers presented : 35
Keynote Speaker: Dr. Saurabh Basu
Professor, Department of Physics, IIT Guwahati

Details of National Conference on Condensed Matter Physics and Applications

Cmpa

9th CMPA 2021 (Online):
Date: September 16-17, 2021
Chairman : Dr. Mohan Rao K
Convener : Dr. Pramoda Kumara Shetty
Co-Convener : Dr. Raviprakash Y
No. of Registered Participants: 145
No. of papers presented : 91
Keynote Speaker: Dr. Anshuman Dalvi
Professor of Physics & Associate Dean, Faculty Affairs
Birla Institute of Technology & Science, Pilani.

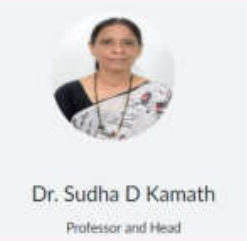
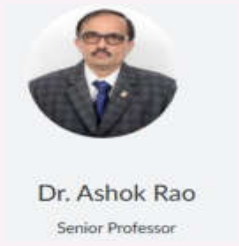
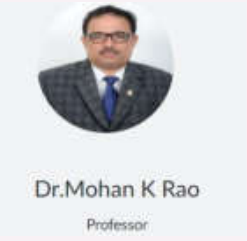
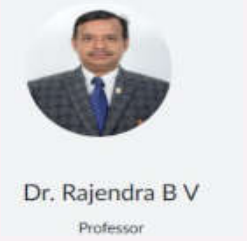
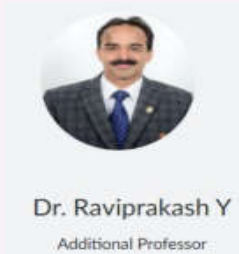
Selected papers published in Scopus indexed **Materials Today: Proceedings** (Elsevier)

10th CMPA 2022:
Date: December 2 - 3, 2022
Chairman : Dr. Mohan Rao K
Convener : Dr. Raviprakash Y
Co-Convener : Dr. Sudha D Kamath
No. of Registered Participants: 129
No. of papers presented : 112
Keynote Speaker: Dr Vidhyadhiraja N. S.
Dean, Fellowships and Extensions,
Jawaharlal Nehru Centre for Advanced Scientific Research [JNCASR], Bengaluru.

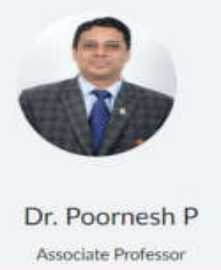
Selected papers published in Scopus indexed **Materials Today: Proceedings** (Elsevier, in-press)

11th CMPA 2023:
Date: December 14 - 15, 2023
Chairman : Dr. Mohan Rao K
Convener : Dr. Sudha D Kamath
Co-Convener : Dr. Gurumurthy S C
No. of Registered Participants: 138
No. of papers presented : 114
Keynote Speaker: Dr. Sudhindra Rayaprol
Scientist-G, UGC-DAE Consortium for Scientific Research, Bhabha Atomic Research Centre, Mumbai

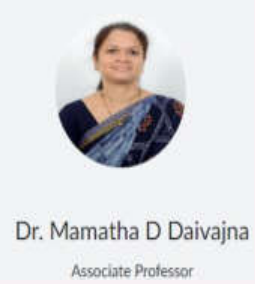
Faculty Profile of Physics Department

Faculty Name	PG Specialization	Areas of Research Interest	E-mail ID (*@manipal.edu)
 Dr. Sudha D Kamath Professor and Head	Solid State Physics	Rare earth doped glasses, phosphors, and ceramics for • Solid state lighting applications • White light emitting diode applications. • Tungstate phosphors for solar concentrator applications. • Radiation shielding and dosimetry applications. Thermoluminescence and temperature dependent phosphors for optical thermometry applications.	sudha.kamath
 Dr. Ashok Rao Senior Professor	Solid State Physics	High temperature superconductors, Magnetic materials, Thermoelectric materials.	a.rao
 Dr.Mohan K Rao Professor	Materials Science	Thin films and nanomaterials, oxide films	kmohan.rao
 Dr. Pramoda Kumara Shetty Professor	Radiation Physics	Radiation matter interactions, Radiation dosimetry. Metal oxide thin films for gamma dosimetric applications.	pramod.shetty
 Dr. Rajendra B V Professor	Solid State Physics	Synthesis and characterization of semiconductor nano films, Nonlinear optical materials, metal oxide thin films, sensors, optoelectronic devices, spintronics	bv.rajendra
 Dr. Raviprakash Y Additional Professor	Electronics	Semiconductors, Photovoltaic/Solar absorber materials, Metal Oxides and Chalcogenide thin films for energy conversion and storage applications. Thin film solar cells, Electrodes for supercapacitors, Photoelectrodes for Hydrogen generation.	raviprakash.y

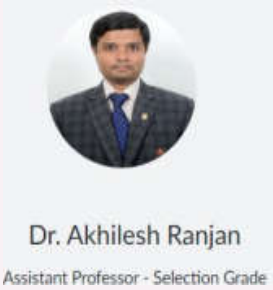
Faculty Profile of Physics Department

Faculty Name	PG Specialization	Areas of Research Interest	E-mail ID (*@manipal.edu)
 Dr. Mahesha M G Associate Professor	Electronics	Thin film devices	mahesha.mg
 Dr. Poornesh P Associate Professor	Condensed Matter Physics	Smart sensors, Nonlinear optics, Materials for Energy application	poornesh.p
 Dr. Dhananjaya Kekuda	Solid State Physics	Thin films, oxide materials, Devices	dhaya.kekuda
 **Dr. Ashwatha Narayana Prabhu** Associate Professor	Solid State Physics	Crystal Growth, Nonlinear Optics, Thermoelectric materials	ashwatha.prabhu
 **Dr. Ismayil** Associate Professor	Condensed Matter Physics	Solid Polymer Electrolytes for energy storage devices such as Batteries and Supercapacitors.	ismayil.mit
 Dr.Gowrish K Rao Associate Professor	Electronics	Thin film device applications, Photodetectors	gk.rao

Faculty Profile of Physics Department

Faculty Name	PG Specialization	Areas of Research Interest	E-mail ID (*@manipal.edu)
 Dr. Mamatha D Daivajna Associate Professor	Electronics	Magnetic materials: Perovskite manganites, hexamanganites-Bulk, nano and thin films for photovoltaic applications. Hexaferrites-Microwave wave absorption applications. Multiferroic, ferro-electric materials	mamatha.daijna
 **Dr. Gurumurthy S C** Associate Professor	Materials Science	Nano and Functional Materials Focused area of applications: Gas and Humidity Sensors, Thermal conductivity of nanofluids, Energy applications, Catalysis, Water treatment.	gurumurthy.sc
 Dr. Nagaraja K K Associate Professor	Condensed Matter Physics	Alternative energy storage materials and devices such as supercapacitors, solar cells; piezoelectric and thermoelectric materials; water splitting, Nonlinear optics, Ferrites, III-Nitrides, semiconducting oxides, Sensors.	nagaraja.kk
 Dr. Suchand Sandeep C. S. Associate Professor - Research	—-	Photonics, Renewable Energy, Biomedical Optics, Additive Manufacturing, Ultrafast Phenomena.	suchand.sandeep
 Dr. Kalpataru Panda Associate Professor	Condensed Matter Physics	Electron Field Emission Triboelectric Nanogenerator & Tribocharging properties of Nanomaterials Diamond & Related Materials, 2D/2D-TMD Materials Surface Science/Scanning Probe Microscopy	kalpataru.panda

Faculty Profile of Physics Department

Faculty Name	PG Specialization	Areas of Research Interest	E-mail ID (*@manipal.edu)
 Dr. Akhilesh Ranjan Assistant Professor - Selection Grade	Particle Physics	Hadron Physics.	ak.ranjan
 **Dr. Bhaghyesh** Assistant Professor-Senior Scale	Theoretical Physics	Hadron Physics Phenomenology.	bhaghyesh.mit
 Dr. Dinesh Negi Assistant Professor - Senior Scale	Nuclear Physics	High spin studies in atomic nucleus, Studies of gamma-ray strength function in atomic nucleus.	dinesh.negi
 Dr. Raghavendra K G Assistant Professor	--	Structural alloys and composites, Pyrochlores for Thermal Barrier Coatings, Solid state and chemical processing of high entropy oxides. Electron Microscopy.	raghavendra.kg
 Dr. Vikash Mishra Assistant Professor	Condensed Matter Physics	Optical Absorption Spectroscopy, Two-dimensional electron gas (2DEG), Optoelectronic devices, Quantum technologies, Defects in Semiconductors, Magnetization in Semiconductors.	vikash.mishra

Non-Teaching Staff of Physics Department

Mr. Surendra Shettigar
- Senior Clerk

Mr. Sarvotham Prabhu
- Senior Technician

Ms. Kavana S Kunder
- Technician

Mrs. Sowmya
- Technician

Mr. Yadava Kanchan
- Senior G. D. W.

Ms. Shrimathi R. Thakoor
- G. D. W. II

Mr. Sushanth
- G. D. W.

Instrumentation Facilities at Physics Department

UV-Visible spectrophotometer:
Shimadzu UV-1800/UV-1900i Spectrophotometer


Profilometer - Bruker Dektak XT
Motorized x/y movement of 150 x 150mm and motorozed 360° rotation, 150 mm diameter vacuum chuck for rigid or flexible substrates, 50 um -> 55 mm travel distance upto 1 mm height profiles can be measured repeatability: 0.5 nm stylus force: 0.05 <-> 15 mg.


Crystal Puller
"Nano Tech" Programmable temperature and timer controller. Maximum temperature : 1200˚C. The binary, ternary compounds and organic crystals can be grown by melt growth. Automatic rotation can be given from 0.1 rpm to 2 rpm. Manual rotation can be given from 100 rpm to 2000 rpm. Automatic pulling rate is from 0.1mm/min to 4mm/min up to the length of 200 mm (inch up and inch down).

Crystal Dilatometer
"Nano Tech". Maximum attainable temperature is 1200˚C. Thermal expansion of Organic crystals, Semiconductor crystals and glass can be determined under the temperature 1000˚C with automatic controllable timer and temperature.

Solution crystal growth apparatus
The apparatus of solution crystal growth was fabricated at IISC Bangalore.
The growth of crystal is done by slow cooling at the rate of 0.5˚C to 1˚C per day from 50˚C to 30˚C.

UV/Vis/NIR Spectrophotometer
Model : Lambda 750 S (Perkin Elmer)
Wavelength range : 190 nm – 3300 nm
Resolution : 0.17nm (UV/Vis)
0.2 nm (NIR)
Light source: Tungsten-halogen and Deuterium
Sample requirement : Solid/Liquid.

Instrumentation Facilities at Physics Department

Low temperature resistivity measurement system
Company: JANIS
Operating temperature: 10 to 400 K


Vacuum Sealing system
Company: Hydro Pneo Vac Technologies
Operating vacuum: 10^{-6} m bar

Thermal Diffusivity measurement system

Seebeck Coefficient measurement system

Hall Effect system


Spin Coating Unit: Model : HO-TH- 05

Four source thermal co-evaporation unit

Simultaneous four source co-evaporation capability Sequential evaporation of four sources in a single go without breaking vacuum. Base pressure achievable up to 2 x 10^{-6} mbar. Diffusion pump coupled with two stage rotary vane pump. Substrate heater up to 400 C. Digital thickness monitor.

Dual CVD system

Vapour phase deposition. PID controller assisted two heating zones for precise ramp-soak profile, Movable zones. Each zone having operational capability of heating up to 900 C. Nitrogen, Argon and Oxygen atmospheres. Separate MFC for each gas. Controlled gas flow with MFCs up to 500 sccm of flow rate.

Spray pyrolysis unit

Holmarc Model HO-TH-04
PC interfaced automatic XY movement. Variable flow rate Variable standoff distance. Substrate heater up to 500 C. Syringe pump. Substrate heater with PID temperature control. Microprocessor based dispensing system. Programmable spray pattern. Compressed air atomization. Optional ultrasonic spray nozzle.

Instrumentation Facilities at Physics Department

DC Magnetron Sputtering
The system has 3 sputter guns and 3 independent power supplies. Used for the thin film deposition using metallic targets. Oxide, Nitride films, etc can be deposited.

Hall effect set up
Useful in finding the charge carrier density , carrier type and concentration.

Z-scan System
Vibration isolated Optical Table
Energy/ Power meter with detector
Continuous Wave (CW) Laser
Opto-Mechanical components
(Including Neutral density filter, Lens Kit, Mounts, holders, post)

DC Sputtering

Thermal-evaporation unit

Dip coating unit

Tubular furnace

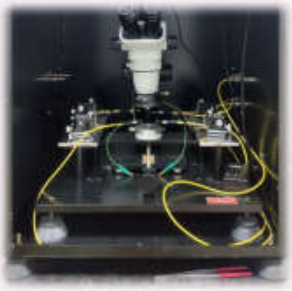
Vacuum annealing system

Impedance Analyzer
Wayne Kerr 6500B
Frequency range : 20Hz -10MHz
High Temperature Accessories RT-400DegC for thin film
High Temperature Accessories RT-800DegC for pallet samples
Bipolar DC Bias -40V to +40V.

Photoluminescence Spectrometer
JASCO FP 8500

Instrumentation Facilities at Physics Department

Electrical Probe Station
2636B KEITHLEY (Dual channel source measure unit)



Photodetector Analysis Setup
Spectra Quasar 500F UV-VIS-NR Monochromator with PMT detector, 150 W Xe arc Lamp, Optical Chopper.

SILAR Controller
Microcontroller based automated operation.
Supports Six beakers with independent heaters.
Number of dip cycles: 1- 999.
Dip duration: 0-99 sec/min/hr.

Multi target DC and RF Magnetron Sputtering:

UVO-Cleaner

pH Meter

Probe Sonicator
Sonics VCX 750

Gold Medalists of M.Sc. (Physics)

Name of the Student	Year
Ms. SUPRIYA K SHETTY 	2011
Ms. SOWMYA V 	2012
Ms. VRINDA 	2013
Mr. KRISHNA MOHANA A 	2014
Ms. ANUPA ANNA THOMAS 	2015
Ms. C MEENAKSHI RAJAGOPAL 	2016
Mr. LAKSHMEESHA K 	2017

Name of the Student	Year
Mr. B ANANTHAMOORTHY 	2018
Ms. HRUDYA RADHAKRISHNAN 	2019
Ms. S ASHA BHANDARKAR 	2020
Ms. VAIDEHI S NATTOJA 	2021
Ms. OLINDA DIONA FERNANDES 	2022
Ms. B S SRUJANA 	2023

Alumni Achievements

Dr. Devaraj D Channappa
(MSc Batch 2010-12)

Completed PhD at MCNS in collaboration with GSI, Germany.
Postdoctoral researcher at Justus Liebig University, Giessen and at GSI Helmholtzzentrum für Schwerionenforschung, Darmstadt, Germany.
Research Associate, Flerov Laboratory of Nuclear Research, Moscow, Russia
devarajaaralehalli@gmail.com

Dr. Manjunath Bhat
(MSc Batch 2010-12)

Completed PhD at Adom Mickiewicz University, Poland
mbhat595@gmail.com

Dr. Anupa Anna Thomas
(MSc Batch 2013-15)

Completed PhD., istituto italiano di tecnologia,(Center for Nano Science and Technology) Milon, Italy.
Working as Domain Architect , R&D Printing Process & Consumables , Canon Production Printing Netherlands B. V.
misschatterbox126@gmail.com

Ms. Meenakshi Rajagopal
(MSc Batch 2014-16)

Pursuing PhD at Clemson University, South Carolina, USA
meenakshi.rjgpl@gmail.com

Mr. Anand Hegde
(MSc Batch 2014-16)

Pursuing PhD at National Tsing Hua University, Taiwan

Mr. Olin Lyod Pinto
(MSc Batch 2014-16)

Pursuing PhD at DESY-German Electron Synchrotron center Hamsburg, Germany
lyodpinto@gmail.com

Alumni Achievements

Dr. Albin Antony
(MSc Batch 2014-16)

Completed PhD at MAHE, Manipal.
Working in Oxford Instruments, United Kingdom
albinantony0@gmail.com

Ms. Anjana Uday
(MSc Batch 2015-17)

JEST qualified.
Pursuing PhD at University of Cologne , Germany
anjanauday94@gmail.com

Ms. Anju Jolly
(MSc Batch 2015-17)

Pursuing PhD at Coventry University, United Kingdom
anjujolly4577@gmail.com

Ms. Fiona Crystal Mascarenhas
(MSc Batch 2017-19)

Pursuing PhD at KU Leuven Univeristy, Belgium
fionamascarenhas01@gmail.com

Mr. Avanish K R Rao
(MSc Batch 2017-19)

Pursuing PhD at Australian National University, Australia
kravanishrao@gmail.com

Ms. Pavitra Ganapati Bhat
(MSc Batch 2018-20)

Pursuing PhD at Comenius University, Bratislava, Slovakia
pavitrabhat58@gmail.com

Alumni Achievements

Mr. Vikranth
(MSc Batch 2012-14)

NET-JRF qualified. Working in Karnataka Science College, Dharwad

Ms. Riya Joy
(MSc Batch 2015-17)

GATE qualified. Working as Assistant Manager, Federal Bank

Mr. Prashanth Nayak
(MSc Batch 2012-14)

GATE qualified, Pursuing PhD at CeNS, Bangalore

Ms. Sriyasriti Acharya
(MSc Batch 2014-16)

GATE qualified. Pursuing PhD at Astrophysics and Space Engineering, IIT Indore

Dr. Parashurama H R
(MSc Batch 2013-15)

SLET qualified and completed Ph.D at MAHE, Manipal

Ms. Arenza Karen Sequiera
(MSc Batch 2013-15)

NET-LS qualified. Working in Milagres College, Kallianpura

Mr. Vigneshwaran P
(MSc Batch 2016-18)
Pursuing PhD at Johannes Gutenburg Universitat, Germany

Mr. Ravi G M
(MSc Batch 2016-18)
Pursuing PhD at Johannes Gutenburg Universitat, Germany

Ms. Kezhia Thomas
(MSc Batch 2018-20)
Pursuing PhD at University of Strathclyde, Glasgow, United Kingdom

Ms. Lakshmi N G
(MSc Batch 2020-22)
Pursuing PhD at University of Bayreuth, Germany

Mr. Ananthamoorthy B
(MSc Batch 2016-18)

GATE qualified. Pursuing PhD at MCNS, Manipal

Ms. Bhoomika Bhat
(MSc Batch 2020-22)
Pursuing PhD at PTB - German National Metrology Institute, Germany

Faculty Achievements/Recognitions

Faculty Name	Awards/Recognitions	Details
Dr. Sudha D Kamath 	Best oral presentation Award	6th IEEE International Conference on "Knowledge Innovation & Invention 2023", ICKII, held at Sapporo, Japan, 8-11, August, 2023.
	Best Researcher Award	Awarded by MIT, Manipal on 11th April, 2022.
Dr. Pramoda Kumara Shetty 	Chief Guest	Inaugurated *Science club* at Amritha Bharathi PU college, Hebri and delivered a lecture on Chandrayaan.
Dr Raviprakash Y 	Mentor of Change	Atal Innovation Mission, NITI Aayog, Govt. of India
	Certified National Level Trainer	National level trainer on Research based pedagogical tools. Certified by IISER Pune, Sheffield Hallam University, UK and British council
	Best Teacher Award	Awarded by MIT, Manipal
	Resource Person	International Online Certificate Course on Non-Conventional Energy and Its Conservation Programme organised by Netaji Subhashchandra Bose College, Nanded, Maharashtra during 28/02/2023 to 10/03/2023.
	Resource Person	Conducted a workshop on the topic- " Ideation and Design Thinking" for students of ATAL Tinkering Lab at Vidyadayinee English Medium School, Surathkal on October 10, 2023
	Resource Person	Invited talk on the topic- " Integrating Creativity and Innovation into Teaching" for faculty at Mahatma Gandhi Memorial College, Udupi on October 11, 2023
	Resource Person	Career guidance talk at Excellent PU College, Koteshwara-on April 20 , 2023.

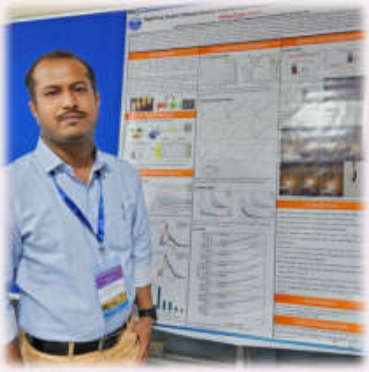
Faculty Achievements/Recognitions

Faculty Name	Awards/Recognitions	Details
Dr. Dhananjaya Kekuda	Best Teacher Award	Awarded by MIT, Manipal
	Resource Person	DST Sponsored Seven days national level Synergistic Training program Utilizing the Scientific and Technological Infrastructure (STUTI) held during January 05 - 11, 2023 at Manipal Institute of Technology, Manipal.
Dr Poornesh P	SMYSR AWARD (Seed Money to Young Scientist for Research)	Vision Group on Science and Technology, Govt. of Karnataka.
	DAE Young Scientist Research Award	Department of Atomic Energy, Board of Research in Nuclear science, (DAE-BRNS), Govt. of India.
	Best Researcher Award	Awarded by MIT, Manipal
Dr. Ashwatha Narayana Prabhu	Resource Person	International Workshop on "Thermoelectric Materials and Applications" held during 24-25 August 2022 organized by SSN Research Centre, SSN Institutions, Chennai-603110, Tamil Nadu, India.
	Invited Talk	Delivered a talk on Chandrayan-3 in a session conducted by Student Nurses' Association, Manipal College of Nursing, Manipal on 05 September 2023 .
	Invited Talk	Delivered guest lecture at Vijaya College Mulki on the topic "Basics of Thermoelectric Materials and Its Need for Advanced Applications" On November 24, 2023.

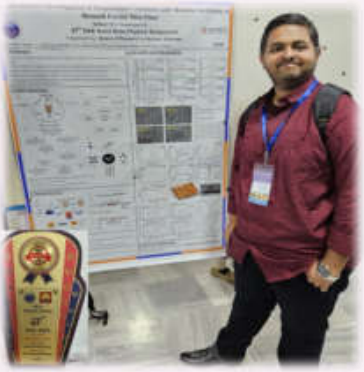
Faculty Achievements/Recognitions

Faculty Name	Awards/Recognitions	Details
Dr. Mahesha M G 	Chief Guest	Inaugurated Conference on Recent Research in Applied Sciences held at Srinivas Institute of Technology, Mangaluru held during 26th and 27th September 2023. Also, delivered a talk on the topic "Unlocking the Potential: Exploring Defect Tunability & its Impact on the Properties of CuO Thin Films".
Dr. Ismayil 	Resource Person	DST Sponsored Seven days national level Synergistic Training program Utilizing the Scientific and Technological Infrastructure (STUTI) held during January 05 - 11, 2023 at Manipal Institute of Technology, Manipal.
Dr. Mamatha D Daivajna 	Best oral presentation award Best conference paper award	3rd International conference on "Global Trends in Sustainable Technology & its Applications in Applied Sciences", held at REVA University, Bengaluru, 29-30, Nov 2023. 6th IEEE International Conference on "Knowledge Innovation & Invention 2023", ICKII, held at Sapporo, Japan, 8-11, August, 2023

Research Scholar's Achievement



Mr. Pradeep Nayak, Senior Research Fellow in the Physics Department at MIT Manipal, has achieved a significant milestone in his academic journey. He has been awarded a **Travel Grant** of £250 by the Royal Society of Chemistry (RSC), London. This prestigious grant aims to support his participation in the "67th Department of Atomic Energy (DAE) Solid State Physics Symposium (SSPS)," organized by the Bhabha Atomic Research Centre (BARC) in Mumbai. The event is sponsored by the Board of Research in Nuclear Sciences (BRNS), Department of Atomic Energy, Government of India. Pradeep Nayak has presented a poster with the title "$Mg(NO_3)_2$ Doped Chitosan:Dextran Polyblend Electrolytes for Solid -State Battery Application." His research focuses on the development of advanced materials for solid-state batteries, a critical area in sustainable energy research. He is doing his research under the supervision of Dr. Ismayil, Associate Professor, Department of Physics, MIT, Manipal.



Mr. Srihari N V, Research Scholar in the Physics Department at MIT Manipal won the **Best poster Award** for his research work titled "Comprehensive Investigation of Preparation Conditions And Resistive Switching in Bismuth Ferrite Thin-Films" in the 67th DAE Solid State Physics Symposium (DAE-SSPS 2023) held at GITAM University, Visakhapatnam Andhra Pradesh during December 20-24, 2023. The symposium was organized by Bhabha Atomic Research Centre (BARC), and was jointly sponsored by the Board of Research in Nuclear Sciences and the Department of Atomic Energy, Government of India. He is doing his research under the supervision of Dr. Nagaraja K K, Associate Professor, Department of Physics, MIT, Manipal.

Hands on training to STUTI participants by Research Scholars of Physics Department:

Doctorate Awardees of Physics Department

Sl. No.	Name of the Candidate	Thesis Title	Guide / Co-guide	Date of Award
1	Mr. Ashwatha Narayana Prabhu 	Synthesis and Characterization of Nonlinear Optical Crystals of Chlorine and Bromine Substituted Chalcone Derivatives.	Dr. Vyasa Updhyaya	24 JAN 2014
2	Mrs. Mamatha D. Daivajna 	Electrical, Magnetic And Thermal Properties of Bi Doped $RE_{0.6-x}Sr_{0.4}MnO_3$ and $RE_{0.7-x}Sr_{0.3}MnO_3$ (RE=Pr, La) Manganites.	Dr. Ashok Rao	27 MAR 2015
3	Ms. Pramodini S 	Third-order optical nonlinearity and optical power limiting of organic materials under CW laser illumination.	Dr. Poornesh P	16 JUL 2015
4	Mr. Manjunath S.O. 	Mixed exchange interactions: A structural electrical, magneto transport, magnetic and thermal studies of doped manganites.	Dr. Ashok Rao	17 FEB 2016
5	Mrs. Usha N. 	A study on effects of land use, land cover and spatial pattern of urban heat surface temperature in and around Udupi Karnataka state using remote sensing and GIS technology.	Dr. Thukaram M	26 AUG 2016
6	Mr. Nagaraja B.S. 	Electrical, structural, magnetic and thermo-electric properties of low bandwidth system of $RE_{1-x}Sr_xMnO_3$ manganites with RE=Dd, Dy, Sm and Eu	Dr. Ashok Rao	07 DEC 2016
7	Mr. J. Benedict Christopher 	Effect of electron beam irradiation on the structural, electrical and transport properties of $RE_{1-x}SR_xMnO_3$ (RE=La, Pr; x=0, 0.2) manganites and $RE_{1-x}Sr_xC0O_3$ (RE=La, Pr; x=0, 0.2) cobaltites	Dr. Ashok Rao	12 MAY 2017
8	Mrs. Shobha R. Prabhu 	Synthesis characterization and nonlinear optical studies of some nitro substituted chalone derivatives .	Dr. Vyasa Updhyaya	26 NOV 2018

Doctorate Awardees of Physics Department

Sl. No.	Name of the Candidate	Thesis Title	Guide / Co-guide	Date of Award
9	Ms. Chaya Ravi Gobbiner 	Growth and characterization of Bi -Layer thin film solar cells based on metal oxides.	Dr. Dhananjaya Kekuda	12 DEC 2018
10	Ms. Akshatha 	The study of effects of radiations on europium, samarium, neo-dymium on doped fluoroborate glasses,.	Dr. Sudha D Kamath	06 APR 2019
11	Mrs. Chaitra U. 	Growth of zinc oxide thin films for device applications.	Dr. Mohan Rao K	30 APR 2019
12	Ms. Rashmitha 	Investigation of CdS/ZnS Bi-layer window to improve the efficiency of CdTe based solar cells.	Dr. Mahesha M G	05 JULY 2019
13	Mrs. Lalitha Devi B. 	Microwave assisted synthesis of zinc sulfide nanostructures.	Dr. Mohan Rao K	15 OCT 2019
14	Mr. Indudhar Panduranga Vali 	Effect of radiation on structural, mechanical and electrical prop-erties of silicon based materials.	Dr. Pramoda Kumara Shetty	24 JAN 2020
15	Mr. Sumanth Joishy 	Growth and characterization of II-VI ternary compound semicon-ductor thin films prepared by spray pyrolysis technique.	Dr. B. V. Rajendra	13 MAR 2020
16	Mr. Albin Antony 	Electron beam induced modifica-tions on nonlinear optical proper-ties of doped ZnO thin films.	Dr. Poornesh P	29 MAY 2020

Doctorate Awardees of Physics Department

Sl. No.	Name of the Candidate	Thesis Title	Guide / Co-guide	Date of Award
17	Ms. Sindhu H.S. 	Characterization of transition metal doped ZnO think films prepared by spray pyrolysis method.	Dr. B.V. Rajendra	09 SEP 2020
18	Mr. Shyam Prasad 	Synthesis of thermoelectric materials for low and high temperature applications.	Dr. Ashok Rao	05 JUNE 2020
19	Mr. Ashith V.K. 	Characterization of SILAR deposited binary and ternary compound semiconductor thin films.	Dr. Gowrish Rao K	21 OCT 2020
20	Mr. Vinay Parol 	Growth and characterization of long chain Tosyloxty chalcone derivative single crystals for nonlinear optical applications.	Dr. Vyasa Updhyaya	09 JAN 2021
21	Mr. Vinod Hegde 	Effects of gamma radiation of dy^{3+}, Eu^{3+} and Pr^{3+} doped borate glasses.	Dr. Sudha D Kamath	12 JAN 2021
22	Mr. Muhammed Ali A.V. 	Fabrication and characterization of flexible and transparent metal oxide thin film transistors.	Dr. Dhananjaya Kekuda	17 MAR 2021
23	Ms. Riya Thomas 	Synthesis and Characterization of Doped and Composite Thermoelectric Materials for Low and Near Room Temperature Applications.	Dr. Ashok Rao	06 AUG 2021
24	Ms. Anita D'Souza 	Investigations on the Structural and Physical Properties of Bi^{3+} substituted (La/Pr)$SrMnO_3$ Nanoparticles.	Dr. Mamatha D Daivajna	01 JUN 2022

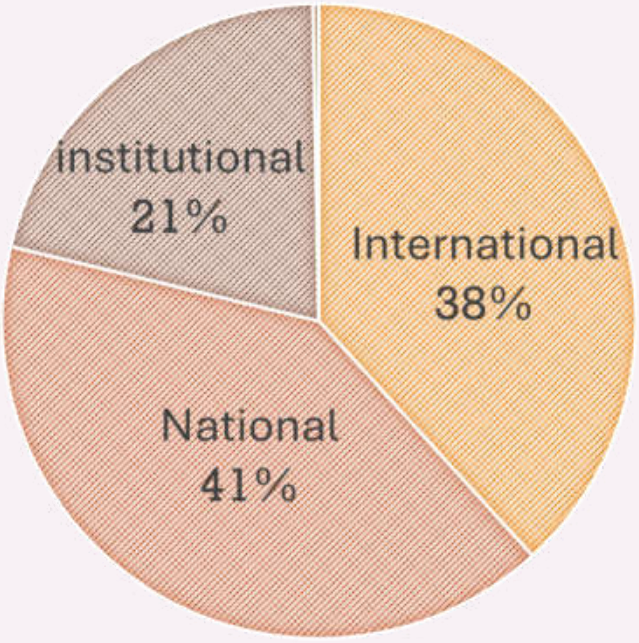
Doctorate Awardees of Physics Department

Sl. No.	Name of the Candidate	Thesis Title	Guide / Co-guide	Date of Award
25	Mr. Akshayakumar Kompa 	Investigation of rare earth doped titania thin films for device applications.	Dr. Mohan Rao K	19 JUL 2022
26	Ms. Priya K 	Characterization of ZnS based UV Photodetector structures fabricated by vacuum evaporation technique.	Dr. Gowrish Rao K	23 JUL 2022
27	Mr. Ganesh Hegde 	Synthesis and characterization of binary thermoelectric materials using solid state reaction and single crystal growth technique.	Dr. Ashwatha Narayana Prabhu	15 SEP 2022
28	Mr. Ganesha Krishna V 	characterization of spray deposited II-VI ternary chalcogenide thin films for device applications.	Dr. Mahesha M G	28 OCT 2022
29	Mr. Gurukrishna 	Effect of doping and stoichiometric tuning on thermoelectric performance of ternary tellurides and selenides.	Dr. Ashok Rao	12 OCT 2022
30	Ms. Sahana Nagappa Moger 	Investigation on co-evaporated ternary chalcogenide thin films for photodetector applications.	Dr. Mahesha M G	07 DEC 2022
31	Ms. Nimitha S Prabhu 	Irradiation Effects on Er^{3+}, Yb^{3+} and Sm^{3+} Doped Barium Zinc Borate Glasses.	Dr. Sudha D Kamath	06 JAN 2023
32	Dr. Suraj Mangavati 	Influence of dopants and composites on figure of merit of copper based thermoelectric materials.	Dr. Ashok Rao	28 FEB 2023

Doctorate Awardees of Physics Department

Sl. No.	Name of the Candidate	Thesis Title	Guide / Co-guide	Date of Award
33	Mr. Prashurama Salunkhe 	Growth and characterization of nanostructued Nickel oxide thin films for device applications.	Dr. Dhananjaya Kekuda	02 JUN 2023
34	Ms. Ashwini U 	Synthesis and characterization of binary thermoelectric materials using solid state reaction and single crystal growth technique.	Dr. Pramoda Kumara Shetty	05 JUN 2023
35	Mr. Pawan Kumar 	Device Suitability of Tin Based Thin Films Deposited by SILAR Technique.	Dr. Gowrish Rao K	21 JUL 2023
36	Ms. Monisha M 	Dy3+ Sensitized Eu^{3+} and Sm^{3+} Co-doped Aluminoborosilicate Glass and glass Ceramics for Colour Tunable LEDs Application.	Dr. Sudha D Kamath	26 SEP 2023
37	Mr. Nagabhushan J Choudhari 	Investigation of Thermally Evaporated Kesterite Thin Films as an Absorber Layer for Solar Cells.	Dr. Raviprakash Y	04 SEP 2023
38	Mr. Jeganath Karunanithi 	Investigation on the Physical Properties of Spray Pyrolyzed Cu_2ZnSnS_4 Thin Films for Photovoltaic Application.	Dr. Raviprakash Y	25 SEP 2023
39	Mr. Prashant Bhat 	Photonic and Electronic Devices Based on Tin Doped Zinc Oxide Thin Films Grown by DC Magnetron Sputtering.	Dr. Dhananjaya Kekuda	29 SEP 2023
40	Ms. Ayana A 	Investigation of Structure and Transport Properties of La^{3+} and Nd^{3+} Doped Spray Pyrolyzed Zinc Oxide Thin Films.	Dr. B.V Rajendra	02 DEC 2023

Research Collaborations of Physics Department:



Universiti Putra Malaysia
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
Vellore Institute of Technology, Vellore
Sikkim Manipal University, Sikkim
National Institute of Technology Karnataka, Surathkal