



# DEPARTMENT OF PHYSICS

**St. Dominic's College, Kanjirappally**

Affiliated to Mahatma Gandhi University and Reaccredited with 'A Grade' by NAAC

Parathode P.O.-686 512, Kottayam Dist., Kerala, India

## NEWSLETTER 2022 - 2023



Dr. Seemon Thomas  
principal

The Department of Physics of St. Dominic's College is emerged as one of the best performing Departments of the region. It is evident from the academic programs organized by it during the last academic year. It gives opportunity to students to visit the campuses of IIT or IISc and interact with teachers and researchers working there. It also provides opportunity to the students to visit metro cities as part of their study tour in addition to industrial visit. The Department brought many leading physicists to the campus as resource persons for various academic programs. I am happy to note that the Department of Physics is always trying to give the best possible exposure to its students. I gratefully acknowledge the interest shown by the Department in the improved performance of the college. I wish the students could make benefit from the knowledge and experience they got from this Department in shaping their career.



Ms. Smitha Mathew  
Head of the Department

We have an immense pleasure in publishing the annual issue of the newsletter of the Department of Physics for the academic year 2022-2023. I am delighted to announce that the Department of Physics has successfully conducted more than 10 academic programs, ranging from national conferences, workshops and seminars to invited lectures. These programs were successfully executed with funding from prestigious agencies like BRNS, Kerala State Higher Education Council, DST-SERB, and KSCSTE, as well as with the generous support of our esteemed alumni. These programs have provided excellent opportunities for our faculty and students to engage in knowledge-sharing, creative discussions, and professional development. Five publications have been authored by our faculty, reflecting their research expertise and scientific temper. Apart from bagging top ranks in university examinations and securing placements in various companies, our students have also showcased their talents in cultural events and sports at the university and national levels. We are grateful to the college manager Rev. Fr. Varghese Parinirikkal and Principal Dr. Seemon Thomas for their sincere support in all our ventures. I would like to thank all the faculty members, non-teaching staff and students for their endless support and sincere efforts for the advancement and development of the department.

## National Conference

The department organized a National Conference on 'Emerging Trends in Material Science' (NCETMS-2022) during 06 - 07 June 2022. Prof. Reji Philip (Raman Research Institute, Bangalore), Prof. Vincent Mathew (Central University of Kerala), Dr. Lynnette Joseph (Bishop Moore College Mavelikara), Dr. Vijayakumar S Nair (VSSC Thiruvananthapuram), Dr. Arun Kumar K V (CMS College Kottayam), Dr. Ann Mary KA (St. Thomas College Thrissur), Dr. Arjun U (IISC Bangalore), Dr. P. Karuppasamy (SSN College Chennai), Dr. P. Muhammad Shafi (VIT-AP, Amaravathi) and Mr. Monu Joy (Clarkson University, USA) were the resource persons. 130 delegates including Scientists, Research scholars and Faculty members from various institutions in the country participated in the conference. There were 27 oral presentations and 16 Posters. The conference was sponsored jointly by Board of Research in Nuclear Sciences (BRNS) and Kerala State Higher Education Council.



## IIT Madras visit



The final year students visited Sophisticated Analytical Instrument Facility (SAIF) IIT Madras on 29 June 2022, as part of the industrial visit in the B.Sc Physics Curriculum. 29 students and three faculty members participated in this visit.

## Inauguration of Dr. Rosalin Abraham Memorial Lecture Series

Dr. Rosalin Abraham is former HOD of our Department. This Lecture Series is instituted by her family. Prof. (Dr.) Sabu Thomas, Honourable Vice-Chancellor of M. G University, inaugurated this lecture Series and delivered the first talk on "Circular Economy: New Opportunities in Sustainable Nanomaterials and Bio- Nanocomposites" on 26 July 2022. 230 participants including postgraduate & undergraduate students and faculty members from Chemistry, Botany and Mathematics departments of our college attended this lecture.



## Physics Forum Inauguration

Physics Forum was inaugurated by Principal Dr. Seemon Thomas on 12 August 2022. Keynote address was delivered by Mr. Shemir V Muhammed, Assistant Registrar, Civil Station Kanjirappally. He is also one of the alumni of our department.



### **Pinnacles of Indian Science**

Physics Forum organizes a poster exhibition of Indian Scientists who have worked predominantly in the upbringing of empirical research in our country. 46 posters from second- and third-year students were presented in this exhibition as part of 75<sup>th</sup> Independence celebrations “azadi ka amrit mahotsav” on 12 August 2022.



### **Seminar on Research Methodology**

The seminar commenced at 1:30 pm at the audiovisual hall of the college on 22 August 2022. Dr. Seemon Thomas delivered a very informative talk on the topic ‘research methodologies in Physics.’ He mentioned



that research methodology is a way of explaining how a researcher intends to carry out their research. He also pointed out that methodology details a researcher's approach to the research to ensure reliable, valid results that address their aims and objectives. He shared his research experiences. Following the talk there was an interaction session with the students.

### **One Day Workshop on Learning Tools for Digital natives**

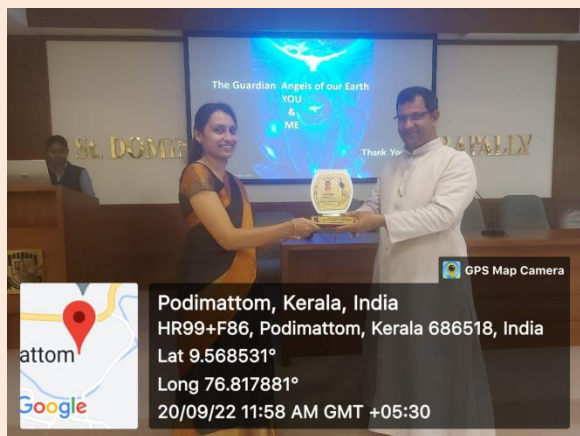
The Department of Physics organized a one-day workshop on Learning Tools for Digital natives on 30 August 2022 at St. Dominic's College Kanjirapally in Collaboration with Department of Computer Applications, Amal Jyothi Engineering College which is sponsored by Kerala State Council for Science, Technology and Environment (KSCSTE). The workshop was specifically meant for the local/regional students as well as teachers from Arts, Science and Engineering streams with a view to ensure that the students gain in-depth knowledge in Educational Apps. Out of 125 persons registered for the workshop, 58 participants were from Department of Computer Applications, Amal Jyothi Engineering College, 9 students from M.Sc Chemistry, 8 students from M.Sc Botany, 43 students from B.Sc Physics and 7 faculty members of St. Dominic's College. The workshop was formally inaugurated by Dr. Seemon Thomas, Principal, Mr. Nelson Kuriakose, HOD Physics, presided over the meeting and Rev. Fr. Dr. Manoj Joseph,

Bursar, felicitated the occasion. The Workshop had altogether four sessions.



### Ozone Day Celebrations – 2022

Ozone day Celebrations - 2022 was conducted on 20 September 2022. Dr. Merin George, Assistant Professor in Physics, Bishop Moore College Mavelikara has delivered an Invited talk on the topic” A Day for our Earth Invisible Guardian”



### Inspiron'23

The Department of Physics and English jointly organized a one-day programme for higher secondary students of Kerala on 09<sup>th</sup> January, 2023 at St. Dominic's College Kanjirappally. 70 students from various schools participated in different competitions organized as part of

the event. Elocution, Poster Making and Science Quiz competitions were conducted.



### Science Academies' Lecture workshop on 'Magnetism'



The Department of physics hosted a 2 days Lecture workshop on Magnetism for Research Scholars and teaching faculties across the Nation during 19 & 20 January 2023. The Lecture workshop was Specifically meant for National level research scholars as well as college faculty members. Out of 133 persons registered in the Lecture workshop, there were delegates from 26 Institutions who participated in this Lecture workshop. The workshop consists of 8 sessions, covered by three resource persons- Prof. Priya Mahadevan, S.N Bose National Centre for Basic Sciences, Prof. K.G Suresh, IIT Bombay and Dr. Vineeth Mohanan P, CUSAT, Kochi.

### C V Raman Lecture Series

C V Raman Lecture was conducted on 30 January 2023. Dr. Ajith Thomas, Guest Lecturer in Physics, Newman

College, Thodupuzha has delivered an Invited talk on the topic “Physics in Everyday Life”



### **KSCSTE & DST - SERB Sponsored National Workshop on ‘Density Functional Theory’**



The Department of Physics and Chemistry organized a three-day National workshop on Density Functional Theory with the financial funding from KSCSTE and DST-SERB for Research Scholars, Postgraduate students, and Teachers during 15 - 17 February 2023. The National workshop was specifically meant for National level research scholars as well as College Teachers, with a view to make a deep knowledge on Density Functional Theory. There were 49 participants and 7 resource persons. Among the 49 participants 20 are from outside Kerala, 20 from various institutions in Kerala and 9 participants are

from St. Dominic’s College, Kanjirappally. The workshop consisted of 13 sessions, covered by seven resource persons- Prof. Kalidas Sen FASc, FNA, School of Chemistry University of Hyderabad, Prof. Ayan Datta, School of Chemical Science, IACS, Kolkata, Dr. Suresh C H, FASc, Chief Scientist, CSIR-NIIST, Trivandrum, Dr. Renjith Thomas, Department of Chemistry St. Berchmans College, Changanassery, Dr. Arup Banerjee, Scientific Officer, RRCAT, Indore, Dr. Swarup Panda, Department of Physics Bennett University, Noida, Dr. Joselin Beaula. T, Department of Physics, Malankara Catholic College, Mariagiri.

### **Excursion: Hyderabad**

The Final year B. Sc Physics students went for a six days trip to Hyderabad from 01 February 2023 to 06 February 2023.



### **Science Academies’ Refresher Course on ‘General Relativity and Cosmology’**

The Department of physics hosted a two weeks refresher course on the topic “General Relativity and cosmology” for Research Scholars and teaching faculties across the nation from 15<sup>th</sup> may to 28<sup>th</sup> May of 2023. The Refresher course was specifically meant for national level research scholars as well as college faculty members. 44 delegates registered in the refresher course. The Delegates from 33 institutions participated in the course other

than St. Dominic's College, Kanjirappally. The Refresher course consists of 48 sessions, covered by five resource persons- Prof. H.S Mani (Chennai Mathematical Institute), Prof. G. Date (Chennai Mathematical Institute), Prof. Amitabh Virmani (Chennai Mathematical Institute), Prof. L. Sriramkumar, (IIT Chennai) and Prof. Dhiraj Kumar Hazra (Institute of Mathematical Sciences).



### **Student Lecture Series**

Physics Forum starts the student Lecture Series on 07 October 2022. First lecture was on the topic, 'Impact of solar activity on local climate' by the Research Scholar of Mar Thoma College, Thiruvalla, Ms. Elizabeth Thomas. There after session-II was handled by the third year B.Sc Physics student Ms. Aiswarya Pradeep on the topic 'All you need to know about PG Entrance Exam Preparations – Secrets/ Tips for Success' on 19 October 2022. Session – III was held on 25 October 2022 on the topic 'Scope of Physics in Research and its opportunities' by Dr. Jasna M, Post-Doctoral Researcher, University of Oulu, Finland. Session - IV handled by Ms. Kaya S Mony, Research Scholar, Department of Inorganic and Physical Chemistry, Indian Institute of Science, Bangalore on the topic "Molecular Spectroscopy" on 17 January 2023. Session - V handled by Mr. Aron Benny on the topic 'Raman Spectroscopy' held on the National Science Day 28 February 2023.

### **Students Achievements**

Parvathy V.S bagged the fifth rank in the M.G University B. Sc Physics Examination, 2023.

The Department secured first position in the arts festival.

Surya Biju got Gold Medal in M.G University Weightlifting Championship, December 2022.

Anusri M.S secured A - grade in Kavithaparaynam and Aksharaslogam in Mahatma Gandhi University Youth Festival.

Krishna Rajeev secured A - grade in Classical Dance and Mohiniyattam in Mahatma Gandhi University Youth Festival.

V. S Sadique and Amal Dominic Joseph placed in MRF.

Adwaita Prem has been awarded the prestigious Inspire Fellowship.

### **Faculty Achievements**

Mr. Nelson Kuriakose is the Chairman of UG Physics Board of studies of M.G University, Kottayam

Dr. Vimal G is the Board of studies member of Integrated Physics in Marian College Kuttikkanam (Autonomous College)

Dr. Jesby George was awarded Indian National Science Academy (INSA) - Visiting Scientist Programme during 2023-24.

Dr. Jesby George is an invitee of the midyear annual meet of the Indian Academy of Sciences during 7<sup>th</sup> and 8<sup>th</sup> July 2023 at the Indian Institute of Science, Bangalore.

**Other Initiatives**

Online coaching center of UV Physics Academy, Hyderabad for CSIR-NET, GATE examinations started in the College.

Prof. P.T Joseph Memorial Conference Hall Instituted with the aid of Former Faculty Prof. Philomene Joseph and the Management.

Dr. Rosalin Abraham Endowment Lecture Series Instituted with the aid of her Family.

Physics Forum initiated a Student Lecture Series Programme.

Alumni meetings of the 1965-67- and 1967-69-Pre-Degree batches were conducted.

**Duties taken up by faculty members**

| <b>Name of the Faculty</b> | <b>Responsibilities Held</b>   |
|----------------------------|--|
| Mr. Nelson Kuriakose       | *Member - Internal Examination Cell, Discipline Committee, IQAC  |
| Ms. Smitha Mathew          | *Coordinator - Slow Learners Support Programme, Inspiron'23, Dr. Rosalin Abraham Endowment Lecture   |
| Dr. Vimal G                | *Coordinator - NCETMS-2022, Dr. Rosalin Abraham Endowment Lecture<br>Managing Editor of College Online Journal 'Reflections'   |
| Dr. Jesby George           | * Convenor - NCETMS-2022<br>*Local Coordinator - Science Academies' Lecture workshop on "Magnetism" and Refresher Course on "General Relativity and Cosmology"<br>*Coordinator - Dr. Rosalin Abraham Endowment Lecture, National workshop on Density Functional Theory, Two Days Intensive Coaching on CUET UG General Studies<br>*Physics Forum Teacher In-charge |

**List of Journal Publications**

|             |   |
|-------------|---|
| Dr. Vimal G | SPR coupled luminescence enhancement of Er <sup>3+</sup> /Au NPs -doped multicomponent tellurite glasses, M.S. Sajna, M.S. Sanu, <b>G. Vimal</b> , V.P. Prakashan, P.R. Biju, Cyriac Joseph, V.P. Mahadevan Pillai, N.V. Unnikrishnan, <b>Optical Materials</b> |
| Dr. Vimal G | Plasmonic Catalysis for Energy Conversion-An Overview and Recent Trends, M. S. Sajna, <b>G. Vimal</b> , Kishor Kumar Sadasivuni, <b>Topics in Catalysis</b>   |
|             | Synthesis, structure, NBO, Hirshfeld surface, NMR, HOMO-LUMO, UV, photoluminescence, z - scan, vibrational and thermal analysis of  |

|                  |  |
|------------------|--|
| Dr. Jesby George | piperazinedi-ium tetrakis ( $\mu$ 2-chloro)-diaqua-dichloro-di-cadmium single crystal, Nimmy L. John, Sunila Abraham, <b>Jesby George</b> , P. Karuppasamy, M. Senthilpandian, P. Ramasamy, G. Vinitha, <b>Journal of Molecular Structure</b> Volume:1258 15 June 2022, 132685   |
| Dr. Jesby George | Growth, Quantum Chemical Computations, NLO and Spectroscopic Studies of 2-Amino 5-Chloro Pyridine Single Crystal in Comparison with Certain Aminopyridine Derivatives Nimmy L. John a, Sunila Abraham, <b>Jesby George</b> , P. Aswathy, V. Sivasubramani, <b>Journal of Molecular Structure</b> Volume:1272, 15 January 2023, 134120.                                 |
| Dr. Jesby George | Bioactive Small Molecule, Piperazinium Bis (4-Hydroxybenzenesulphonate) upon Spectral Investigation, Hirshfeld Surface Analysis, Molecular Docking and ADMET Prediction: A Complement DFT Calculations <b>Polycyclic Aromatic Compounds</b> C. Dabora Vincy, <b>Jesby George</b> , J. D. Deephlin Tarika, S. Balachandar, N. K. Shihab, T. Joselin Beaula 29 Nov 2022. |