

ANNUAL REPORT OF THE DEPARTMENT OF PHYSICS 2015-16

The Department of Physics known for its prolific academic and research activities has had an accomplishing academic year. The Loyola Physics Association (LPA) as always brought forth several laudable feats for the Department during this academic year. The LPA kick-started its activities for the year 2015-16 with Dr. J. Merline Shyla and Mr. B. Shanmugapriyan continuing as the President and Vice-President respectively for a second year along with a brand new team of student office bearers Ms. Alinda Shaly (Secretary), Mr. Muthukrishnan (Joint Secretary), Mr. Sibi (Associate Secretary), Mr. Anto Martin Pradeep, Mr. Mark Antony Mckenzie (Cultural Secretaries) and Mr. Sam Kester and Mr. Shiva Shankar (Sports Secretaries). The LPA witnessed a grand inauguration of its activities on 23rd July 2015 by a very eminent and renowned Scientist Dr. T. Iyamperumal, Director, Periyar Institute of Science and Technology, Chennai.

The LPA organized Guest and Endowed lectures:

S. No.	Guest Speaker	Topic	Date
1.	Mr. C.S. Venkateswaran Asst. Engr., R&D, TANGEDCO, Chennai	Alternate Energy – Non- conventional Energy Sources	22/08/2015
2.	Dr. T. Premkumar Senior Principal Scientist, CECRI, Karaikudi.	A ringside view of Lithium Batteries	25/02/2016
3.	Dr. S. Ganesamoorthy, Scientific Officer – F, MSG, IGCAR, Kalpakkam	Crystal Growth from Melt	27/02/2016

Awards and Honors:

- Ten research scholars have obtained their Ph.D. degree during this academic year.
- Mr. Tenzin Tenkyong (13 DPH 11), a Research Scholar of the Department and a Tibetan National, pursuing PhD under the guidance of Dr. Merline Shyla was selected by the UGC for the Award of Junior Research Fellowship to Foreign Nationals for the years 2014-16 for his research proposal on an advanced area of Nanotechnology. He is the first Tibetan, first Loyolite ever and the only Physics candidate to have been chosen for this prestigious honour.
- Ms. V. Chandrakala (13 DPH 10) a Research Scholar also from the same unit won the Best Research Paper Award for her Oral presentation during the National

Conference on Advances in Applied Physics and Materials Science held in Hindustan University from 29-30th January 2016.

- Ms. S. Sharon Tamil Selvi (14 DPH 03) a Research Scholar doing PhD under the guidance of Dr. S. Jerome Das, received the Best Paper Award in the International Conference on Recent Advances in Applied Sciences held in St. Peter's University from 11-13th Feb 2016.
- Mr. J. Prince (10 DPH 12), yet another research scholar of Dr. S. Jerome Das, received the Best Paper Award for his Poster Presentation in the International Conference on Recent Trends in Materials Science and Applications held in Jamal Mohammed College, Trichy on Feb 29th 2016.
- Our UG students Mr. Vishal Dadhich (13 PH 201), Mr. Swaminathan (13 PH 255), Mr. U.S. Sibi (13 PH 233), Mr. Hari Krishnan (13 PH 215), Mr. Dhruva Manur (13 PH 221) and Mr. Koushik (13 PH 211) were selected for the UG Research Project Award for UG students by the College.
- Our students won the overall championships in Intercollegiate Events conducted by Stella Maris College - Illuminations '15, Madras Christian College - Spectra '16 and Women's Christian College - HI-Φ '16 Envisage.
- Our outgoing PG students made us proud by winning the first place with a cash prize of Rs.6000, in the Zone -2 competitions of the **DAE Diamond Jubilee Celebrations, State level inter-collegiate Quiz competition '15** held at Stella Maris College on the 21st of July, 2015. They also secured the third position with a cash prize of Rs.3000, in the finals, conducted at IGCAR Kalpakkam, on the 22nd of July, 2015.
- Intra-departmental competitions were held on the 29th February 2016 and Prof. Paneerselvam Award was bagged by the overall winners - III B.Sc. Physics (Shift-I) students.

Ongoing Projects

The Department is at present implementing 7 Research Projects (6 Major and 1 Minor) to the tune of about Rs. 1.78 crores.

Dr. P. Sagayaraj

Title of the project	Amount sanctioned (in Rupees)	Period of Project	Funding agency
Development of Functionalized Titania Nanotubes based Hydrogen Sensor for Nuclear Applications	7,60,200	Three years(April 2014-March 2017)	UGC-DAE CSR

Development of highly efficient nonlinear optical and environmentally stable organic crystals of DSCHS, DAAS and DASC for terahertz applications	30, 27, 228	Three years(October 2014-November 2017)	DST-SERB
Investigation on Novel IONTs/CNTs 1D Hybrid Anode Material for Achieving Superior Performance Li-ion Batteries	45,81,300	Three years(December 2014- January 2018)	LC-TOI

Dr. S. Jerome Das

Title of the project and duration	Amount sanctioned (in Rupees)	Funding Agency
Synthesis, Growth and Characterization of Thiosemicarbazide (TSC) family of crystals for photonic device applications	32,02,300/-	Loyola College – Times of India Research Grants
Synthesis and characterization of Titanium dioxide (TiO₂) nanoparticles for energy applications	16,68,000/-	Department of Science and Technology (DST), Government of India – Awarded to Mrs. Sheeba Cherian to undertake research under Dr. Jerome Das under the WOS-A Scheme for a period of 3 years.

Dr. J. Madhavan and Dr. J. Merline Shyla

Title of the project and duration	Amount sanctioned (in Rupees)	Funding Agency
Plasmonic Enhancement of Dye-Sensitized Solar Cells with Metal-Oxide encapsulated Nanoparticles Three years (Nov 2014 – Oct 2017)	43,61,086/-	Loyola College – Times of India Research Grants

Dr. J. Mary Linet

Title Of The Project	Amount sanctioned (in Rupees)	Agency
“Synthesis and Characterization of PbS Quantum Dots With CdS Using Hydrothermal Technique For Solar Cells Application”	2,70,000	UGC FUNDED MINOR RESEARCH PROJECT

Achievements of Staff:

- Dr. P. Sagayaraj was elected as a Fellow of the Tamilnadu Academy of Sciences.
- Dr. J. Merline Shyla was recognized as Reviewer by International Journals of repute such as RSC Advances (RSC) and Advanced Powder Technology (Elsevier) and the Science and Engineering Research Board (SERB), DST, Government of India.
- Dr. M. Victor Antony Raj was recognized as a Research Supervisor for PhD degree by the University of Madras.
- Dr. P. Sagayaraj, Dr. Joe Jesudurai, Dr. S. Jerome Das and Mr. Joseph Prabakar have served as resource persons in conferences/seminars/workshops.

Highlights:

- The 3rd Edition of the Newsletter of the Department, PHOTIOS was released on the 3rd March 2016 during the valedictory of LPA. The Editorial team comprised of Dr. J. Merline Shyla (Editor-in-Chief), Mr. Ahmad Mubarak, Mr. Harikrishnan Sundaresan and Mr. A. Swaminathan (Associate Editors) along with a team of committed Editorial board members.
- The mega intercollegiate event PHYSICA 2015 which is the major attraction of the LPA turned out to be a splendid success. Physica which was held on the 22nd of August 2015 was inaugurated by Mr. C.S. Venkateswaran, Assistant Engineer, Research and

Development in TANGEDCO. About 50 participants from 7 city colleges participated and Stella Maris College lifted the Overall Championship Trophy and also created a record by winning the Trophy for Quiz for the 4th consecutive time alongwith a cash prize of Rs.1000/-.

- A total of 66 research articles in peer reviewed International and National journals were published during the current academic year. There were 39 paper presentations from the Department in International and in National conferences during this academic year.
- 9 of our Staff Members attended Orientation/Refresher/Workshops.

Educational Outreach:

- The Department organized a Refresher Course on Quantum Mechanics jointly funded by the Indian Academy of Sciences and Indian National Science Academy from 11th to 23rd of May 2015. Prof. H.S. Mani, Adjunct Professor, Chennai Mathematical Institute (CMI) was the Course Director and Mr. Joseph Prabakar of our Department served as the Course Coordinator.
- The Department hosted a two-day workshop on Robotics and the Zonal Round of National Robotic Championship in collaboration with Amalgam IIT-M and ARK Technosolutions on 22nd and 23rd of September 2015 with Dr. J. Merline Shyla and Mr. B. Shanmugapriyan as Chief Faculty Coordinators.

The activities of the LPA culminated on the 3rd March 2016 with the Valedictory Ceremony which was presided over by Dr. N. Godhantaraman, Deputy Director, UGC-HRDC, University of Madras.