

LOYOLA PHYSICS ASSOCIATION

ANNUAL REPORT 2014-15

The Department of Physics has a tradition of being one of the most scientifically outstanding and productive departments of Loyola College. The Loyola Physics Association is a Professional association explicitly designed for students. The LPA is essentially a self-governing association created to serve the interests of physics undergraduate and postgraduate students. Dr. J. Merline Shyla took charge as the President and Mr. Shanmugapriyan the Vice-President of the LPA this academic year for a term of two years. The activities of the LPA for the academic year 2014-15 was inaugurated by Dr. S. Balakumar, Professor and Director, National Centre for Nanoscience and Nanotechnology (NCNSNT), University of Madras, Chennai on 21/07/2015. The following students were nominated as office bearers of the LPA 2014-15.

S. No.	Name	Designation
1.	FURUNAL	Secretary
2.	VIGNESH	Joint Secretary
3.	KULANDAIVEL	Associate Secretary
4.	RICHIE RICHARDSON	Cultural Secretary (Shift-I)
5.	RENIL MATHEW	Cultural Secretary (Shift-II)
6.	ANKUSH	Sports Secretary (Shift-I)
7.	MARUTHACHALAM	Sports Secretary (Shift-II)

The LPA organized Guest and Endowed lectures:

S. No.	Guest Speaker	Topic	Date
1.	Dr. V. Ganesan, Centre Director, UGC-DAE, CSR, Indore	An overview of the facilities at UGC-DAE, CSR Indore	04/07/2014
2.	Dr. S. Balakumar, Director, NCNSNT, University of Madras, Chennai	The power of small – Nanophenomena	21/07/2014
3.	Dr. C. Justin Raj, Donguk University, South Korea	Nanomaterials for Energy Applications	15/09/2014
4.	Dr. Arul Thalopathy, Head, Department of Physics, Nandanam Arts College	Role of youngsters in promoting quality research in Physics	12/12/2014
5.	Dr. Emmanuel Haqq, University of Massachusetts, USA	Cosmic Design	13/02/2015
6.	Dr. S. Gunasekaran, Dean R&D, St. Peter's University, Chennai (2 nd Dr. P. Sagayaraj Endowment Lecture)	ATR Technique – A Fortune to FTIR Spectroscopy for Materials Characterization	18/02/2015
7.	Dr. S. Lakshmi Natarajan, Adjunct Professor in Physics, University of Mumbai	Probing Relativistic and Quantum Electrodynamics Effects through experiments on Few-electron ions	02/03/2015
8.	Dr. Bhagavannarayana, Chief	Renewable Energy Generation and Energy	11/03/2015

	Scientist, CSIR-NPL, New Delhi	Conservation	
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Awards and Honors:

- Ten research scholars have obtained their Ph.D. degree during this academic year.
- Our students got the overall championships conducted by Stella Maris College Intercollegiate Event -Electra '15, Madras Christian College Intercollegiate Event-Spectra '15, University of Madras Intercollegiate Event-PIX '15, National Institute of Technology (NIT) Intercollegiate Event - INPHYNIT-T, SDNB Vaishnav College Intercollegiate Event -VAISH PHYZ '15 and Women's Christian College Intercollegiate Event HI-Φ '15.
- Mr. Karthick Raja (III UG – Shift I) won 1 gold, 2 Silver and 2 Bronze medals in the 3rd World Silambam Championship.
- Two of our UG students Mr. Vipin Das and Mr. Aakash were star performers who represented the Department in various Inter-Collegiate Events across the State and brought laurels to us.
- Ms. Marie Rose Jesina Delavictoire, a Research Scholar of the Department working under the guidance of Dr. P. Sagayaraj, was awarded the Best Innovative Research Award at the 3rd Int Conf on Nanoscience and Nanotechnology held at SRM University. She had the privilege of receiving the award from the inventor of CNTs Prof. Sumio Iijima himself.
- Crib and carol competitions were held for the Students of the Department on the 13th December 2014 on the occasion of Christmas celebrations of the Department. Our II UG students stood first in the crib making and the II PG bagged the cash prize for the Carol competitions.

- Intra-departmental competitions were held on the 28th of February 2015 and Prof. Paneerselvam Award was given to the overall winners for the very first time. It was bagged by the II B.Sc. Physics (Shift-I) students.

Projects undertaken

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. 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)	Rs. 43,61,086/-	Loyola College – Times of India Research Grants

Dr. S. Jerome Das and Dr. J. Mary Linet

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	Rs. 32,02,300/-	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. J. Madhavan is Nominated by the Management Council of CLRI as a member of the Assessment Committees for the assessment of Gr III(3) & above staff Member to the next higher grade.
- Dr. J. Merline Shyla was elected as Treasurer of the Loyola College Teaching Staff Association (LCTSA) for the academic years 2014-16. She was appointed faculty advisor of the Loyola Prolife Forum for the academic year 2014-15. She is also the member of the Grievance Committee of Loyola-ICAM College of Engineering and Technology (LICET) for the academic year 2014-15. She continues as Board of Studies member in Physics at the Theivanai College for Women, Villupuram and is also a senior member of the Research Team of Loyola Institute of Frontier Energy (LIFE), Loyola College.
- Dr. P. Sagayaraj, Dr.J. Madhavan, Dr.J. Merline Shyla and Dr. S. Jerome Das have served as a resource person in various conferences, seminars and workshops.
- Dr. J. Madhavan and Dr. S. Jerome Das have been external examiners for Ph.D. viva voce examinations.

Highlights:

- The first ever Newsletter of the Department, PHOTIOS was launched on the 12th of December 2014 and the 2nd edition is to be released on 11th March 2015. The Editorial team comprises of Dr. J. Merline Shyla (Editor-in-Chief), Mr. Nithin Allwayin and Mr. Vignesh (Associate Editors) along with a team of committed Editorial board members.

- Science Academic's lecture workshop on Classical Mechanics was held from December 4th to 6th 2014. The workshop was convened by renowned Indian Theoretical Physicist Prof. V. Balakrishnan.
- LPA successfully hosted the mega intercollegiate event of the Department – PHYSICA '15 on 12th December 2014. There were about 50 participants from 7 city colleges. Ethiraj College lifted the Overall Championship and Stella Maris College won the First prize in Quiz for the 3rd consecutive time.
- A total of 65 research articles in peer reviewed International and National journals were published during the current academic year. Twenty Two papers were presented in International and in National conferences.

Educational Outreach:

- Students of our Department are participated in the Chennai Science Festival to be held from 26th February 2015 to 01st March 2015 organized by Science City in Queen Mary's College and put-up two Exhibition Stalls on behalf of the Department, on the theme "Sci-PHY: Explore the World of Physics". They demonstrated several physics principles through simple and interesting experiments which were well appreciated by school students, the public and the organizers themselves. The indigenously constructed TESLA COIL by our students was a big hit among the audience and turned out to be a real crowd puller.

- Refresher course on Quantum Mechanics is to be held at Post – Graduate and Research Department of Physics, Loyola College during 11-23 May 2015 sponsored by IISc Bangalore, INSA New Delhi and NASI Allahabad.

The activities of the LPA culminated on the 11th of March 2015 during the Valedictory Ceremony wherein Prof. Dr. G. Bhagavannarayana, Chief Scientist, CSIR-NPL, New Delhi was the Chief Guest and Prof. A. Paneerselavam, Former Professor and Prof. S. Ravichandran, Former Head of the Department were the Guests of Honour.