



ST. MARY'S COLLEGE (Autonomous)

Re-accredited with 'A+' by NAAC (4th Cycle)

Thoothukudi- 628001, Tamil Nadu

Department of Physics (SSC)

Message from the Co-Ordinator

Gratitude is a powerful force that shapes our mindset and fosters positivity in our lives. It reminds us to focus on the good, even in challenging times, and to value the contributions of those around us.

When we express gratitude, we create a ripple effect—it uplifts those we thank and inspires others to do the same. A simple "thank you" can strengthen relationships, boost morale, and build a culture of mutual respect and appreciation.

Let us take a moment to reflect on the opportunities we have, the lessons we've learned, and the people who support us every day. Gratitude is not just about what we say but how we live. It encourages us to approach our work and relationships with humility, kindness, and an open heart.

I encourage each of you to actively practice gratitude in your daily lives. Acknowledge the efforts of a colleague, appreciate the small victories, and take pride in the journey we are all part of. Together, let us create an environment where gratitude fuels growth and connection.

With Gratitude

Ms. P. Padmavathi

EDITORIAL TEAM

Ms. P.Padmavathi ,
M.Sc.,M.Phil.,SET.,B.A (Hindi),
Co-Ordinator & Assistant
Professor

Dr. A. Nirmala Shirley,
M.Sc.,B.Ed.,M.Phil.,PhD.,
B.A(Hindi)

Assistant Professor,

Ms. S. Saravana Selvi,M.Sc.,
(SET); B.Ed

Assistant Professor

Ms. Y. Sasikala., M.Sc.,(SET)

Assistant Professor



Activities of the Association

The Department of Physics successfully conducted an engaging association meeting, bringing together students, faculty, and guest speakers to explore recent advancements in the field. The session featured thought-provoking discussions, interactive activities, and knowledge-sharing opportunities. It fostered a collaborative environment, inspiring participants to deepen their passion for physics and research.

On 27th August 2022, an Association Meeting on the topic "Road Map to Research" was organized, with Dr. A. Murugeswari, Assistant Professor, serving as the resource person. The event saw enthusiastic participation from approximately 176 students.



On 19.10.2022 a Quiz competition "PHYSCOM 2022" was organized by the department of Physics for the higher secondary school students from various schools in and around Thoothukudi. 15 schools/ teams participated and won the prizes

A One Day Lecture cum Workshop was conducted on 30.01.2023 by the Department of Physics on the topic "Cost Effective Methods for Thin Film Preparation and Dr. M. Karunakaran was the resource person around 68 students attended the workshop and was benefited.



A Lecture cum Hands on Training on the topic, “Learn to engineer the growth of crystalline and nanoscale materials” Dr. P. Rajesh, Assistant Professor in Physics, SSN College of Engineering, Chennai graced the session. Around 100 students attended the training.



MOU ACTIVITY

On 04-03-2023,” Emerging trends in power electronics applications” students exchange programme was jointly organized by Nehru Institute of Engineering and Technology, Coimbatore & PG Department of Physics. Dr.. Kannan, Head & Associate Professor, Department of Electrical and Electronics Engineering, Nehru Institute of Engineering and Technology, Coimbatore was the resource person. Nearly 2 staff members and 11 students were the beneficiaries.

Lab Activities

The students actively participated in a series of engaging 42 lab activities designed to enhance their understanding of core concepts and practical skills. They attended hands-on sessions that involved conducting experiments, analyzing data, and applying theoretical knowledge to real-world scenarios. From working with advanced laboratory equipment to collaborating in teams to solve complex problems, the activities encouraged critical thinking and innovation. These sessions provided valuable opportunities for students to deepen their subject comprehension, develop technical expertise, and foster a collaborative spirit. Their consistent enthusiasm and dedication were evident throughout each activity, contributing to a dynamic and productive learning environment.

MENTOR- MENTEE SYSTEM

The students actively engaged in the mentor-mentee system, a structured program designed to foster guidance, support, and personal growth. Through regular interactions, mentors provided valuable insights, academic advice, and career guidance tailored to the mentees' individual needs and aspirations. These sessions created a platform for open communication, enabling students to address challenges, set goals, and build confidence. The program also encouraged the development of strong interpersonal connections, as mentors shared their experiences and mentees actively participated in discussions and activities. This system not only strengthened their academic journey but also nurtured a sense of community and mutual learning.

Semester	Dates
ODD	9.9.22
	16.9.22
	23.9.22
	7.10.22
EVEN	06.01.23
	27.1.23
	3.2.23

ALUMNAE MEET

The alumni meet was a vibrant and nostalgic gathering, bringing together former students from various batches to reconnect with their alma mater. The event was held on 11.03.2023 and served as a platform for alumni to share their professional journeys, experiences, and achievements, inspiring the current students and faculty alike. It was a joyous occasion filled with engaging speeches, cultural performances, and networking opportunities. The alumni reminisced about their time on campus, revisiting cherished memories while expressing gratitude for the foundation the institution provided. The meet reinforced the bond between the alumni and the institution, fostering a sense of pride, belonging, and continued collaboration for future growth and success.

PTA

The Parent-Teacher Association (PTA) meeting was held on 13.02.2023 and 17.09.2022 it was a constructive and collaborative session aimed at fostering strong communication between parents and the institution. Parents had the opportunity to interact with teachers, gaining insights into their child's academic progress, co-curricular involvement, and overall development. Teachers shared detailed feedback, highlighted strengths, and suggested areas for improvement, ensuring a comprehensive understanding of each student's growth. The meeting also served as a platform for discussing institutional updates, upcoming events, and initiatives aimed at enhancing the learning environment. Parents actively contributed their perspectives, fostering a sense of partnership and mutual commitment to the students' success.

BOARD OF STUDIES

The Board of Studies meeting was held on 19.4.2023 and 4 external experts attended the meeting namely Dr. R. Mary Mathelane, Dr. P. Selvarajan, Dr. Karagavalli, Mr. F. Franko Vaz and the department has successfully implemented the Choice-Based Credit System (CBCS)

EDUCATIONAL TOUR/IV

- On 10-11-2022, "Field visit to Tuticorin Airport" organized by PG Department of Physics. Dr. Mr. Kannan, Fire Service, Tuticorin Airport was the resource person. Nearly 21 UG & PG students and 3 staff members have benefited from it.
- 52 students have participated in the educational tour to "Vikram Sarabhai Space Museum" on 30.9.2022 gaining valuable insights into networking opportunities, and practical experience.



STAFF ACTIVITIES

DR. A. NIRMALA SHIRLEY

Date	Paper Presented/ Participated	Title of the Paper	Title of Workshop/ Seminar/ FDP/ Conferences	Organized By	Type
25.02.23	Participated	-	Advanced Materials for Fifth Generation (5G) Wireless Communication Technology	Center for Research and Education in Social Integration and HR Development and Indian Ceramic Society , Hyderabad Chapter	International Webinar
08.02.23	Participated	-	Mental Health Through CyberSecurity and Safe Social Media	Department of Psychology, Mary's College (Autonomous), Thoothukudi	Webinar
07.02.23	Participated	-	Keys to Publish in High Impact Journals	Marian Research Forum, St. Mary's College (Autonomous), Thoothukudi	International Webinar
19.11.22	Participated	-	Patent Filling Process in India	Department of Computer Science (UG & PG), St. Mary's College (Autonomous), Thoothukudi	Webinar
06.09.22	Participated	-	Shikshak Parv- NEP 2020: Changing Role of Teachers	UGC, MHRD & Jawaharlal Nehru University, New Delhi	Online National Workshop

Date	Paper Presented/ Participated	Title of the Paper	Title of Workshop/ Seminar/ FDP/ Conferences	Organized By	Type
24.03.2023 to 04.04.2023	Participated	-	II international FDP on Advanced Materials for Technological Applications	Sathyabama Institute of Science and Technology	FDP
10.11.2022 to 11.11.2022	Presented	Green synthesis and characterization of Zinc oxide using carica papaya leaf extract	3 rd International conference on Material and Devices (NCMD 2022)	Department of Physics, Faculty of Engineering, Teerthankaer Mahaveer University	Online National conference
10.11.2022 to 11.11.2022	Presented	Investigation of Excess Thermo-Acoustic behaviour of Binary liquid mixture with various temperature using Ultrasonic Technique	3 rd International conference on Material and Devices (NCMD 2022)	Department of Physics, Faculty of Engineering, Teerthankaer Mahaveer University	Online National conference

S. SARAVANA SELVI

Date	Paper Presented/ Participated	Title of the Paper	Title of Workshop/ Seminar/ FDP/ Conferences	Organized By	Type
13.02.2023 to 15.02.2023	Participated	-	Molecular Modeling and Dynamics	Department of Physics, St. Mary's College(Autonomous), Thoothukudi	FDP

S. IRUDAYA SAHAYA LANCY

Date	Paper Presented/ Participated	Title of the Paper	Title of Workshop/ Seminar/ FDP/ Conferences	Organized By	Type
13.02.2023 to 15.02.2023	Participated	-	Molecular Modeling and Dynamics	Department of Physics, St. Mary's College(Autonomous), Thoothukudi	FDP

COMPLETED MAJOR / MINOR RESEARCH PROJECT

Name of the Faculty	Department	Amount Approved (Rs)	Amount Received (Rs)	Student Name	Name of the Funding Agency	Year
P.Padmavathi	Physics	7500	7500	K.Arockia Punitha	TNSCST	2023

Title: Enhanced Electrical Properties of Green Synthesized TiO₂ and ZnO compact layer on Perovskite Solar cells

JOURNAL PUBLICATION

Name of the staff / scholar	Name of the Guide	Department	Title of the Paper	ISSN Number	Journal Name, Vol., Issue, page no., doi,	Scopus/ WOS/UGC Care Indexed/ Non Indexed/ ISBN Proceedings
Dr. Nirmala Shirley	A.	Physics	Studies of ZnS thin Films Synthesized by Nebulizer Spray Pyrolysis Technique for Solar Cell Applications	0094-243X (print), 1551-7616(web)	AIP Conference Proceedings, Vol. 2446, Issue-1, 130012 (1-4), https://doi.org/10.1063/5.0109318	Scopus
Dr. Nirmala Shirley	A.	Physics	Analytical Study of deposition of TiO ₂ and SiO multilayers for blue color display	0094-243X (Print), 1551-7616 (web)	AIP Conference Proceedings, Vol. 2446, Issue-1, 130011 (1-5), https://doi.org/10.1063/5.0108985	Scopus
Dr. Nirmala Shirley	A.	Physics	Automatic Windshield Wiper Using Servomotor and Embedded Microcontroller	2249 – 7145	Marian Quest, Vol.12	Non Indexed
Dr. Nirmala Shirley	A.	Physics	Structural and Morphological Characterization of Zinc Selenide Thin Film by SILAR Method	2249 – 7145	Marian Quest, Vol.12	Non Indexed
P.Padmavathi		Physics	Study of acoustical parameters of bioactive compound with benzyl propionate using ultrasonic technique	0094-243X (Print), 1551-7616 (web)	AIP Conference Proceedings	Scopus
P.Padmavathi		Physics	Extortion, anti-bacterial, spectral, band gap and ultrasonic factors of herbal cough syrup and content comparison with commercial samples	0094-243X (Print), 1551-7616 (web)	AIP Conference Proceedings	Scopus
P.Padmavathi		Physics	Opto electronic filter effectiveness by influx of macro, thin film and nano scalings stress analysis of trapezoidal and spiral coated	0094-243X (Print), 1551-7616 (web)	AIP Conference Proceedings	Scopus

			device characterizations of Eu ²⁺ doped barium hexafluorosilicate (BaSiF ₆ :Eu ²⁺) phosphors			
P.Padmavathi		Physics	Vicker's hardness, elastic stiffness, fracture toughness, hardness in mohs scale, young's modulus and yield strength measurement of BaSiF ₆ :Eu ²⁺ phosphors	0094-243X (Print), 1551-7616 (web)	AIP Conference Proceedings	Scopus
P.Padmavathi		Physics	Physico-Chemical Characterization of Ethyl Propionate with Butanol at Different Temperatures Using Ultrasonic Technique	1022-1360(print) 1521-3900 (online)	Macromolecular symposia, 407, 2200004 (1 of 5) DOI: 10.1002/masy.2022 00004	Scopus
P.Padmavathi		Physics	An Investigation in the Binary Mixture of <i>N</i> -Butyl Acetate with CCl ₄ using Ultrasonic Techniques	1022-1360(print) 1521-3900 (online)	Macromolecular symposia, 407, 2200001 (1 of 5), DOI: 10.1002/masy.2022 00001	Scopus
P.Padmavathi		Physics	Thermo Acoustical Analysis of Nickel Sulfamate with DMSO at Varying Temperatures Using Ultrasonic Techniques	1022-1360(print) 1521-3900 (online)	Macromolecular symposia, 407, 2200003 (1 of 5), DOI: 10.1002/masy.2022 00003	Scopus
P.Padmavathi		Physics	Synthesis of Novel CuO–Gelatin Nanofluids Using Ultrasonic Technique	1022-1360(print) 1521-3900 (online)	Macromolecular symposia, 407, 2200007 (1 of 4), DOI: 10.1002/masy.2022 00007	Scopus
P.Padmavathi		Physics	Pseudo-Gruneisen Parameters for Binary Liquid Mixtures at Different Temperature	1022-1360(print) 1521-3900 (online)	Macromolecular symposia, 407, 2200009 (1 of 5), DOI: 10.1002/masy.2022 00009	Scopus
P.Padmavathi		Physics	Evaluation of Sound Velocity and Molar Refraction in Binary Liquid Mixtures through Ultrasonic Measurement	1022-1360(print) 1521-3900 (online)	Macromolecular symposia, 407, 2200006 (1 of 4), DOI: 10.1002/masy.2022 00006	Scopus
S. Irudaya Sahaya Lancy		Physics	Physico-Chemical Characterization of Ethyl Propionate with Butanol at Different Temperatures Using Ultrasonic Technique		Macromolecular symposia, 407, 2200004 (1 of 5) DOI: 10.1002/masy.2022 00004	Scopus
S. Irudaya Sahaya Lancy		Physics	An Investigation in the Binary Mixture of <i>N</i> -Butyl Acetate with CCl ₄ using Ultrasonic Techniques	1022-1360(print) 1521-3900 (online)	Macromolecular symposia, 407, 2200001 (1 of 5), DOI: 10.1002/masy.2022 00001	Scopus
S. Irudaya Sahaya Lancy		Physics	Thermo Acoustical Analysis of Nickel Sulfamate with DMSO at Varying Temperatures Using Ultrasonic Techniques	1022-1360(print) 1521-3900 (online)	Macromolecular symposia, 407, 2200003 (1 of 5), DOI: 10.1002/masy.2022 00003	Scopus
S. Irudaya Sahaya Lancy		Physics	Synthesis of Novel CuO–Gelatin Nanofluids Using Ultrasonic Technique	1022-1360(print) 1521-3900 (online)	Macromolecular symposia, 407, 2200007 (1 of 4), DOI: 10.1002/masy.2022 00007	Scopus

S. Irudaya Sahaya Lancy		Physics	Pseudo-Gruneisen Parameters for Binary Liquid Mixtures at Different Temperature	1022-1360(print) 1521-3900 (online)	Macromolecular symposia, 407, 2200009 (1 of 5), DOI: 10.1002/masy.2022 00009	Scopus
S. Irudaya Sahaya Lancy		Physics	Evaluation of Sound Velocity and Molar Refraction in Binary Liquid Mixtures through Ultrasonic Measurement	1022-1360(print) 1521-3900 (online)	Macromolecular symposia, 407, 2200006 (1 of 4), DOI: 10.1002/masy.2022 00006	Scopus
S. Irudaya Sahaya Lancy			An Investigative Analysis On Molecular Interactions Of The Binary Mixture Of N-Propyl Acetatewithcl4 Using Ultrasonic Techniques	1303 5150	20, 3500-3507 DOI: 10.14704/NQ.2022 .20.11.NQ66356	Scopus
S. Irudaya Sahaya Lancy		Physics	Study of acoustical parameters of bioactive compound with benzyl propionate using ultrasonic technique	0094-243X (Print), 1551-7616 (web)	AIP Conference Proceedings	Scopus

STUDENTS ACTIVITIES

PROJECTS

6 students from II PG have completed 6 projects, demonstrating their research work and problem solving skills. Students undertook a range of innovative projects, and applying theoretical knowledge to practical scenarios.

PASS PERCENTAGE

Achieving a 100% pass percentage is a remarkable milestone that reflects the unwavering dedication of both students and staff. This outstanding accomplishment is a testament to the hard work, perseverance, and commitment of the students, who have shown exceptional focus and determination throughout their journey. Equally, it highlights the tireless efforts and guidance of the staff, whose passion for teaching and mentoring has been instrumental in fostering a supportive and inspiring learning environment. Together, their collaborative spirit and shared pursuit of excellence have brought this extraordinary success, setting a shining example of what can be achieved through teamwork and determination. Congratulations to everyone involved in this remarkable achievement!

PAPER PRESENTED

Name	Department	Workshop/ Seminar/ Training/ FDP/ Journal	Paper Presented/ Participated	Title	Organised By	Date
J. Mahalakshmi	II M.Sc Physics	Conference on Research Publication: An integrative and Dynamic approach	Presented	Synthesis and Characterisation of Graphene Oxide nanoparticles by Modified Hummer's Method	Marian Research forum, St. mary's College, Thoothukudi	19.04.2023
K.Arockia Punitha	II M.Sc Physics	Conference on Research Publication: An integrative and Dynamic approach	Presented	Synthesis and Characterization of single and bilayer TiO ₂ and ZnO Thin Film	Marian Research forum, St. mary's College, Thoothukudi	19.04.2023
M. Mohammed Shifana	II M.Sc Physics	Conference on Research Publication: An integrative and Dynamic approach	Presented	Effect of deposition cycles of As-deposited ZnO thin films preparation by Silar Methgod	Marian Research forum, St. mary's College, Thoothukudi	19.04.2023
R. Anjutha	II M.Sc Physics	Conference on Research Publication: An integrative and Dynamic approach	Presented	Bio synthesis of Silveroxide nano particles for Bio- medical Applications	Marian Research forum, St. mary's College, Thoothukudi	19.04.2023
Name	Department	Workshop/ Seminar/ Training/ FDP/ Journal	Paper Presented/ Participated	Title	Organised By	Date

J. Mahalakshmi	II M.Sc Physics	Conference on Research Publication: An integrative and Dynamic approach	Presented	Synthesis and Characterisation of Graphene Oxide nanoparticles by Modified Hummer's Method	Marian Research forum, St. mary's College, Thoothukudi	19.04.2023
K.Arockia Punitha	II M.Sc Physics	Conference on Research Publication: An integrative and Dynamic approach	Presented	Synthesis and Characterization of single and bilayer TiO ₂ and ZnO Thin Film	Marian Research forum, St. mary's College, Thoothukudi	19.04.2023
M. Mohammed Shifana	II M.Sc Physics	Conference on Research Publication: An integrative and Dynamic approach	Presented	Effect of deposition cycles of As-deposited ZnO thin films preparation by Silar Methgod	Marian Research forum, St. mary's College, Thoothukudi	19.04.2023
R. Anjutha	II M.Sc Physics	Conference on Research Publication: An integrative and Dynamic approach	Presented	Bio synthesis of Silveroxide nano particles for Bio-medical Applications	Marian Research forum, St. mary's College, Thoothukudi	19.04.2023

MOOC ACTIVITIES

NAME OF THE PAPER: Solid State Physics

SUBJECT CODE: noc22_ph37

DURATION: July –October 2022 (12 weeks)

S. No	Reg. No	Student Name	Internal	External	Total	Grade
1	22SPPH01	BUDDHA KANYA B	14.47	36	50	Successfully completed
2	22SPPH02	JASMINE D J	16.63	37.5	54	Successfully completed
3	22SPPH03	LOURDHU LEDIS SELSIYA A	15.63	34.5	50	Successfully completed
4	22SPPH04	TRINISHA S	15.47	32.25	48	Successfully completed



NPTEL Online Certification

(Funded by the MoE, Govt. of India)



This certificate is awarded to
BUDDHA KANYA B
for successfully completing the course

Solid State Physics

with a consolidated score of **50** %

Online Assignments	14.47/25	Proctored Exam	36/75
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Total number of candidates certified in this course: **156**

Jul-Oct 2022
(12 week course)

Prof. Debjani Chakraborty
Coordinator, NPTEL
IIT Kharagpur



Indian Institute of Technology Kharagpur



Roll No: NPTEL22PH37S54250313

To validate the certificate



No. of credits recommended: 3 or 4

Name of the Paper: Thermal Physics
Subject Code: noc_ph15
Duration: July-October 2022 (12 weeks)

S.No.	Reg.No.	Student Name	Internal	External	Total	Grade
1.	23SPPH02	Jasmine DJ	15.63	36	52	Successfully Completed



NPTEL Online Certification

(Funded by the MoE, Govt. of India)



This certificate is awarded to
DJJASMINE
for successfully completing the course

Thermal Physics

with a consolidated score of **52** %

Online Assignments	15.63/25	Proctored Exam	36/75
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Total number of candidates certified in this course: **59**

Jan-Apr 2023
(12 week course)

Prof. Debjani Chakraborty
Coordinator, NPTEL
IIT Kharagpur



Indian Institute of Technology Kharagpur



Roll No: NPTEL23PH15S54010176

To validate the certificate



No. of credits recommended: 3 or 4