



DEPARTMENT OF PHYSICS



Centre for Research and Post Graduate Studies

REPORT 2023-24

FACULTY IN VARIOUS ROLES

Dr. A. Sobha

- Chairperson of PG Examination Calicut University
- Chairperson of Question Paper Setter Kannur University
- Member of Question Paper setter St. Joseph College Devagiri
- DBT Department Coordinator
- Linways LMS coordinator
- Active Participation in Assessment and Evaluation Process

Dr.Sini R

- Head of the department
- IQAC Member
- UBA and CSS Coordinator
- NAAC exhibition committee Coordinator
- UGC Fellowship Nodal officer & Research Admission Committee Coordinator
- Criterion 7 Coordinator
- HSSTTP Coordinator
- PM USHA Nodal officer
- Discipline committee member
- Active Participation in Assessment and Evaluation Process

Dr. Jeena K

- ICARD Director
- IQAC Member
- Criterion 3 Coordinator
- Curie Project Co Investigator
- Member of Question Paper setter St. Joseph College Devagiri
- Active Participation in Assessment and Evaluation Process

Dr. Siji A J

- PG Nodal officer
- APT talent search exam coordinator
- Carrier guidance cell - in charge of the department
- WWS coordinator
- Prize day coordinator
- Member of NAAC video committee
- Active Participation in Assessment and Evaluation Process

Shija K

- Staff treasurer
- College Handbook Coordinator
- Member of NAAC video committee
- Student Solar workshop convener
- Active participation in Assessment and evaluation processes

Dr. Aswathy S

- NAAC cultural committee member
- R & D cell department coordinator
- Prize day coordinator
- Active participation in assessment & evaluation processes

Dr. Sr. Riya Jose

- NAAC - Campus beautification committee coordinator
- Active participation in assessment & evaluation processes

Mariot

- Question Paper Setter Kannur University

Active participation in assessment & evaluation processes

Faculty Development Programs

- 1. Dr. Sobha A** has Completed NEP 2020 Orientation & Sensitization Programme under Malaviya Mission Teacher Training Programme (MMTTP) of University Grants Commission (UGC) Organised by Malaviya Mission Teacher Training Centre (MMTTC), University of Calicut from 19.02.2024 to 28.02.2024
- 2. Dr.Sini R** has completed online one week Faculty Development Programme on “Advanced Pedagogical Techniques” under Malaviya Mission Teacher Training Programme (MMTTP) organised by Teaching Learning Centre , Ramanujan College, University of Delhi In collaboration with Providence Women’s College, Kozhikode and Buragaon College, Assam from 23rd March, 2024 – 29th March, 2024
- 3. Dr. Jeena.K** has Completed NEP 2020 Orientation & Sensitization Programme under Malaviya Mission Teacher Training Programme (MMTTP) of University Grants Commission (UGC) Organised by Inter-University Centre for Astronomy and Astrophysics, Astronomy Centre for Educators from 1-14 November 2023.

Faculty as Resource Person

- 1. Dr. Sobha A** Delivered a talk on Attosecond light pulse to Higher Secondary School Teachers for the 10 days Teachers Transformation Program organised by the Directorate of General Education and Collegiate Education
- 2. Dr. Sini R** facilitated an ice breaking session for NSS volunteers of RSNDP YOGAM arts and science college, Koyilandi on 22nd December 2023
- 3. Dr. Sini R** facilitated an ice breaking session for NSS volunteers of St.Michels Girls Higher Secondary School on 27th December 2023
- 4. Dr. Aswathy S** delivered an invited talk at the National Seminar on Artificial Intelligence in Astronomy & Astrophysics held at the Department of Physics, University of Calicut during 18-20 January 2024.
- 5. Dr. Riya Jose** delivered a talk on Research Methodology to Higher Secondary School Teachers for the 10 days Teachers Transformation Program organised by the Directorate of General Education and Collegiate Education

ONGOING PROJECTS/ FUNDS ALLOCATED

Major Projects

- Principal Investigator: **Dr. Jeena K**
Funding Agency: **ISRO**
Topic: Astrosat Observations of AGNs: broadband spectral analysis and variability
- Principal Investigator: **Ashna V M**
Mentor: Dr. Sini R
Scheme: Women Scientist Scheme A (Wos-A)
Funding Agency: Ministry of Science and Technology
Fund utilized in 23-24: **Rs. 6,50,829/-**

Workshop /Refresher Course

- **Higher Secondary School Teachers Transformation Programme (HSSTTP 23-24)**
Date : **16/2/24 to 25/2/24**
Type: **Refresher Course**
Funding: **Department of General education, Gov. of Kerala**
Fund utilized: **Rs. 8,46,230/-**
- **AstroSat &XPoSat Workshop 2024**
Date: **28/2/4 to 3/3/24**
Type: **Workshop**
Funding: **ISRO**
Fund utilized: **Rs. 8,38,787/-**

ICARD Activities

- **Poster Making competitions**
- **One Day Seminar And Interactive Session: Exploring Solar System & Beyond**
- **Telescope Making Workshop**
Funding: **IUCAA**
Fund utilized: **Rs. 30000/-**

DBT STAR College

- **Recurring fund utilized: Rs. 1,50,000/-**
- **Non Recurring fund utilized: Rs.5,00,000/-**

Scholarship/Endowments for Students

- **From Aluminae : Rs. 5000/-**
- **From Retired and present Teachers: 10000/-**
- **From Department association : 6000/-**

TOTAL FUND UTILIZED: 30, 36,846/-

ACHIEVEMENTS



Congratulation!!!
Dr Siji A J for securing doctoral degree from NIT Calicut & Mother veronica Bicentennial award for Best research publication award from science



Shija. K, awarded best Poster in International Conference on Light Matter Interaction & Ultrafast Processes (ICLMIUP 2024), MG University, Kerala



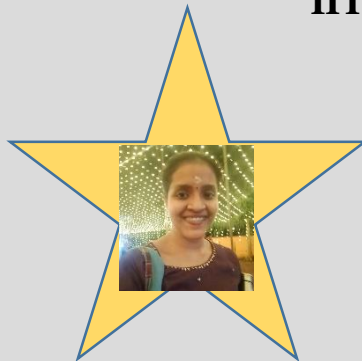
Ashna VM for Mother veronica Bicentennial Scholarship for Best research Scholar



IIT JAM 2024



ASHIDA NASREEN



GAYATRI V



ANJALI KRISHNA



FIDA FATHIMA TP

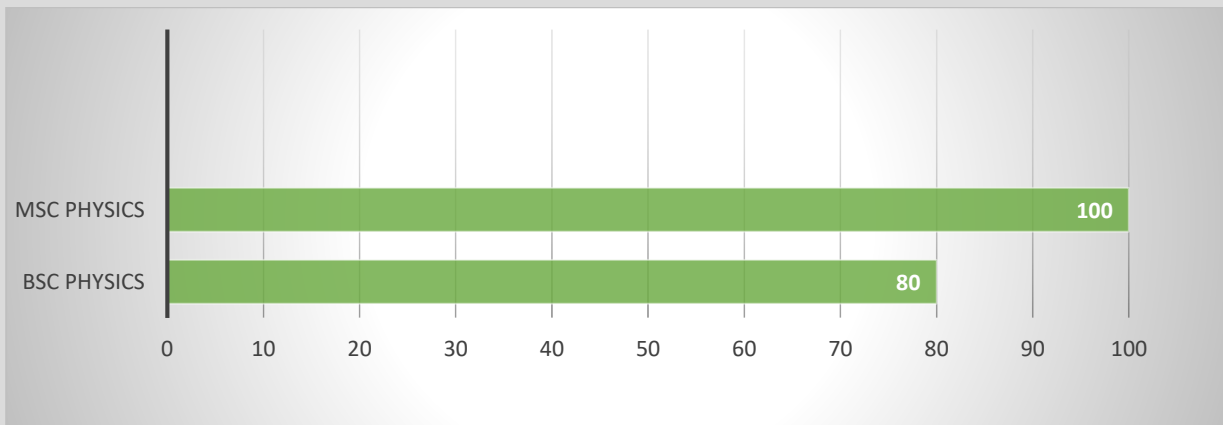
IIT MADRAS			
JAM 2024 SCORE CARD			
CANDIDATE'S DETAILS			
Name:	ASHIDA NASREEN	Parent's/Guardian's Name:	SUBIR K A
Registration Number:	PH120A059	Test Paper (Code):	Physics (PH)
CANDIDATE'S PERFORMANCE		CUT-OFF MARKS*	
Marks Scored (out of 100)	32.33	GEN	19.63
All India Rank	1117	GEN-EM&OC-NCL	17.66
Number of Candidates Appeared in the Test Paper	13086	SC&ST-PWD	9.81

IIT MADRAS			
JAM 2024 SCORE CARD			
CANDIDATE'S DETAILS			
Name:	GAYATRI V	Parent's/Guardian's Name:	SURESH KUMAR V
Registration Number:	PH120A053	Test Paper (Code):	Physics (PH)
CANDIDATE'S PERFORMANCE		CUT-OFF MARKS*	
Marks Scored (out of 100)	29.67	GEN	19.63
All India Rank	1588	GEN-EM&OC-NCL	17.66
Number of Candidates Appeared in the Test Paper	13086	SC&ST-PWD	9.81

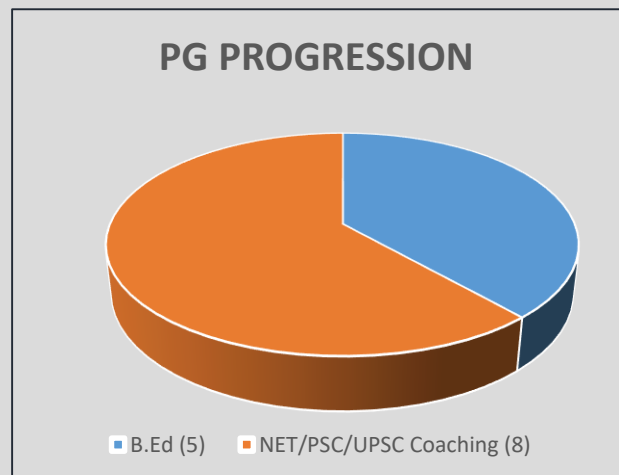
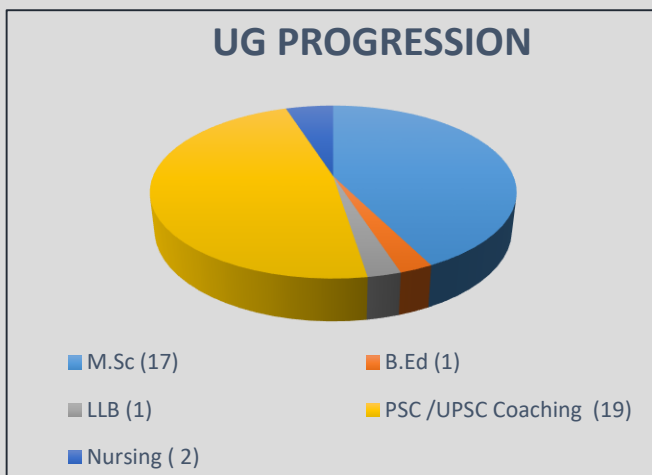
IIT MADRAS			
JAM 2024 SCORE CARD			
CANDIDATE'S DETAILS			
Name:	ANJALIKRISHNA A K	Parent's/Guardian's Name:	BALAKRISHNAN
Registration Number:	PH120A063	Test Paper (Code):	Physics(PH)
CANDIDATE'S PERFORMANCE		CUT-OFF MARKS*	
Marks Scored (out of 100)	20	GEN	19.63
All India Rank	2825	GEN-EM&OC-NCL	17.66
Number of Candidates Appeared in the Test Paper	13086	SC&ST-PWD	9.81

IIT MADRAS			
JAM 2024 SCORE CARD			
CANDIDATE'S DETAILS			
Name:	FIDA FATHIMA T P	Parent's/Guardian's Name:	MUHAMMAD T P
Registration Number:	PH122A113	Test Paper (Code):	Physics (PH)
CANDIDATE'S PERFORMANCE		CUT-OFF MARKS*	
Marks Scored (out of 100)	26.33	GEN	19.63
All India Rank	1066	GEN-EM&OC-NCL	17.66
Number of Candidates Appeared in the Test Paper	13086	SC&ST-PWD	9.81

ACADEMIC PERFORMANCE 2023



PROGRESSION 2023



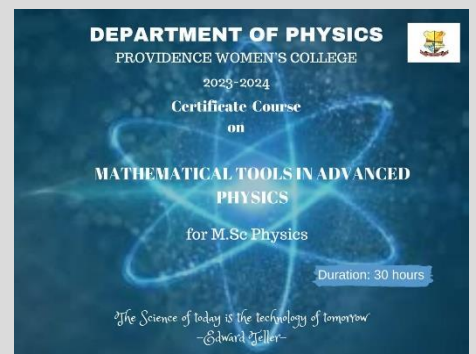
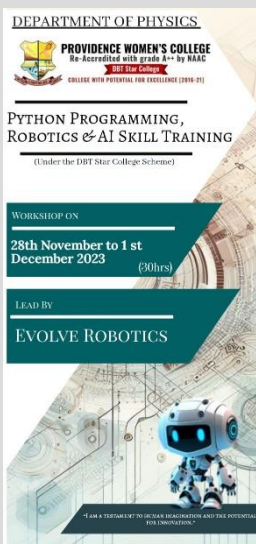
CERTIFICATE COURSES 2023-24

Python Programming, Robotics and AI skill training

- Level : Graduate
- Students Enrolled : 73

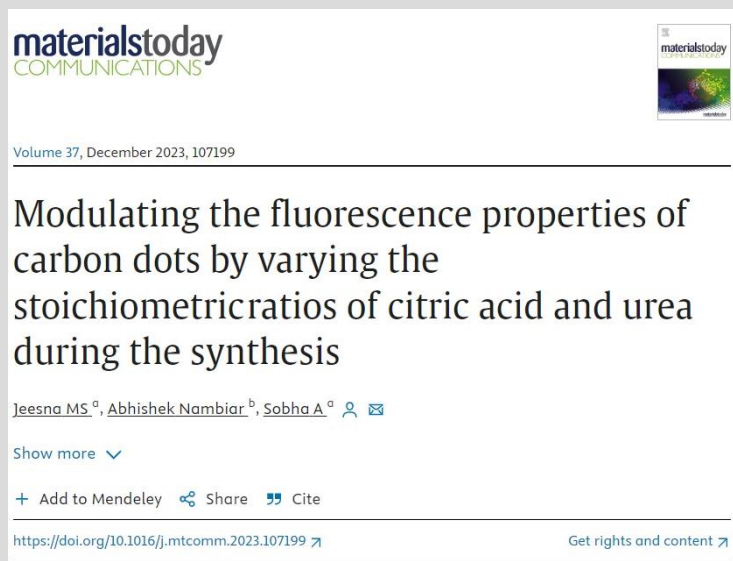
Mathematical Tools in Advanced Physics

- Level : Post Graduate
- Students Enrolled : 29



Research Publications of 2023-24



- Jeesna MS , Abhishek Nambiar , **Sobha A** Modulating the fluorescence properties of carbon dots by varying the stoichiometric ratios of citric acid and urea during the synthesis-*Materials Today Communications*, Volume 37, December 2023, 107199 <https://doi.org/10.1016/j.mtcomm.2023.107199>






materialstoday
COMMUNICATIONS


Volume 37, December 2023, 107199

Modulating the fluorescence properties of carbon dots by varying the stoichiometric ratios of citric acid and urea during the synthesis

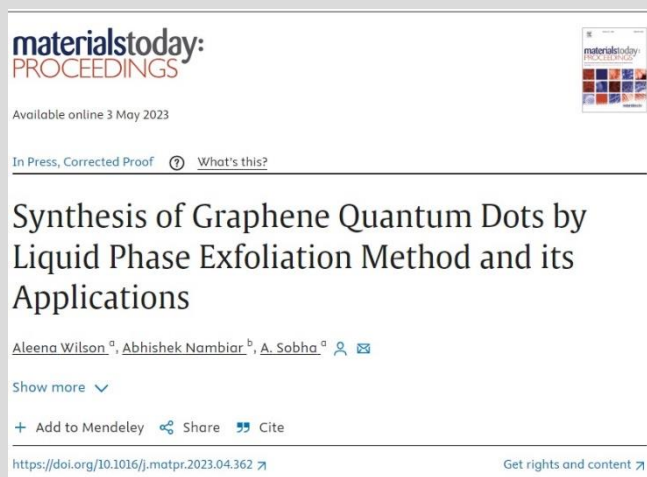
Jeesna MS ^a, Abhishek Nambiar ^b, Sobha A ^a  

Show more 

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<https://doi.org/10.1016/j.mtcomm.2023.107199> [Get rights and content](#) 

- Aleena Wilson , Abhishek Nambiar , **A. Sobha** Synthesis of Graphene Quantum






materialstoday:
PROCEEDINGS



Available online 3 May 2023


In Press, Corrected Proof  What's this?

Synthesis of Graphene Quantum Dots by Liquid Phase Exfoliation Method and its Applications

Aleena Wilson ^a, Abhishek Nambiar ^b, A. Sobha ^a  

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<https://doi.org/10.1016/j.matpr.2023.04.362> [Get rights and content](#) 

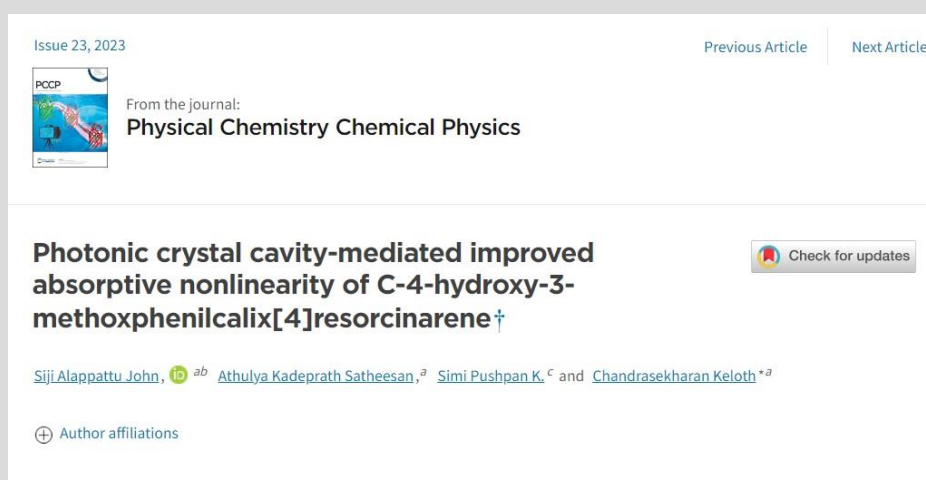
Dots by Liquid Phase Exfoliation Method and its Applications- *Materials today Proceedings* 3 May 2023

<https://doi.org/10.1016/j.matpr.2023.04.362>

- **S. A. John**, A. K. Satheesan, S. Pushpan K., and C. Keloth, “Photonic crystal cavity-mediated improved absorptive nonlinearity of


C-4-hydroxy-3-methoxyphenilcalix [4]resorcinarene,” *Phys. Chem. Chem. Phys.*, vol. 25, no. 23, pp. 15839–15845, 2023,


<https://doi.org/10.1039/D3CP00689A>




Issue 23, 2023 [Previous Article](#) [Next Article](#)

From the journal:
Physical Chemistry Chemical Physics

Photonic crystal cavity-mediated improved absorptive nonlinearity of C-4-hydroxy-3-methoxyphenilcalix[4]resorcinarene[†] 

Siji Alappattu John,  ^{ab} Athulya Kadeprath Satheesan, ^a Simi Pushpan K. ^c and Chandrasekharan Keloth ^{*a}

 Author affiliations

Seminar/ conference attended by Faculty/ Research scholars/ Students

1. Ashna VM, **Dr. Sini R**, Ankush Bhaskar, Manju G Presented paper in **African Geophysical Society (AGS) Conference - Lusaka, Zambia** and online worldwide on **2nd to 4th October 2023** “The solar source of CME/CIR geomagnetic storms of 23-24 solar cycles”

2. Ashna VM, **Dr. Sini R**, Ankush Bhaskar, Manju G Presented paper “The impact of Geomagnetic storms of 23-24 solar cycles on upper ionosphere’ in **The United Nations Office for Outer Space Affairs 1-day online workshop**

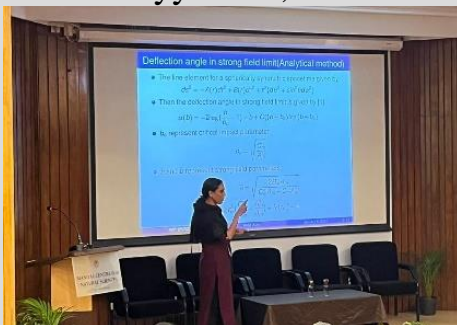


“NavIC: Development, Scopes, and Applications”, held on 25 January 2024, organized by the Indian Radio Science Society and sponsored by the International Union of Radio Science (URSI).



3. **Dr. Sini R** , Rukkiyya V. P presented a poster presented a poster titled Strong deflection gravitational lensing by kazakov-solodukhin black hole in 10th International Conference on Gravitation and Cosmology: New Horizons and Singularities in Gravity, organised by the Department of Physics, IIT Guwahati during December 6-9, 2023

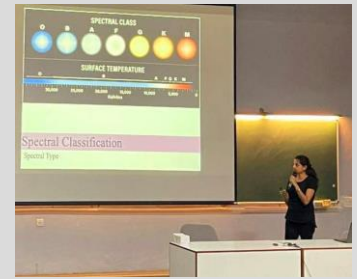
4. Ms.Rukkiyya V P, **Dr. Sini R** delivered a oral presentation on " Exploring



Quasinormal modes: Frequency estimation thorough strong field parameters in Kislev black hole" at 9th Regional Astronomy Meet, organised by Manipal Centre for Natural Sciences, MAHE, Manipal during 10-12

January 2024.

5. **Dr. K. Jeena**, K. Akhila, Ranjeev Misra, Rathin Sarma, Savithri H. Ezhikode : ‘Using X-ray variability to distinguish between thermal Comptonization and relativistic reflection in Mrk 335’ : oral presentation at 9th Regional Astronomy Meet, organised by Manipal Centre for Natural Sciences, MAHE, Manipal during 10-12 January 2024.



6. **Dr. K. Jeena**, K. Akhila, Ranjeev Misra, Rathin Sarma, Savithri H. Ezhikode : ‘X-ray variability to distinguish warm Comptonisation and reflection scenarios of NLS1 galaxy Mrk 335’ : oral presentation at the Young Astronomer’s Meet 2024, organised by Christ University, Bangalore during 06-09 March, 2024.



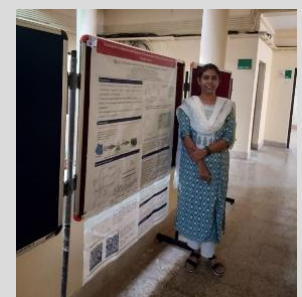
7. **Ms. Shija K** presented a poster at the ‘National Conference on Functional Materials and Applications’ (NCFMA-2024) organised by the Department of Physics, Cochin University of Science and Technology, on 18-19th of January 2024 sponsored by KSCSTE.



8. **Ms. Shija K** delivered an oral session entitled ‘Structural, Morphological, Optical and Magnetoelectric properties of $\text{LaNi}_{0.5}\text{Mn}_{0.5}\text{O}_3$ nanostructure’ at the ‘International Conference on Theoretical and Experimental Physics 2024’ (ICTEP 2024) organised by PG & Research Department of Physics, Farook College, Calicut during 20-21 February 2024



9. **Ms. Shija K** presented a poster at the ‘International Conference on Light Matter Interaction and Ultrafast Processes’ (ICLMIUP



2024) held at Mahatma Gandhi University , Kottayam during 02-04, March 2024.

10. **Dr. Aswathy. S** made an oral presentation entitled ‘Study of central light concentration in nearby early-type galaxies with detectable radio emission’ at the National Space Science Symposium (NSSS) organised by ISRO held at the University of Goa during February 26 to March 1, 2024.



concentration in nearby early-type galaxies with detectable radio emission’ at the National Space Science Symposium (NSSS) organised by ISRO held at the University of Goa during February 26 to

11. **Ms. Mariot Jose Panjikaran** has participated in UGC approved One Day webinar on FYUGP curriculum framework conducted by Malaviya Mission Teacher Training Programme (MMTTP) of University Grants Commission (UGC) Organised by Malaviya Mission Teacher Training Centre (MMTTC), University of Calicut on 13.11.2023 in online platform.



12. **Ms. Aneema Vincent** has presented a paper titled “Investigating the antibacterial effect of LaNiO_3 and Mn-modified LaNiO_3 , rhombohedral perovskite nanostructures” in International Conference in functional Materials and Coatings organised by Department of Physics of MES Ponnani College in association with Kerala State Council for Science and Technology and Environment and Council for Science and Industrial Research held at MES Ponnani College, Kerala during 14 February 2024 to 16 February 2024



WORK SHOP/ SEMINARS/PROGRAMS ORGANISED UNDER ICARD EXPLORING SOLAR SYSTEM & BEYOND

On July 31st, 2023, as a highlight of the moon landing month celebrations, the Department of Physics, in collaboration with the IUCAA Centre for Astronomy Research and Development, hosted a one-day seminar titled "Exploring the Solar System and Beyond." The seminar featured distinguished resource persons including Ms. Netra S Pillai, Scientist at URSC, Bangalore, along with Ms. Unnimaya.K.C and Mr. Ashish Devaraj, Research Scholars from



Unnimaya.K.C and Mr. Ashish Devaraj, Research Scholars from



URSC. Additionally, an interactive session was conducted for graduate students from various colleges, facilitated by Ms. Pillai, focusing on the Chandrayaan missions.



TELESCOPE MAKING WORKSHOP

The IUCAA Centre for Astronomy Research & Development (ICARD), in collaboration with the PG and Research Department of



Physics at Providence Women's College, conducted a



telescope making workshop on October 18th, 2023, at the Mother Veronica Seminar Hall from 09:30 a.m to 03:30 p.m. This workshop, organized in association with the Breakthrough Science Society, Kerala state

chapter, was tailored for school students in classes 8 and 9.



Dr. Joe Jacob, Retired Head of

the Department from Newmann College, Thodupuzha, inaugurated the event and delivered a captivating talk titled **“Universe in a Nutshell.”** Following the inauguration, Professor P.N Thankachan, Secretary of the Breakthrough Science Society, Kerala state chapter, led a session on **“Telescopes & Development of Method of Science.”**



The highlight of the workshop was the opportunity for students to interact with experts in the field. Telescope making kits were distributed to participants, and a



sumptuous lunch along with refreshments were provided. Approximately 50 students enthusiastically participated

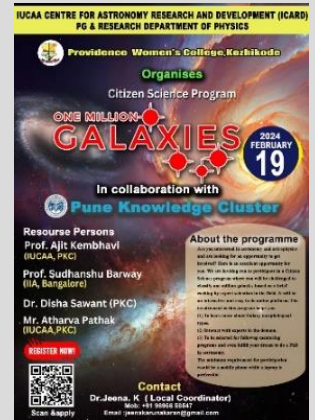
in the event, engaging in hands-on learning and exploration of the cosmos.

ONE MILLION GALAXIES

Citizen Science program ‘One million Galaxies’ was organized in collaboration with Pune Knowledge Cluster, on 19-02-2024. Prof.Ajit Kembhavi, Prof.Sudhansu Barway, Dr.Disha Sawant, and Atharva Pathak were the resource persons. The morning session



catered to students from a variety of colleges, while the afternoon session was specifically designed for higher secondary teachers from different districts of Kerala. Both sessions revolved around the identification of galaxies within the universe.



Both sessions revolved around the identification of galaxies within the universe.



PUBLIC TALK ON INDIAN SPACE SCIENCE PROGRAM

The Department of Physics took the initiative to celebrate Science Day on March 1st, 2024, by organizing an enlightening public speech on the 'Indian Space Science Program'. Dr. Mohammed Hassan, a distinguished figure from ISRO (Indian Space Research



Organisation) based in Bengaluru, was invited to deliver the speech.



Dr. Hassan, with his vast expertise and experience in space science,

shared insights into the remarkable achievements and ongoing projects of the Indian Space Program. The event was not limited to students of physics alone; rather, it attracted participants from diverse academic backgrounds.

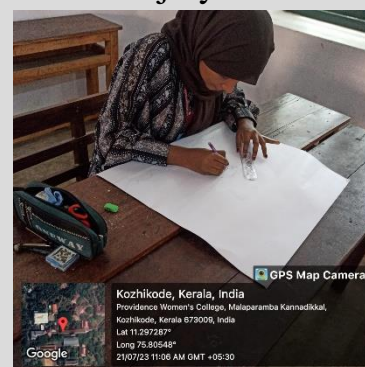


INTER COLLEGIATE POSTER MAKING COMPETITION

Inter collegiate Poster making competition was organized on 21st July 2023 in connection with the moon



landing week celebrations.



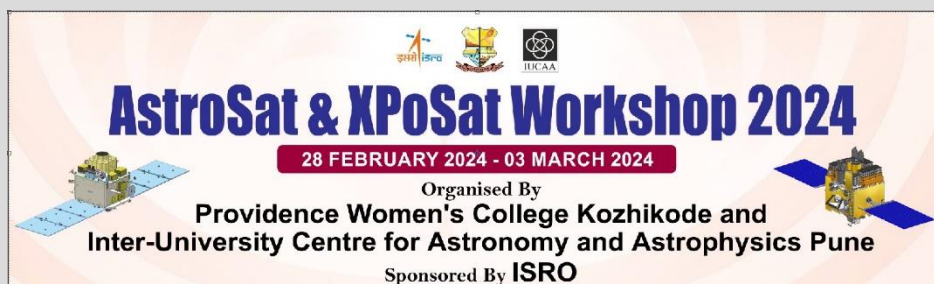
landing week celebrations.

the topic – 'The moon- a future abode for life'. Graduate students from various colleges under Calicut University, participated in the event.

Posters were made on

ASTROSAT & XPOSAT WORKSHOP 2024

The AstroSat Science Support Cell (ASSC), IUCAA, ISRO and Department of physics, Providence Women's College, organized a five day workshop for Research



Scholars and motivated M.Sc students from 28th february 2024 to 3rd March 2024. The

workshop intended for the benefit of the research scholars and post graduate students

in the field of x-ray astronomy. Apart from lectures describing AstroSat and XpoSat data analysis and Science, the primary component of the workshop was research projects



undertaken by a group participants under the guidance of Postdocs and Faculty



members. Led by scientists from ISRO and IUCAA the workshop trained the participants on the use of astronomical data from the Indian space telescopes Astrosat launched by ISRO, so

as to bring in new findings in the field of X-ray Astronomy. Thirty seven research scholars from various institutes and universities attended the workshop. Five M.Sc

students also were part of the program. Prof.Ranjeev Misra, IUCAA, Dr.Gireesh.V – ISRO, and

Dr.Jeena.K, Providence

Women’s College were the co-ordinators. Resource

persons were Prof.Ranjeev Misra, IUCAA,Prof.Shiv



Sethi , RRI, Prof.Gulab Dewngan, IUCAA, Prof.Kanak Saha, IUCAA, Dr. Mohammed Hassan, ISRO,



Dr.Akash Garg, Post Doc, IUCAA, Dr.Sahir Shah, IUCAA,

Dr.Savithri Ezhikode, Post Doc, Christ University,Dr.Chayan

Mondal,Post Doc, IUCAA,Dr.Swadesh

Chand, Post Doc, IUCAA and Mr.Pushpak Pandey, Research Scholar, IUCAA.



PHYSICS ASSOCIATION INITIATIVES

CHANDRAYAAN 3 LAUNCH LIVE PRESENTATION

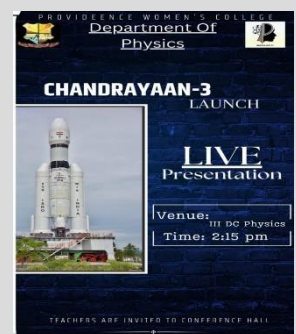
The Department of Physics organized a live presentation on the Chandrayaan 3 launch, a significant event in India's space exploration journey, on July 14th, 2023. The decision to conduct this presentation underscores the department's commitment to keeping both teachers and students abreast of the latest developments in space science and technology.



The teachers were accommodated in the conference hall, a space conducive to formal gatherings and discussions. Simultaneously, the students were



accommodated in the 3rd DC classroom. This choice of venue was likely made to ensure that students had a comfortable and focused environment to witness the live presentation. The classroom setting



provided students with a familiar and conducive space for learning, allowing them to absorb the information effectively and engage with their peers in discussions or questions related to the Chandrayaan 3 launch.

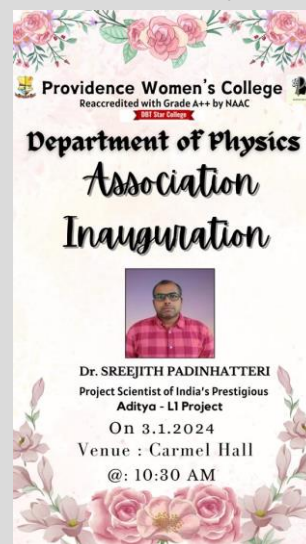
Overall, the live presentation on the Chandrayaan 3 launch served as an educational and inspiring event for both teachers and students. It provided valuable insights into the complexities of space exploration and instilled a sense of pride and enthusiasm for India's achievements in the field of space science.

ASSOCIATION INAUGURATION

The Association inauguration of the Department of Physics, held on January 3rd, 2024, was a significant event marked by Dr. Sreejith Padinhatteri, Assistant Professor at the Manipal Centre of



Natural Science, as the honored inaugurator. Dr. Sreejith's credentials include being a member of India's esteemed Aditya L1 Solar Mission, adding a remarkable depth of expertise to the occasion. For students, having



the opportunity to hear from an expert intimately involved in the development of Aditya was truly enlightening and inspiring.

Dr. Minoo Divakaran, the IQAC coordinator, played a pivotal role in the function by felicitating the event. Her contribution added



another layer of recognition and importance to the event, reinforcing the significance of the Department of Physics' association inauguration. Overall,

the event provided a platform for students to gain valuable insights into cutting-edge scientific endeavors and to connect with distinguished professionals in the field.

STUDENT SOLAR AMBASSADOR WORKSHOP

The Student Solar Ambassador workshop held on October 2nd, 2023, stands out as a collaborative effort between the Department of Physics at Providence Women's



College and the Energy Swaraj Foundation. This event served as a notable outreach program aimed at engaging students in the exploration of solar energy technologies. Approximately 60 students from diverse schools across Kozhikode district actively participated in the workshop, reflecting the broad



reach and impact of the initiative.

Central to the workshop was a hands-on training session where participants learned



to assemble solar study lamps using solar energy kits. This practical aspect not only provided valuable skills but also fostered a deeper understanding of renewable energy concepts among the students. Through

engaging discussions and informative sessions, participants were empowered to recognize the importance of sustainable energy solutions and their role as ambassadors for solar technology within their communities. Overall, the Student Solar Ambassador workshop served as a



platform for inspiring and equipping young minds to embrace and advocate for solar energy, thereby contributing to a more sustainable and environmentally conscious future.

KSEB POWER QUIZ

The Department of Physics collaborated with the Kerala State Electricity Board (KSEB) to organize a college-level competition of the esteemed State Level Power Quiz. Approximately 30 students from diverse departments enthusiastically participated in this engaging event.



Officials from KSEB played a pivotal role by presenting and elucidating each question to the participants, simultaneously raising awareness about the efficient utilization of power resources.

The significance of this competition extended beyond its confines, as two standout students Ashlin and Nikhitha earned the prestigious opportunity to advance to the District level Quiz Competition, the second stage of The Power Quiz. This recognition not only highlighted their academic prowess but also served as a testament to their dedication and knowledge in the field of power and energy.

FRESHERS DAY

The Department of Physics extended a warm welcome to the incoming batch of both degree and postgraduate students.



During the welcoming ceremony, senior students took the initiative to organize cultural events, fostering a sense of camaraderie and connection among the new students. Through these cultural performances, seniors and juniors formed bonds, creating a supportive and inclusive environment within the department.



FAREWELL FUNCTION

The Department of Physics bid farewell to the outgoing BSc Batch on February 26th, 2024. During the event, members of the departing batch reminisced about their three-year journey



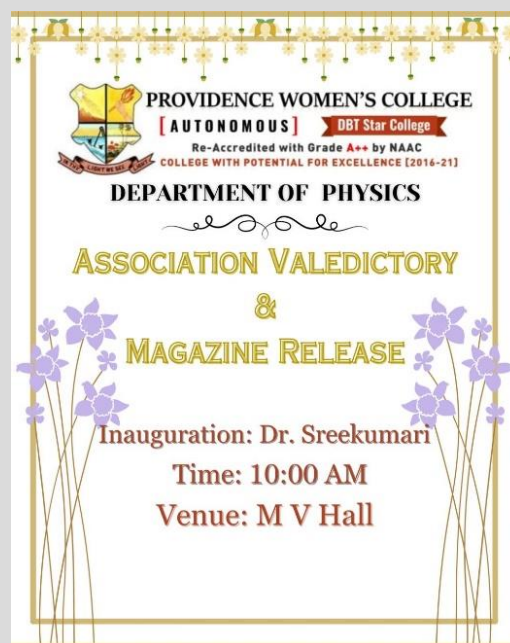
at the college, reflecting on their experiences with nostalgia and sentimentality. Meanwhile, junior students showcased cultural programs, adding a touch of celebration and camaraderie to the occasion. Additionally, teachers took the opportunity to share their insights and experiences with the outgoing batch, further highlighting the significance of their time at the college. Overall, the farewell served as a poignant reminder of the bonds forged and



memories created during the students' academic journey. It was a moment of reflection, celebration, and gratitude, as everyone came together to honour the past and embrace the future.

ASSOCIATION VALEDICTORY & MAGAZINE RELEASE

The official valedictory function of the Physics Association was meticulously organized on March 25th, 2023, marking the culmination of a year filled with academic and extracurricular endeavors. Dr. Sreekumari, esteemed Head of the Department of Malayalam, graced the



occasion with her presence and inaugurated the program, underscoring the interdisciplinary spirit that permeates educational

institutions. During the event, Association Secretary Sangetha eloquently summarized the myriad activities undertaken by the department throughout the academic year. With gratitude, she acknowledged the unwavering support provided by the department, emphasizing the collaborative efforts that fuelled the association's success.



A highlight of the valedictory function was the release of the department's magazine, a



testament to the creative and intellectual endeavors of its members. Dr. Sreekumari, in her role as the chief guest, ceremoniously unveiled the magazine, symbolizing the culmination of collective efforts and contributions. Magazine editor Aysha Abid shared her insights and experiences, providing a behind-the-scenes glimpse into the meticulous preparation and dedication invested in bringing the publication to fruition. In recognition of excellence and dedication, the association bestowed endowment prizes upon deserving

students. These prizes honored not only those who actively participated in various activities but also those who demonstrated outstanding academic achievements, reflecting the department's commitment to holistic development and academic excellence.

Overall, the valedictory function served as a poignant celebration of achievements, camaraderie, and academic excellence within the Physics



Association, reaffirming its pivotal role in nurturing intellectual curiosity and fostering a vibrant academic community.

DAY OBSERVED

World environment Day: 25 June 2024

On June 5th, in accordance to world environment day, students contributed several plants and saplings to the college

National reading Day: 19 June 2024



On June 19th, in conformity to national reading day, quiz program, and critical appreciation competition in English and Malayalam was conducted. Winners were announced at the end of the day.



International Day against drug abuse: 26 June 2024



On June 26th, International day against drug, oath was taken by students, solemnly promising to act in every possible way against drugs and related illegal activities.

Pride month Celebration: 7 July 2024

On July 7th, in accordance to pride month celebration, selfie contest and drawing competition were organized by the students of Physics department



Moon landing Day: 21 July 2024

On moon landing day, July 21st, quiz competitions and Inter-college poster making competition was association with IUCCA. was also played.



conducted in Movie First man

Energy conservation day: 20 December 2024

On December 20th, a flash mob and quiz competition was conducted by Department of Physics. Department was decorated with posters and slogans indicating the Importance of conservation of energy. Directorate of environment and climate



change, Government of Kerala supported the programme financially.



Providence Women's College
Re-accredited with A++
DEPARTMENT OF PHYSICS
NATIONAL ENERGY CONSERVATION DAY
Quiz Competition
On 21.12.2023, Thursday
TIME : 1:30PM
VENUE : ROOM NO.23
Supported by
Directorate of Environment and Climate Change,
Govt of Kerala
CASH PRIZES FOR THE WINNERS...



PHYSICS DEPARTMENT ENDEAVORS

ROBOTICS & AI WORKSHOP

The Department of Physics at Providence Women's College recently hosted a dynamic 4-day workshop from November 28 to December 1, 2023, as part of the DBT Star Scheme. This immersive event, facilitated by professionals from Evolve Robotics, focused on Python programming, Robotics, and AI, engaging 73 BSc. Physics students. The workshop began with a strong focus on Python coding, laying a solid foundation for



students' programming skills. Through hands-on activities, participants not only grasped theoretical concepts but also gained practical experience, deepening their understanding of coding principles. The aim was to equip students with proficiency in Python, a versatile language widely used in Robotics and AI.

Beyond coding, the workshop incorporated practical activities showcasing the application of theoretical knowledge. Using "Tinkercad," students explored digital circuit creation, designing circuits digitally with various components like resistors, motors, and sensors. This interactive session enhanced their digital circuit design skills and provided insights into practical implementations of theoretical concepts.



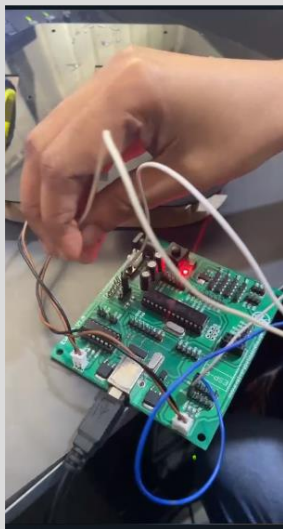
Additionally, students delved into the "AtMega 328" digital board and "Arduino" software, learning basic



codes and commands.

Practical exercises

involved constructing circuits with LEDs, integrating sensors, and utilizing computer energy to power motors via USB connections. This hands-on approach ensured a comprehensive understanding of hardware components and their interaction with programming.



The workshop culminated in the creation of a Bluetooth-connected electric vehicle controllable through a smartphone app. This capstone project consolidated students' skills acquired throughout the workshop, demonstrating their ability to integrate Python programming into real-world projects. The workshop's success lies in its encouragement of creative learning, individual attention to student challenges, and its holistic coverage of robotics and AI concepts. As a result,

students emerged not only with enhanced technical skills but also with the motivation to undertake real-world robotics projects, marking a significant step in their professional and academic development.

FACULTY EXCHANGE PROGRAM

The Department of Physics initiated a program allowing students to broaden their learning horizons by attending lectures delivered by esteemed faculty members from other educational institutions. In this endeavor, Mr. Subeesh T P, who serves as the Head of the Department of Physics at Zamorian's Guruvayurappan College, contributed by

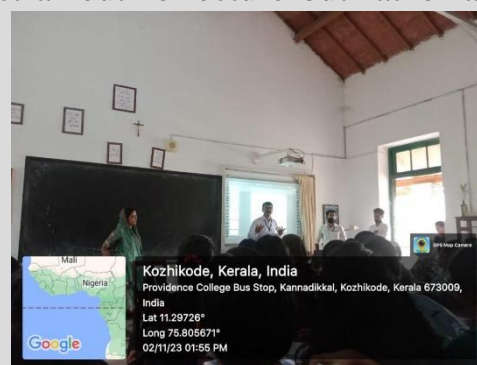


leading an engaging session on Mechanics. His expertise and insights provided students with a deeper understanding of fundamental concepts in this field. Similarly, Ms. Rukkiya V P, esteemed as the Head of the

Department of Physics at MAMO College, shared her knowledge and expertise in a captivating class focusing on general relativity.

CLASS ON INTERIOR DESIGNING

On November 2nd, the Department of Physics orchestrated an enlightening class focused on interior design. This session wasn't just a routine lecture but rather a hands-on opportunity for students to delve into the intricate world of design using the renowned AutoCAD software. The class commenced with an introduction to the fundamental principles of interior design, laying a robust groundwork for the practical application of AutoCAD. By offering this class, the Department of Physics not only broadened students' horizons beyond traditional physics concepts but also nurtured their multidisciplinary skills and prepared them for diverse career opportunities in the dynamic field of design and technology.



TRAINING FOR LAB STAFF

A comprehensive training program was held on March 4th and 5th for laboratory staff in collaboration with the Prominent Group, facilitated by Dr. A. Sobha as the coordinator. This



training initiative aimed to enhance the staff's proficiency in handling and maintaining laboratory



equipment, ensuring they remain updated with the latest practices and protocols in the field.

JAM EXAM ORIENTATION

The Physics Department arranged an orientation session on the IIT JAM entrance exam on June 23rd. This session aimed to provide students with valuable insights to help them focus their future academic effectively. By organizing this orientation session, the Physics Department not only aimed to equip



students with the requisite knowledge and skills for the IIT JAM exam but also sought to inspire them to pursue academic excellence and carve out successful careers in their chosen fields of study.

APT TALENT SEARCH EXAM

On December 21st, 2023, the prestigious All Kerala Physics Teachers Talent Search Exam was held, attracting participants from across the state. Among the contestants was Ms. Shreya Ajith M, a dedicated first-year student pursuing BSc Physics. After a rigorous evaluation process, Shreya's outstanding performance earned her the impressive 11th position in the rankings, solidifying her status as one of the top performers at the state-wide level. This achievement highlights her commendable skills and aptitude in the field of physics, showcasing her potential for future success in academia and beyond.



PARENTS MEETING

To maintain strong connections with stakeholders, the Department of Physics arranges periodic parent meetings. These gatherings typically coincide with the conclusion of internal assessments and the anticipation of external examinations. Known as Parent-Teacher Association (PTA) meetings, they serve as crucial opportunities for parents to stay informed about their children's progress and academic journey. Through these sessions, parents receive valuable insights into the necessary support and guidance their wards require, fostering a collaborative approach towards their educational development.



EMBRASSING THE DIGITAL FUTURE

The Department of Physics at the Digital University of Kerala orchestrated an intellectually stimulating interaction session on the 24th of January 2024,



bringing together prominent experts in the field to engage with students and delve into the

forefront of scientific inquiry. This dynamic event served as a

forum for exploration and discussion on a variety of cutting-edge topics poised to shape the future trajectory of science and technology.

This vibrant event delved into cutting-edge topics poised to shape our future, including the transformative potential of data analytics, the remarkable realm of 2D



materials such as Graphene and its innovative extensions, and the strategic insights gleaned from business analytics for unlocking success..

Leading the discourse were esteemed scholars Dr. Christe Thomas, Dr. Sooraj N. P, and Dr.

Shanujas V, whose wealth of expertise and

passion for their respective fields enriched the discussions and inspired students to delve deeper into these fascinating subjects. Beyond the exploration of cutting-edge topics, the session also served

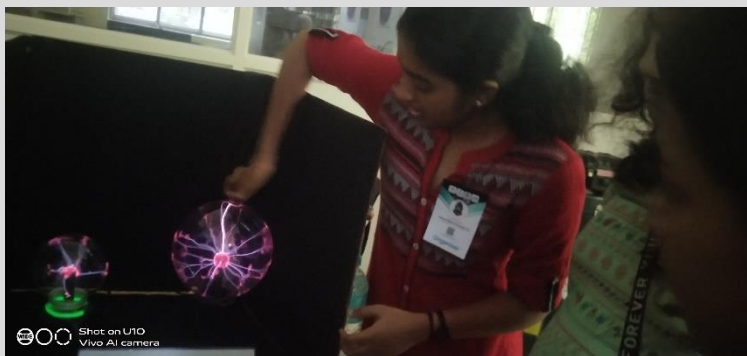


as an invaluable opportunity for students to gain insights into higher study options within the Digital University of Kerala. Through informative discussions and personalized guidance, students were equipped with the knowledge and resources needed to navigate their academic journey and pursue their aspirations in the field of physics and beyond.



CURIOCON : PLASMA EXHIBITION

Approximately 12 MSc and BSc students were afforded a unique opportunity to serve as scientific volunteers at "The 4th State Plasma Exhibition," a flagship event organized as part of the scientific



outreach endeavours of the Institute for Plasma Research



(IPR) in Gandhinagar, Gujarat. This collaborative effort, in



partnership with the National Institute of Technology (NIT) Calicut, DIET Kozhikode, and Edumission Kozhikode, took place at NIT Calicut, Kerala from September 4th to 8th, 2023.

Under the guidance of IPR personnel, these students received specialized



training to effectively communicate the intricacies of plasma, its diverse applications, and the fascinating realm of nuclear fusion to visitors attending the exhibition. Their role as



scientific volunteers not only provided them with valuable hands-on experience but also contributed significantly to enriching the educational experience of exhibition attendees. Meanwhile, other BSc final year and MSc students had the opportunity to explore the Curicon exhibition, broadening their understanding of various scientific disciplines and engaging with innovative exhibits showcasing the latest advancements in science and technology.

THE GLOBAL SCIENCE FESTIVAL: FEILD TRIP

Providence Women's College's Department of Physics organized an educational tour to the Global Science Festival in Thiruvananthapuram from January 31st to February 2nd, 2024. The tour included 23 1st year UG students, 27 2nd year UG students, and 16 1st year PG students, accompanied by teachers Dr. Sobha and Sr. Riya. The festival's curated exhibition showcased human existence, the cosmos, and more through simulated environments and scaled models, merging art and technology to explore the boundaries of science. Highlights included immersive experiences like a 720-degree walk-in



universe, a 360-degree cell model, and a mega walk-in exploration of the human brain.

Notable exhibits also featured the Museum of the Moon by UK artist Luke Jerram and AR/VR experiences. A dedicated pavilion on climate change raised awareness of its effects. The festival concluded as a resounding success, fostering a global appreciation for science's wonders and inspiring a renewed passion for exploration and discovery.



INDUSTRIAL VISIT: TIFR BALLOON FACILITY, HYDRABAD

The Tata Institute of Fundamental Research (TIFR) Balloon Facility in Hyderabad stands as a beacon of innovation and scientific inquiry in atmospheric and space sciences. Department of physics aimed to explore the facility's role in scientific ballooning and its contributions to advancing our understanding of the universe on 9th January



2024. The TIFR Balloon Facility, established in the 1960s, has evolved into a world-



class institution fostering collaboration, innovation, and research in atmospheric physics and astrophysics. It serves as a training ground for aspiring scientists and engineers while facilitating ground breaking research

initiatives. The facility offers scientific balloons of various sizes and payloads, payload integration and testing, flight operations oversight, data analysis, and training programs.

Clear objectives were established before the visit, focusing on gaining insights into scientific ballooning, exploring research endeavors, and understanding facility



operations. The visit commenced with an introduction and briefing session, followed by interactive presentations and a guided tour of the facility. Participants engaged in hands-on demonstrations,

witnessing the intricacies of scientific ballooning and research endeavours.

Participants gained technical insights, industry best practices, and a deeper understanding of challenges and solutions in scientific ballooning. The visit aligned

with academic studies, provided career insights, and fostered skill development and professional growth. The industrial visit to TIFR Balloon Facility was a transformative experience, inspiring passion for scientific exploration and



discovery. It broadened horizons, deepened understanding, and instilled a lifelong commitment to advancing knowledge in atmospheric and space sciences.

HSSTTP 2024

HIGHER SECONDARY SCHOOL TEACHERS TRANSFORMATION PROGRAM

The Higher Secondary School Teachers Transformation Program, a 10-day refresher program, was orchestrated by the Director of General Education in collaboration with Collegiate Education, Kerala. This year, it commenced on



February 16, 2024, and concluded on February 25, 2024. The official inauguration was presided over by Prof. Dr. M. K Jayaraj, the esteemed Vice-Chancellor of the University of Calicut. Mr. Sivaraman A, Lead

School Principal of GHSS East Hill, delivered the presidential address, while Dr. Sr. Ashmitha A C., Principal of Providence Women's College, delivered the keynote address. Dr. Harikrishnan G. and Dr. Laina



P. extended felicitations during the event, and Sri. Harris K, the Coordinator for

HSST Higher Secondary, expressed gratitude in the vote of thanks.

During this 10-day workshop, distinguished faculty members delivered lectures on various subjects such as quantum mechanics, astrophysics, kinetic theory of



gases, and general theory of relativity. The program included sessions on experimental demonstrations, skywatch programs, inter-departmental visits, library tours, and interdisciplinary discussions. Teachers were also introduced to sessions on artificial intelligence and nanotechnology. Additionally, the program included a

psychological approach, covering topics such as understanding learners and interaction with undergraduate and postgraduate students. Lab sessions, research methodology workshops, and discussions on various topics in current research were also integral parts of the program. Furthermore, a field trip was organized. Participants had



the opportunity to present a topic and share their expertise in literature, comics, and cultural events. Moreover, they were privileged to be part of the 1000 Million Galaxies program and meet the esteemed academician Prof. Ajith Kembave. The sessions covered various topics, facilitated by experts including Dr. G Harikrishnan, Associate Professor at



Government College Madappally; Dr. Madhu, Assistant



Professor at UC College Aluva; Dr. Nijo Varghese, Assistant Professor at

Sacred Heart College Chalakkudy; Dr. Rajeshmon V. G., Assistant Professor at St. Paul's Kalamassery; Subeesh T.P, Head of the Department at Zamorin's Guruvayurappan College Calicut; Dr. Swapna S. Nair from the Central University of Kerala; Mr. Devendranath Sankaranarayanan; Dr. Shaji N., Emeritus Professor at CUSAT; Dr. Renjith Subhash from SCERT Kerala; and Dr. Udayanandan P., retired professor from Nehru College, Kanjangad. Dr. Sobha A,



Dr. Minoo Divakaran, Dr. Prasanth, Dr. Sr. Riya, and Dr. Vidya from Providence Women's College conducted various sessions during the HSSTTP 24



The concluding day of the program commenced with the valedictory function, graced by the inauguration from

Regional Deputy Director Kozhikode, Mr. Santhoshkumar. The presidential address



was delivered by Lead School Principal Mr. Sivaraman A. Dr. Sr. Asmitha, Principal of Providence College, extended felicitations, while Mrs. Sijila, Mr. Illias, and Mr. Harilal shared their feedback and suggestions regarding the

HSSTTP program

