



# RIPPLES



NOVEMBER 2024 VOLUME-XIV-ISSUE-2

## NEWSLETTER OF DEPARTMENT OF PHYSICS



### Exposure Visit

Parvatibai Chowgule College in collaboration with the Community Outreach Cell organized an exposure visit for the children (7th std.) of Govt. High School, Gaval, Khol. The S.Y. and T.Y. Physics students demonstrated various physics experiments to the children in the physics laboratory.

The children from Govt. High School, Gaval, Khol were exposed to several physics elementary experiments such as magnetism, damped oscillations, dispersion of white light etc. The students were fascinated with these real life experiences. Our students got a chance to showcase and enhance their presentation skills.

#### Student Editors:

Shreya Keluskar  
Vira Dessai

#### Faculty Advisor:

Pearl Isabella Oliveira

Disclaimer: Opinions and views appearing herein are those of the Editor and student contributors and not necessarily those of the Principal or the Management.

## Exposure Visit

A series of experiments were demonstrated by our students from the Second Year and Third Year.

*Pradyut Ghosh* demonstrated diffraction using lycopodium powder, dispersion of light using a spectrometer, Malu's law and Newton's rings.



Pradyut Ghosh (S.Y.)  
demonstrating  
optics experiments  
to the students.



## Exposure Visit

*Mevishka Martins* and *Annalize Vaz* demonstrated damped harmonic oscillations through a computer interface.



Mevishka Martins and Annalize Vaz (T.Y.) demonstrating experiments to the students.

*Vira Dessai* and *Manasvi Desai* demonstrated Lenz's law and static electricity.



Manasvi Desai and Vira Dessai (T.Y.) demonstrating experiments to the students.



Madgaon, Goa, India  
7XQJ+V4, Cupangale Society, Madgaon, Goa 403601, India

## Exposure Visit

*Sachin* and *Bibhu Nayak* demonstrated conservation of linear momentum using an air track.

Sachin and Bibhu Nayak (T.Y.) demonstrating experiments.



## Founder's Day Celebrations

*Manasvi Desai* showcased her creative floral arrangement skills in decorating the Oil Lamp on the occasion of Founder's day celebrated on 24th August 2024 on the college premises.



## College Journal Club (CJC-PCCAS)

*Anisha Pacchad* presented the paper titled “Probing student understanding of spectra through the use of a typical experiment used in teaching introductory modern physics”. This research paper investigates university students' understanding of atomic emission spectra, a fundamental topic in physics education. The study, conducted involved 8 participants and aimed to assess how well students connect spectral lines to electron transitions and recognize the conditions for discrete line spectra formation. The paper highlights several critical insights, including students' misconceptions about the nature of light sources, the distinction between continuous and discrete spectra, and the roles of optical elements like prisms, slits, and gratings.

**Report prepared by Vira Dessai**



## Research Interaction Series (RIS-PCCAS)

Annalise Vaz under the guidance of Dr. Ashish M. Desai presented the findings of their project titled "Investigation of material properties using computational methods". Computational materials science leverages modeling and simulation to predict and understand material behavior, optimizing experiments based on theoretical results. Quantum Espresso, an open-source tool, uses Density Functional Theory (DFT) to simplify complex quantum calculations by focusing on electron density. In this study, MoS<sub>2</sub>'s crystal structure is modeled, with parameters such as atomic positions, k-points, and cutoff energy optimized to ensure accuracy. The SCF method calculates electron states, and geometrical optimization finds the most stable molecular structure. Results include a 2 eV band gap, optical properties, and absorption in visible and UV regions. Future work will explore mechanical properties and novel materials.

**Report prepared by Vira Dessai**



Madgaon, Goa, India  
7XQJ+V4, Cupangale Society, Madgaon, Goa 403601, India  
Lat 15.289368°

## Sports Related

*Ganesh Mathru Tamburkar* secured the 1st place in State Red Run (5km) organized by Goa State Aids Control Society, Panaji on 1st September 2024.



*Ganesh Mathru Tamburkar* from First Year B.Sc. participated in the the 35th West Zone Junior Athletics Championships 2024 organized by Maharashtra Athletic Association in association with Nagpur District Athletics Association from 4th - 6th October 2024.



## Sports Related

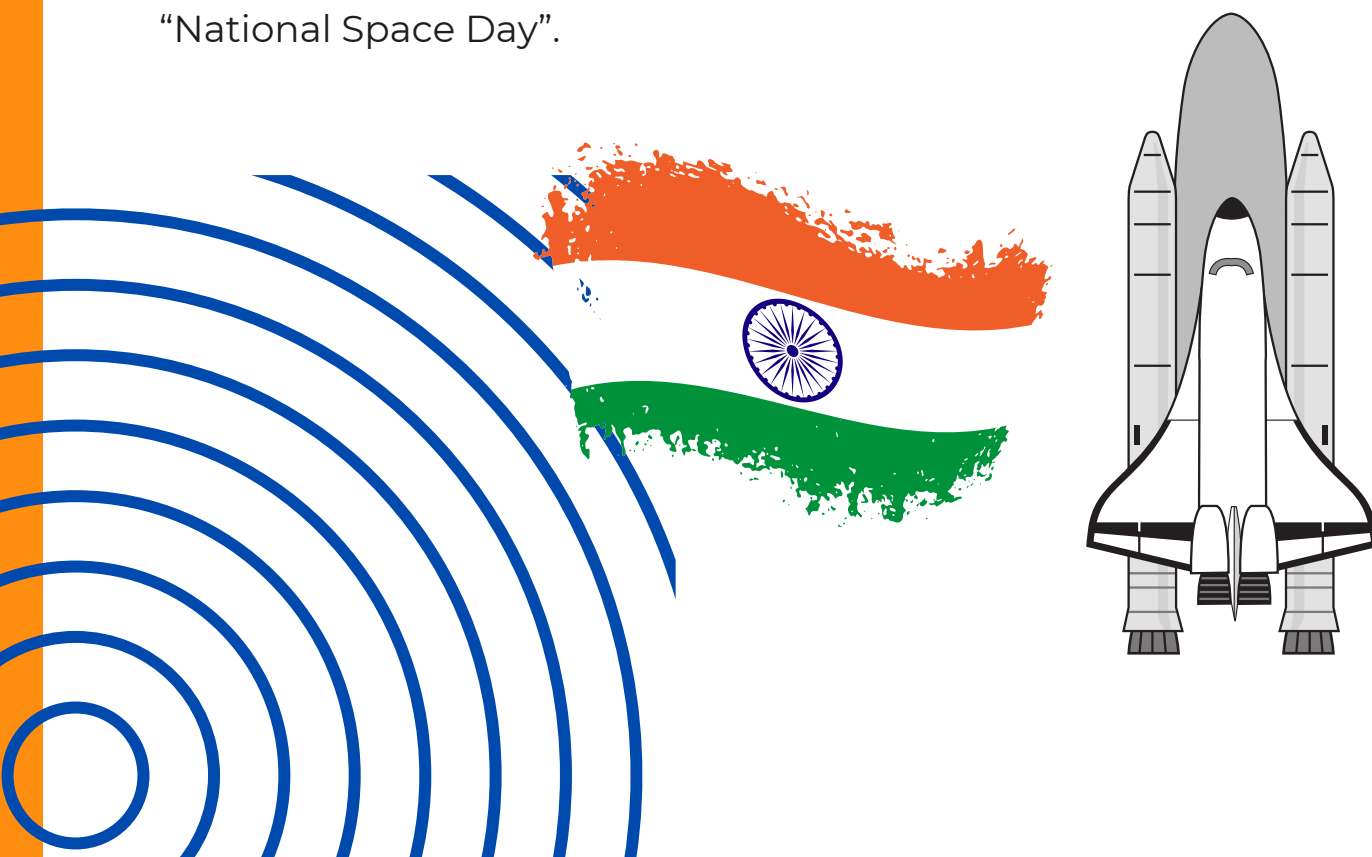
### *Sourabh Subhash Raikar*

first year B.Sc. student secured the 3rd place in Intercollegiate body building competition. He participated in first category, upto & including 60kgs. The competition was organized by Goa University, Taleigao on 03rd September 2024.



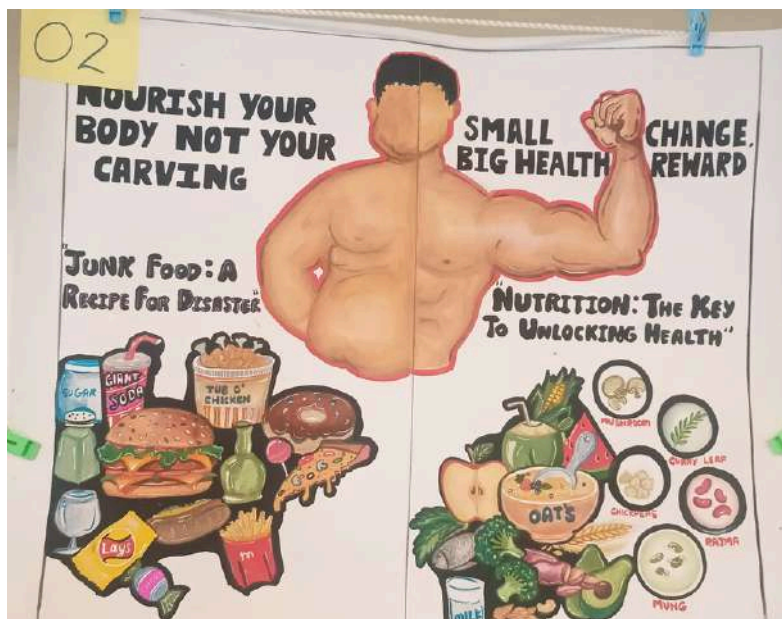
## National Space Day

*Shreya Nagesh Keluskar* from First Year B.Sc. participated in an online PowerPoint Presentation competition themed “ISRO’s Success Story” held on 22nd August 2024 organized by Gogate Jogalekar College (Autonomous), Ratnagiri to celebrate its maiden “National Space Day”.





## Art Escapade



*Trisha Tendulkar* First Year B.Sc. secured 3rd place in Poster Competition at Goa State level event “Poshan ka Tashan” organized by Kala Academy held on 30th September 2024.

## Actor’s Paradise

*Shreya Nagesh Keluskar*, First Year B.Sc. participated in “CINEMANIA 2024” organized by Don Bosco College, Panjim and secured 2nd place in the acting competition WHAT IF..? The College Team were the Runners up for the event held on 15th October 2024.

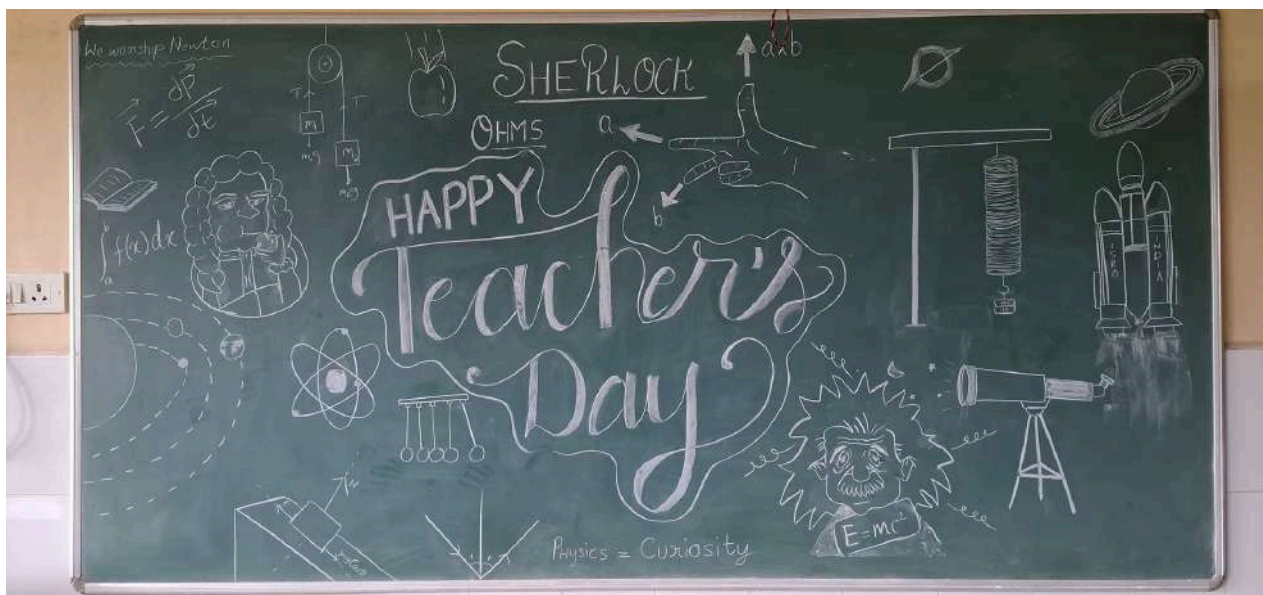


## Teacher's Day Celebrations

The *Sherlock Ohms Club* organized a programme to commemorate the contributions of teachers and the birth anniversary of Dr. Sarvepalli Radhakrishnan, the second President of India.



## Teacher's Day Celebrations



## Faculty Participation

**Pearl Isabella Oliveira** attended an online workshop on “Intellectual Property Rights (IPR) & Patents and Design Filing” organized by Symbiosis Centre for Distance Learning in association with RGNIPM, Government of India, Nagpur. The Speaker was Kumar Raju, Assistant Controller of Patents & Designs, RGNIPM, Nagpur.

**Pearl Isabella Oliveira** contributed 12 modules in regional language (Konkani) towards e-content of project DISHTAVO during the month of October 2024 at HRDC, Goa University.



## 2024 PHYSICS LAUREATES



The Nobel Prize in Physics 2024 was awarded to **John J. Hopfield** and **Geoffrey Hinton** “for foundational discoveries and inventions that enable machine learning with artificial neural networks.”

John Hopfield created an associative memory that can store and reconstruct images and other types of patterns in data. Geoffrey Hinton invented a method that can autonomously find properties in data, and so perform tasks such as identifying specific elements in pictures.

<https://www.nobelprize.org/prizes/physics/#:~:text=The%20Nobel%20Prize%20in%20Physics%202024%20was%20awarded%20to%20John,type%20of%20patterns%20in%20data>.



## Alumni Achievements



*Meliza Maria Souza* completed M.Sc. in Physics with a specialization in Computational Physics at School of Physical and Applied Sciences, Goa University, Taleigao securing the 1st rank.

## Physics Fun

physicsloverz    Following

$\hat{H}\Psi = i\hbar \partial_t \Psi$	THE ART
	THE ARTIST
	THE ASSISTANT OF ARTIST

sciencefunn    Following

Aloe Blacc • I Need A Dollar



1/2

IG @SCIENCEFUNN

Sir Isaac Newton's tooth, sold for \$3,633 in 1816, became the most valuable tooth set into a ring, worth \$62,000 today.