



Chowgule College



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Message from the Editor

Dear Reader,
Greetings!

It gives me immense pleasure to introduce to you the first Newsletter for the academic year 2022-23. The Newsletter contains activities organised by the department and the articles compiled by the student of Physics. The students of Physics (Editorial Committee) have worked hard to bring up this issue. Congratulations to the team.

The Newsletter is available at the following link: <http://www.chowgules.ac.in/p/newsletters>

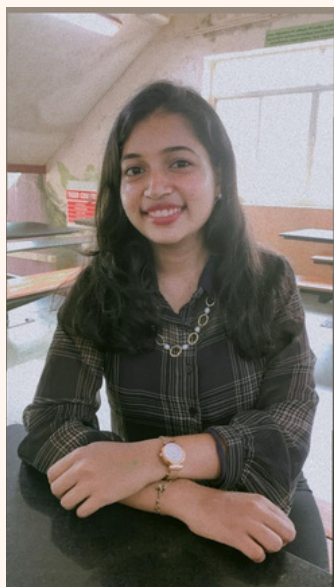
Happy Reading,

Malati Dessai

Message from alumni

Darshan Hosamani(Msc Physics):

I had a wonderful time during my 3 year Bsc programme in this college. The college curriculum of single major and the major-minor courses was very convinient and comfortable. I am very grateful to all the teachers for their constant support and encouragement throughout programme. It was quite fun and interesting to know the students from this college inspite of not having much time on the campus for last 3 years. I will always cherish the amazing moments that I had in this college and will definitely miss all fun loaded activities which we had in college and also those which missed due to pandemic.



Aloma D'Silva (Msc Physics):

I have had a great privilege to be a student of Parvatibai Chowgule College of Arts and Science and proudly call myself a Chowgule tiger. My experience in this college was full of learning, exploring and grooming my personality into a new shape. Besides academics, this college has served various platforms for students to exhibit their talents and recognise one's potential which helped me recognise my abilities and enhance my skills. I will forever be grateful to Parvatibai Chowgule College of Arts and Science for inculcating in me the ability to learn and build strong foundational knowledge. I would specifically like to extend my hearty thanks to my ever-supportive faculties and administrative staff of the Physics Department not just for their academic guidance but also for helping me prepare for the real world.

Student Achievements :

NPTEL achievements.

1. Sejal Uday Lotliker (Experimental Physics II)
2. Sakshi Desai (Experimental Physics II)
3. Anirudh Parsekar (Experimental Physics II)
4. Manthan S Sawant (Experimental Physics II)
5. Supriyo Pramanik (Mathematical Methods in Physics I)
6. Anish Ajit Sawant (A brief course on superconductivity)
7. Divyansh Singh Parmar (A brief course on superconductivity)
8. Chloy Costa (Experimental Physics I)
9. Ronan Pereira (Experimental Physics I)
10. Sahil Viswakarma (Experimental Physics I)
11. Geeta Kalal (Experimental Physics I)
12. Aditya Patil (Marketing Management I)

Goa Merit Scholarship

Students who have received the Goa merit scholarship for the year 2021-22

1. Supriyo Pramanik
2. Chloy Costa

Students who've answered and cleared Jam academic year

2021-22:

1. Darshan Hosamani
2. Hrishikesh Sainath Chanekar
3. Joyeley Aaron Fernandes

Ms. Sejal Lotliker, student of SYBSc Physics was awarded the innovation in science pursuit for inspired research scholarship (INSPIRE) by the department of science and technology in January 2022.

Ms. Sejal Uday Lotliker, a TY BSc Physics Student from Parvatibai Chowgule College of Arts and Science, Autonomous Margao-Goa, was nominated by Department of Science and Technology, Government of India to represent as a student Delegate of India for the 14th Asian Science camp which was organised by Institute for Basic Science at IBS Science Culture Centre in Daejeon, South Korea from July 24-30, 2022 in Hybrid Mode.





Anirudh Parsekar (TYBsc) achieved the **15th place in All India Open FIDE rating Chess Tournament**, held at Mangor hill , Vasco , Goa

Student Achievements :

Miss Sakshi Desai 1 second place in All Goa Savesh Natyageet competition organised by Savesh Natya Geet Competition organized by Bilvadal Parivar, Sanquelim and Lokmanya Multipurpose Cooperative Society. Chief Minister Dr. Pramodji Sawant heard her song and praised it. Honorable examiner and well-known singer Archanatai Kanhere lavishly appreciated and gave valuable suggestions.

She was awarded with a trophy certificate and a cash prize of rupees 20000/- by the honorable chief minister of Goa, Mr Pramod Sawant



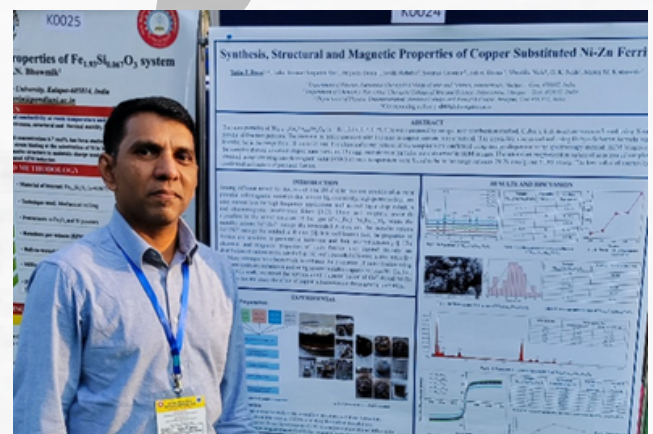
Faculty Achievements:

Malati Dessai and Arun kulkarni Published a paper, "Calculation of tunneling current across trapezoidal potential barrier in a scanning tunneling microscope", Journal of Applied Physics, 132, 244901 (2022).

Alavani, B. K., Das, A., & Pai, R. V. (2021). Melting of Mott Phases in Spin-1 Bose Hubbard Model. AIP Conference Proceedings, 2369, 020031.

•Gaude, P. P., Das, A., & Pai, R. V. (2022). Cluster mean field plus density matrix renormalization theory for the Bose Hubbard models. Journal of Physics A: Mathematical and Theoretical, 55, 265004.

Mr. Yatin P. Desai attended and presented a poster titled "Synthesis, Structural and Magnetic Properties of Copper Substituted Ni-Zn Ferrite" during 66th DAE Solid State Physics Symposium held at Birla Institute of Technology, Mesra, Ranchi-Jharkhand from 18th to 22nd December 2022. The symposium was organized by Bhabha Atomic Research Center, Mumbai and sponsored by BRNS, Department of Atomic Energy, Government of India. The paper is co-authored by Third Year. B.Sc. students of 2020-2021 batch namely Luke Bossuet Sequeira Vaz, Prajakta Dessai, Jevila Rebello, Swarali Gaonkar, Saloni Dessai and Shrutika Naik. The paper is the outcome of the project work taken up by these students at T.Y.B.Sc.



Invited Talk

Mr. Yatin P. Desai, Assistant Professor, Physics department, delivered a talk on “Puzzles of Quantum Mechanics and its Technological Applications,” at Shree Damodar Higher Secondary School of Science, Comba, Margao-Goa, on 12th March 2022. This talk was a part of “Science Lecture Series 2022” organized by Goa State Higher Education Council, Directorate of Higher Education (Govt. of Goa) in collaboration with Science Colleges in Goa.

Dr. Ashish M. Desai, Assistant Professor, Department of Physics was invited as a resource person to deliver a Guest Lecture on “Basics of Quantum Mechanics and its Philosophy” organized by the Department of Physics, Thakur College of Science and Commerce, Mumbai on 18th August 2022.



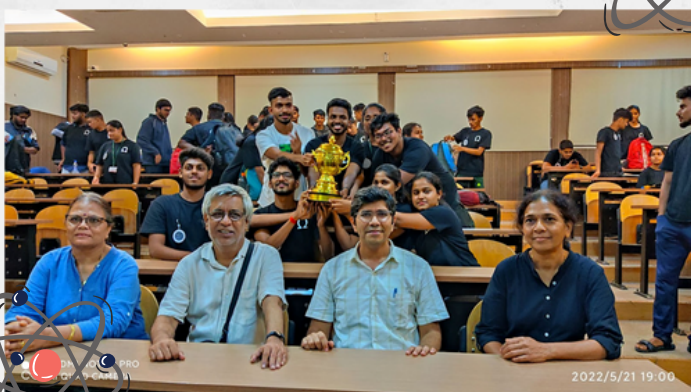
SKY - OBSERVATION



15°17'23", 73°58'50", -37.7m, 288°
24-Apr-2022 7:49:13 am

On the 23rd of April, the department of physics conducted the overnight sky observation event after a gap of 1 year due to covid. The event coordinator and the guest speaker was a former student of our college Ms. Reshma Desai. The attendees were given a beautiful talk on the visible universe and the astronomical events that are visible through the naked eye. After that we are also told about the future of space tourism. There were fun events like a quiz competition and movie screening as well as the sky observation, but unfortunately due to unavoidable circumstances the attendees weren't able to observe the sky through the telescope.





SINGULARITY

The Physics department's first ever mega event, Singularity, was a two-day event that took place on 20th and 21st of May.

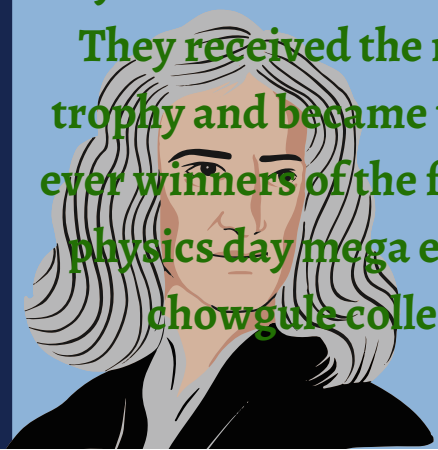
The event was a great success with events ranging from the first day being academic to the second day being athletic.

The first day of the event began with inauguration, followed by Feynman's Classroom (power-point presentation competition) and Galelio's Workshop (model presentation competition).

The second day being athletics had fitness tests, tug of wars, dog and the bone and so on...

The winners of the physics day event were team Hydra.

They received the rolling trophy and became the first ever winners of the first ever physics day mega event in chowgule college.



FAREWELL PARTY



On 30th June 2022, the second-years as well as a few of the first-year students organized a farewell party with a clubbing theme for our seniors to mark their last day in the campus. The day went according to schedule, just as planned, beginning with the inauguration and the cutting of the cake, just after this a beautiful speech was given Miss Sejal. Now for the fun part, tons of games, spot prizes as well as surprise events were held and hosted along with lively music being played by our DJ. One of the surprise events was a lovely dance by our seniors. Apart from that the main event was a dance based on a song from a movie, that was executed to near perfection. Time passed so quickly that it was already time to bid our farewell to our seniors. The farewell party was a huge success and the after party was an even bigger success.





Azadi ka



Amrut Mahotsav

Talk on Motivation and Leadership: Perspective of Air Warrior

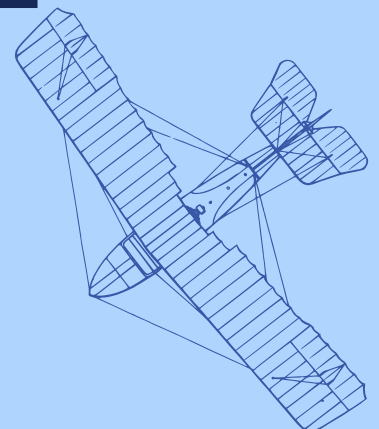
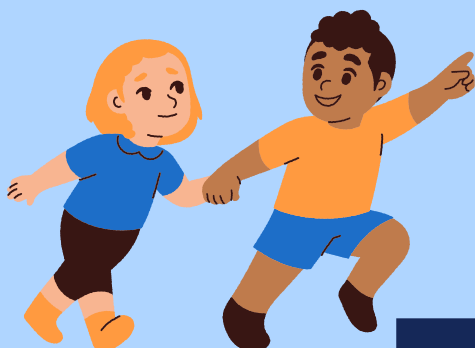


The Department of Physics, Department of Geology, Department of Mathematics, Physics Club 'Sherlock Ohms' in association with Directorate of Higher Education, Goa organized an online talk on "Motivation and Leadership: Perspective of an Airforce Warrior". The talk was on 14th August 2022 from 11:30 am to 12:30 pm. The resource person for the talk was Sqn. Ldr. Ishan Mishra, Indian Airforce. The talk began with introducing students to the Motto of the Indian Airforce. Next the speaker discussed about the leadership traits that the IAF Air Warriors possess. He concluded the talk by sharing his experience on challenges and obstacles he overcame as an Airforce Warrior. The talk greatly inspired the students and faculty of our college. Students and Faculty from the Physics, Geology and Mathematics Departments participated in this event.

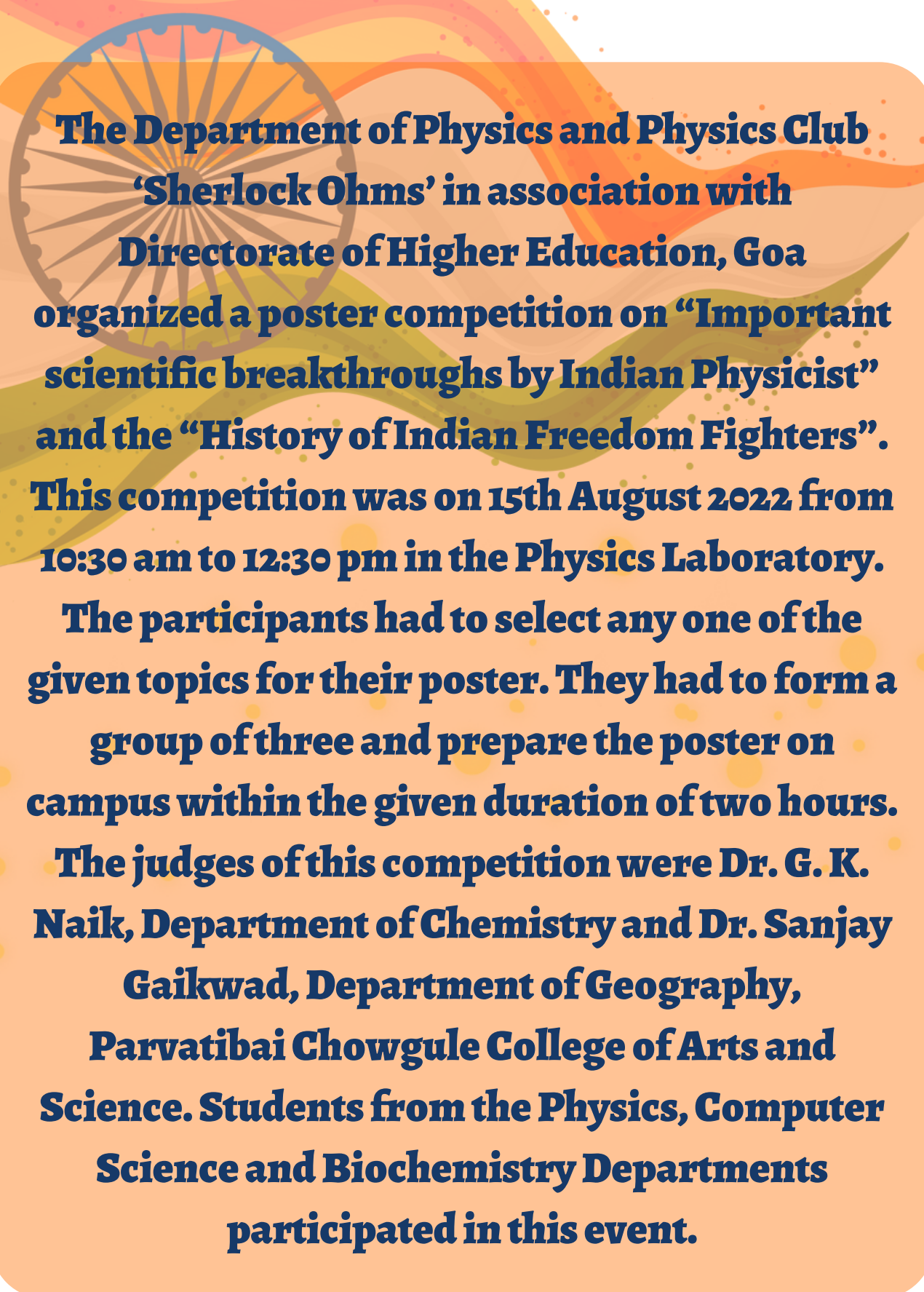
**BELIEVE IN
YOURSELF**

Fearless

YOU GOT THIS!



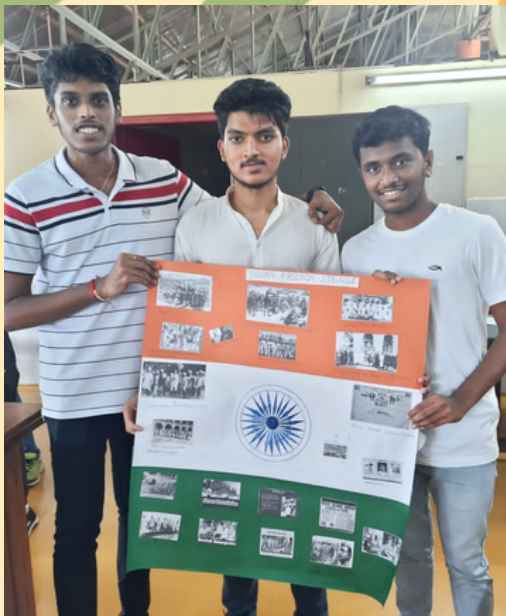
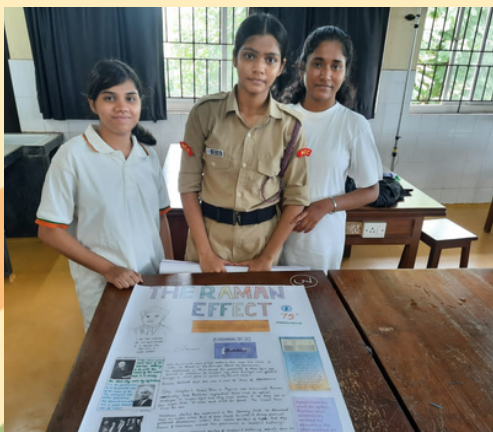
Poster Making Competition



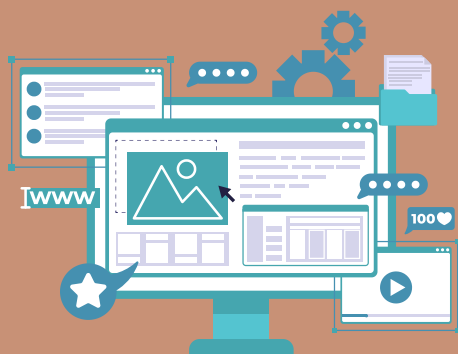
The Department of Physics and Physics Club 'Sherlock Ohms' in association with Directorate of Higher Education, Goa organized a poster competition on "Important scientific breakthroughs by Indian Physicist" and the "History of Indian Freedom Fighters". This competition was on 15th August 2022 from 10:30 am to 12:30 pm in the Physics Laboratory.

The participants had to select any one of the given topics for their poster. They had to form a group of three and prepare the poster on campus within the given duration of two hours.

The judges of this competition were Dr. G. K. Naik, Department of Chemistry and Dr. Sanjay Gaikwad, Department of Geography, Parvatibai Chowgule College of Arts and Science. Students from the Physics, Computer Science and Biochemistry Departments participated in this event.



Molywood to molecular nodes workshop



The Molywood to molecular nodes workshop was held online from 8th to 11th September 2022 which was organized by Gdansk University of technology, Poland, IRB Barcelona, Spain and Scidart Academy, India. In this workshop students were introduced to Linux OS, shell scripting, to make Molywood molecular dynamics movies and were taught to make scientific illustrations using the blender software.

DAY 0 (PREREQUISITE)

TVirtual Box and Virtual Machine glitches & short Linux OS session by Dr. Subrahmanyam Sappati (PG, Poland), Bash/Shell scripting by Dr. Mohammed Ghadiyali (KAUST, SA) and Basic MD Simulations by Dr. Bappa Ghosh (University of North Dakota, USA.)

DAY 1

Theory class on Classical MD and Enhanced Sampling Methods by Jacek. JAM research and motivation presentation by Participants. Using Molywood for Molecular Movies by Dr. Milsoz W. Hands-on-session by tutors.

DAY 2

Computer-aided drug design - general approach by Prof. Maciej Baginski. Alcohol influence on mechanical properties and phase behavior of lipid bilayers. Importance of parameterization in comp. chem. and visualization: A material scientist perspective. Computational approaches to study protein-glycosaminoglycan interactions. Manipulating molecular systems with the Gromologist by Dr. Milosz.

DAY 3

Making scientific illustrations using blender software by Mr. Rafique Mavoor.

DAY 4

Making molecular nodes using blender software and project analysis.

FRESHER'S PARTY

14

Department of Physics in association with the Physics Club (Sherlock Ohms) organized a Fresher's party to give a warm welcome to the new comers. The Fresher's Party was held on 28th September 2022 from 1:30 pm to 4:30 pm in the Lower Auditorium. The Sy's and Ty's arranged many activities for fresher's which includes games, performances, spot prizes and also had a cake cutting ceremony. Refreshments were also served.





Field Trip

The Physics Department in association with Sherlock Ohms organized a trip to the Indian Naval Aviation Museum, Vasco da Gama and Goa State Museum, Panaji on 14/10/2022 from 8:30 a.m. to 5:00 p.m.

This activity was extracurricular in nature and was organized for members of the club / for all the students of the department.

The details of the activity is as follows:

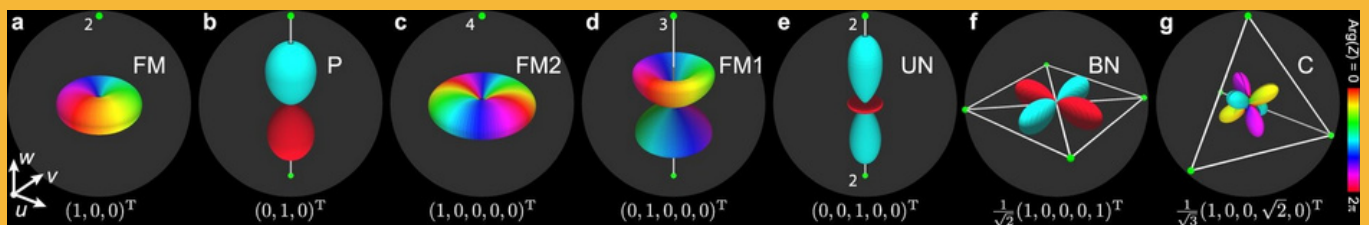
1. Visit to Indian Naval Aviation Museum, where the students got to see a display of the aircraft that were used by the Indian navy throughout its history. (from 10:00 am to 12:00 pm)
2. The Goa State museum is set up with an aim at preserving the art objects of cultural importance. The students got a glimpse of the different aspects of the Goan history and culture. (from 2:00 pm to 4:00 pm)

Webinar On "Exploring Dust and Gas in Galaxies using James Webb Telescope"

Students and Faculty of the Department of Physics attended an online webinar entitled “Exploring Dust and Gas in Galaxies using James Webb Telescope” on 24th August 2022 from 9.30 am to 11:00 am. This online webinar was organized by the School of Physical and Applied Sciences, Goa University, and was broadcasted in the lower auditorium of our college. The resource person for this webinar was Dr. Aditya Togi from Texas State University, USA. During the talk, Dr. Togi showed the students spectacular images of galaxies and informed them about the new tools used to conduct cutting-edge research.



ADVANCEMENT IN PHYSICS



**New quantum
whirlpools with
tetrahedral
symmetries
discovered in a
superfluid**

**Date:
August 10, 2022**

**Source:
University of East
Anglia**

Summary:

An international collaboration of scientists has created and observed an entirely new class of vortices -- the whirling masses of fluid or air. A new article details laboratory studies of these 'exotic' whirlpools in an ultracold gas of atoms at temperatures as low as tens of billionths of a degree above absolute zero. The discovery may have exciting future implications for implementations of quantum information and computing.

Story Source:

Materials provided by University of East Anglia. Note: Content may be edited for style and length.

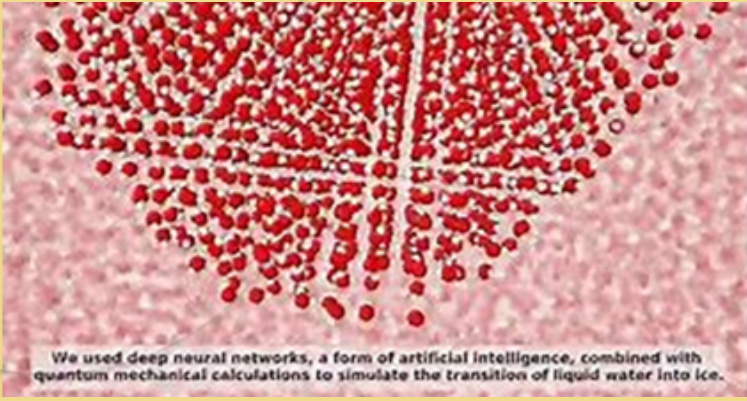
Journal Reference:

1.Y. Xiao, M. O. Borgh, A. Blinova, T. Ollikainen, J. Ruostekoski, D. S. Hall. Topological superfluid defects with discrete point group 1. symmetries. Nature Communications, 2022; 13 (1) DOI: 10.1038/s41467-022-32362-5

August 8, 2022

Source:

Princeton University



In simulation of how water freezes, artificial intelligence breaks the ice

Summary:

Combining artificial intelligence and quantum mechanics, researchers have simulated what happens at the molecular level when water freezes. The result is the most complete yet simulation of the first steps in ice 'nucleation,' a process important for climate and weather modeling.

A team based at Princeton University has accurately simulated the initial steps of ice formation by applying artificial intelligence (AI) to solving equations that govern the quantum behavior of individual atoms and molecules.

The resulting simulation describes how water molecules transition into solid ice with quantum accuracy. This level of accuracy, once thought unreachable due to the amount of computing power it would require, became possible when the researchers incorporated deep neural networks, a form of artificial intelligence, into their methods. The study was published in the journal Proceedings of the National Academy of Sciences.

Journal Reference:

1. Pablo M. Piaggi, Jack Weis, Athanassios Z. Panagiotopoulos, Pablo G. Debenedetti, Roberto Car. Homogeneous ice nucleation in an ab initio machine-learning model of water. Proceedings of the National Academy of Sciences, 2022; 119 (33)
DOI: 10.1073/pnas.2207294119

Story Source:

Materials provided by Princeton University. Original written by Catherine Zandonella. Note: Content may be edited for style and length.

Thank you!!