THE PHYSICS SOCIETY

The Physics Society

Society Report, 2021-2022

Name of the Society: The Physics Society

Name of the Staff Advisor: Dr. Sanjay Kumar

Name of the President: Ms. Shalika Yekkar

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Event Held and Pertaining Details :

S.No.	Title of the event	Event Details
1	The Feynman Talks	The Feynman Club aims to familiarize students with insights into the latest developments in Physics and provide the necessary exposure to science beyond the classroom. This is achieved through talks delivered by eminent professors from across Indian and foreign universities.
		This year the Feynman Club hosted talks on topics ranging from Cosmic Structures to IoT, from entangled photons to complex networks and more.
		Mode of event: Online
		Date(s) of the event: All Year Round
		For detailed report of each talk Click Here

2	Journal Reading Group Sessions	Moreover, under the Journal Reading Group of the Feynman Club, students are provided the opportunity to present scientific papers and journals, encouraging stimulating discussions among the student community.
		Mode of event: Online
		Date(s) of the event: All Year Round
3	Problem Solving Club(PSC) Sessions	The PSC organized sessions throughout the semester for introducing and discussing problems and presenting solutions:
		• Introduction of a problem on the moment of inertia of a fractal triangle. Follow-up discussion and recap of concepts like Moment of inertia, parallel axis theorem and symmetry.
		• The fractal problem was solved completely with the active participation of a few second years. We also had some insightful and fun discussions on the subtleties of the problem.
		• The solution of fractal problem was presented along with the introduction of a new problem on the probability distribution of water falling from a fountain in a session in early September.
		• We were able to propose and solve a rough deterministic Newtonian model for the fountain problem. The qualitative analysis of those results was done to see the nature of the distribution and interpret the solution, which had some surprising but understandable features. This solution was presented later in a session in November.
		Mode of event: Online
		Date(s) of the event: All Year Round
4	Modelling and Computation Club	Under this club, a project Error Analysis of N body algorithms using Kepler problem was done by third- and second-year students.
		Mode of event: Online
		Date(s) of the event: All Year Round

5	Astronomy Club Sessions	The astronomy club had been one of the most active verticals of this year, with multiple sessions and problems undertaken by the enthusiastic participants of the club.
		Radio Astronomy-
		The radio astronomy vertical held a lot of sessions teaching the basics of antennas, their design and simulation softwares after which the participants went ahead to participate in antenna designing competitions using the experiences gained.
		Stellar Dynamics-
		The Stellar dynamics had student sessions where we expanded our theoretical knowledge and tackled lagrangian mechanics and touched upon stellar hydrodynamics in order to better solve the problems we deal with in this vertical. We also analyzed some basic features of stellar dynamical systems such as the Virial Theorem, gravitational encounters, etc. The Second and Third years divided themselves into multiple groups and worked on a large problem of Computational Modeling of the Solar system and testing of various Hypotheses on basis of the model.
		Data Analysis -
		The data analysis vertical worked on an introductory problem on measuring the Hubble Constant and finding a polynomial approximation to the Hubble parameter using data of Type 1a Supernovae, was tackled by the first years. We also saw the completion of the data analysis reports which were done in the field of Solar Physics: we tackled a 3-fold problem: Studying Variation of Total Solar Irradiation and the Sunspot Number over the Solar Cycle, Analysis of Oscillatory Behavior in H-alpha Oscillations of Solar Flares, and ultimately Prediction of Solar Flares using Neural Networks.
		Astro Ed -
		Astro Ed was introduced in the club to promote the knowledge of Astronomy to everyone interested irrespective of their course background.
		We had student sessions on spherical trigonometry, inter

6	Collaboration with IQAC-Faculty Seminar Series	Dr. Akshay Rana spoke on a topic titled "Voyage into the dark sector of the universe." He shed light on the mysterious composition and dynamics of the universe. Mode of event: Online Date(s) of the event: 17th September 2021
7	Azadi ka Amrut Mahotsav	In this talk titled Evolution of Scientific Temper among Indian Citizens which was done in collaboration with Computer Science Society and Electronic Society, we learnt about the challenges and prospects in the path to abolishing superstitious and pseudoscientific malpractices in India from Prof. Narendra Nayak. Although India has been an independent country for 75 years, we are still a long way from being free of pseudoscientific beliefs and harmful superstitious practices. The development of scientific temper among common people has been the main objective of rationalists in their fight against anti-science. Mode of event: Online Date(s) of the event: 14th November 2021
8	Annual Popli Memorial Lecture Series	The society was extremely fortunate to have Prof. Spenta R Wadia, ICTS-TIFR Bengaluru, conduct the lecture series on the topic "A Tour of Space-time Physics: Newton, Einstein, Hawking and Beyond". Attendees of the series had the opportunity to learn and interact with the speaker - discussing their doubts in the ever-expanding field of Physics. Mode of event: Online Date(s) of the event: 10th-12th March 2022

9	Annual Meera Memorial Paper Presentation Competition	The Meera Memorial Paper Presentation Competition had 27 registrations in total and the participants hail from different colleges all over India. The competition witnessed students from all three years of the UG STEM courses, presenting their personal research papers in a variety of topics related to Physics and Mathematics. Judges: Dr. Akshay Rana, Dr. Rekha Gupta Student Judges: Ms. Karnpriya Pandey, Mr. Harsh Bindal Mode of event: Online Date(s) of the event: 7th-9th April 2022
10	Journal Club	The Journal Team worked throughout the year to collect articles and contents for the Physics Society's journal-Echo, and blog of the same name. Echo Blog : The Echo blog was revamped and new articles from the students were published on the same. During the odd semester, the bi-weekly quiz on Physics- The Tuesday Toast S2 was posted with questions and answers alternating every Tuesday. Mode of event: Online Date(s) of the event: All Year-Round
11	Release of the Annual Journal	Echo, the Annual Physics Society's Journal is a platform for students to publish and express their scientific interests in the form of writing. This year's edition of the journal was released on the last day of the Popli Memorial Lectures under the grace of the speaker- Prof. Spenta R. Wadia. It includes physics articles and poems from alumni, faculty members, and students. Mode of event: Online Date(s) of the event: 12th March 2021

Annual expenses :

S. no.	Events	No. of Talks	Budget per event (approx.)	Amount (in Rs)	Spent	Fund
1.	Feynman Talks	7	1500/-	10,500/-	nil	Meera memorial Science Interaction Fund, The Physics Society Fund.
2.	Meera Memorial Paper Presentation	1	-	8,000/-	5750 (prize) 2000 (food)	Meera memorial Science Interaction Fund, Meera Memorial Prize Fund.
3.	Popli Lecture Series	3	8,000/-	24,000/-	20,000	Meera memorial Science Interaction Fund, The Physics Society Fund, RK Popli Memorial Interaction Fund.
4.	Popli Aptitude Test		3,000/-	3,000/-	-	RK Popli Memorial Interaction Fund.
5.	S C Bhargava Memorial UG Research Prize	NA	NA	5,000/-	5,000/- To be announced	S C Bhargava Memorial Fund.
6.	Kumari Meera Memorial Merit Scholarship	NA	NA	12,000/-	12,000/- To be announced	Meera Memorial Scholarship Fund.
8.	Miscellaneous (Frames and journal Paintings etc.)	-	-	7,500/-	1400/-	Meera Memorial Science Interaction Fund.
Total				70,000/-	**46,150/-**	

Some important links :

- Annual Journal, Echo'22 : [Echo'22](#)
- Youtube uploads of Popli Memorial Lecture Series :
    - A. [Day 1](#)
    - B. [Day 2](#)
    - C. [Day 3](#)
- For further details regarding the individual events held : [Click Here](#)