

# **Departmental Report: 2023- 2024**

## **Department of Physics**

Following are the activities of Department of Physics, St. Joseph's College Darjeeling during the year 2023-24:

### **Administrative Activities:**

The faculties of the department have been actively involved in different administrative responsibilities. Dr. N. K. Pradhan has been continuing his role as the dean, faculty of science, St. Joseph's College. The Head of the Department, Dr. D. Goswami is a part of the research cell, cultural committee, disciplinary & student's welfare committee, and the admission committee. He is in charge of the departmental library. He is also the coordinator of Science and Research Club. Mr. P. Dangal is associated with the admission committee, games and sports, disciplinary & student's welfare committee and the staff welfare committee.

Ms. Prashanti Chettri joined the department as a part time teacher on 01.09.2023. Mr. Navin Raya retired from the department on 30<sup>th</sup> November 2023.

## **Departmental Activity**

The department of Physics in collaboration with the BCA Department of our college organized a farewell ceremony for Mr. N. Raya on 7<sup>th</sup> November, 2023 at the seminar room of BCA Department. All the faculty members and the students of Physics and BCA Department had an active participation to make this farewell program a success.

### **Academic Activities:**

The department arranged an orientation program and a parent teacher meeting for the new students, at the beginning of the session. During the program the H.O.D introduced the teaching and nonteaching staff to all the students. Students were briefed about the syllabus and the history and motto of the college. The contact details of the departmental teachers and the parents were exchanged.

The year went on with smooth conducting of theoretical and practical classes.

The Department of Physics, in collaboration with the Scientific Research Committee (SRC) and the Internal Quality Assurance Cell (IQAC), successfully organized a one-day international seminar on the topic "Mathematical Perspective in the Emergence of Physics", on 29<sup>th</sup> Aug, 2023 at MR Hall and featured Mr. Alex Ely Kossovsky, a distinguished guest speaker from the University of New York. The seminar aimed to explore the intricate relationship between mathematics and physics, focusing on how mathematical concepts have played a pivotal role in the development and

emergence of various branches of physics. It provided a platform for scholars, researchers, and students to engage in discussions and gain insights into the mathematical foundations of physics. The seminar commenced with an inaugural session, featuring opening remarks by Dr. Debarghya Goswami, the Head of the Department of Physics, followed by the welcome speech of the President of SRC club. - Fr. Dr. Donatus Kujur, the Principal of the St. Joseph's College, delivered the welcome address, emphasizing the significance of the seminar's theme. - Mr. Alex Ely Kossovsky, the guest speaker, delivered the keynote address, highlighting the historical and contemporary importance of mathematics in physics. 185 students and teachers participated in this event.



Geo Tag Photo: The Chief Guest Mr. Alex Ely Kossovsky with all students and faculties of the department.

The department also organized a one-day national seminar on the topic "Monstrous black holes" on 12<sup>th</sup> March 2024 at MR Hall. Prof. Tapas Kumar Das, theoretical Astrophysicist of Harish Chandra

research Institute; Allahabad was the key note speaker. The lecture was focused on the history of discovery of massive black holes which are sitting at the centers of galaxies. A total number of 127 students and teachers participated in that event.



Geo Tag Photo: The key note speaker Prof. Tapas Kumar Das delivering his lecture.

## Challenges

As the university is undergoing radical changes in the curriculum, the department finds it difficult to keep the library and the laboratories regularly updated. In last few years the college has updated quite a few experimental laboratories in the department. However, as the number of seats in the new academic session has been almost doubled after the implementation of Four Year Under-Graduate Program, the department may find it challenging to provide enough number of practical set-ups and computers for the students if most of the seats are filled. This change in the curriculum also leads to a lack of availability of updated books in the local repository of the department. In view of Mr.

Raya's retirement, the department finds it difficult to cope with the practical classes due to a lack in human resources. It can be noted that the post held by Mr. Raya has been abolished by the government, making it difficult for the college to recruit any dedicated faculty for the setting up of the various existing laboratories. The unfilled vacant post for the last 6 years also adds to the human resource crisis. The department feels that under FYUGP to conduct Physics Major Program, both theory and practical classes, a minimum of 6 permanent teachers are required. However, it will need 2 more posts to be sanctioned by the government which can be a long-term goal for the college and the department. The result of the past academic year has not been up to the mark and remains a major challenge for the department.

### **Future Plans**

The college has already come up with the advertisement to fill up the vacant permanent post of the department and it is hoped that the recruitment process may be completed in the next academic session. With four permanent and two part-time teachers the department looks forward to come up with a temporary solution of the inadequacy in the number of teaching faculty. The long term plan may include some positive planning and proposing

to the government via the governing body to establish new permanent substantive teaching post. The college has also addressed the problems faced in computer laboratory by installing LAN connections for the students to work on various online platforms, and plans to add more work-stations. With the upcoming digitalization of the college's book repository, the department remains hopeful of addition of updated study materials for the students. The department hopes to add more innovative teaching and learning techniques for the students like hosting seminars, presentations, field-work, etc., thereby enabling the students to cultivate a better understanding and to have a higher academic achievement.

### **Research Activities:**

Mr. PravatDangal participated in a workshop titled "ADITYA L1: WORKSHOP ON SUIT SCIENCE & DATA ANALYSIS" on 6-7<sup>th</sup> March 2024 at Tezpur University, Assam.

The minor research project titled "The effect of different ion beam irradiation on the physical properties of room temperature ferroelectric and antiferroelectric liquid crystal mixtures suitable for display applications" which was sanctioned to Dr. D. Goswami by UGC- DAE- CSR last year was extended for another year after submission of annual report. He has also published a paper titled "Study of a Ferroelectric Liquid Crystal

Mesogen by Geometrical Optimization and Electro-  
Optic Characterization”in the Journal of Scientific  
Research having  
doi<https://doi.org/10.3329/jsr.v16i1.65364>