



ANNUAL DEPARTMENTAL NEWSLETTER

2023-24

DEPARTMENT OF PHYSICS
MOTILAL NEHRU COLLEGE
UNIVERSITY OF DELHI

WHERE WORLD STARTS, PHYSICS ACCELERATES !

CONTENTS

Address

Department of Physics,
Motilal Nehru College,
University of Delhi,
Benito Juarez Marg, South Campus,
New Delhi, India (110021)

Email Id:

anusandhanphysicsociety@gmail.com

Social Media

 [anusandhan_physics_society](#)

Editorial Board

Chief Editor: Kaustav Kapil,
B.Sc. (H) Physics (2021-24)

Layout Advisors

1. Ritika Sheoran, B.Sc. (H) Physics (2021-24)
2. Anchal Chauhan, B.Sc. (H) Physics (2021-24)

Content Reviewing Members

1. Sahil, B.Sc. (H) Physics (2021-24)
2. Sumit Sharma, B.Sc. (H) Physics (2021-24)
3. Ashish, B.Sc. (H) Physics (2021-24)

1. Faculty of Physics
2. Non Teaching Staff
3. Letter from Teacher In Charge
4. Anusandhan Physics Society
5. Student Union Body (Anusandhan Physics Society)
6. ANTARIKSH 2023
7. World Standards Day - BIS
8. IUAC Visit
9. Rastrapati Bhavan Vimarsh Srikhala
10. Project AMRIT - SNCF
11. National Science Day
12. Uday: Naye Bharat Ki Neev
13. INERTIA 2024 - Annual Departmental Fest
14. QUANTA 2024 - Annual Departmental Magazine
15. Research & Outreach Activities

FACULTY OF PHYSICS

MOTILAL NEHRU COLLEGE



Prof. Seema Vats (TIC)

Ms. Sushma Yadav

Ms. Jyoti Chauhan

Prof. Subhashish Halder

Dr. Y Prem Kumar

Dr. Pinki Yadav

Dr. Simrata Bindra

Mr. Sanjeev Kumar

Mr. Mahesh Kumar

Mr. Shravan Kumar Meena

Dr. Kailash Chandra Garg

Mr. Prashant Kumar

Mr. Shivam Tiwari

Mr. Arpit Gaur

Dr. Mahesh Chand

Mr. Manohar Singh

Dr. Rakesh Kumar Sonker

Dr. Sukirti Gumber

Dr. Saroj Kumar Parida

Mr. Sachin Kumar *

Dr. Richa Jain *

Dr. Sahil Dhawan *

Dr. Sujit Saini *

NON TEACHING STAFF (DEPARTMENT OF PHYSICS) MOTILAL NEHRU COLLEGE



Lab Assistants

Mr. Jaswant Singh Negi

Mr. Moinuddin

Mr. Amit Kumar

Mr. Jitender Singh

Mr. Rakesh Kumar

Mr. Hansraj Sharma

Lab Attendants

Mr. Bhupal Khatri

Mr. Manish Gautam

Mr. Surendra Meena

Mr. Dharmender Singh

LETTER FROM TEACHER IN CHARGE



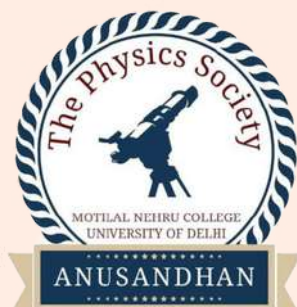
As another academic year draws to a close here in our department, I am thrilled to take this opportunity to reflect on the incredible achievements of our department. It's been a year filled with a lot of exciting events and knowledgeable sessions.

The dedication of our faculty and staff continues to inspire a love for physics in our students. This passion for the subject fuels our classrooms and labs, pushing the boundaries of knowledge and fostering a vibrant learning environment.

I want to extend a heartfelt thank you to everyone in the department – faculty, staff, and students – for your hard work and unwavering commitment. Your contributions are what make the Physics Department of Motilal Nehru College such a special place.

Prof. Seema Vats
Teacher In Charge (2023-24),
Department of Physics,
Motilal Nehru College,
University of Delhi

ANUSANDHAN PHYSICS SOCIETY



Physics is not just a subject, but a way of life. Science starts failing when Physics starts failing. The reality of the Universe seems to be incomplete without the laws of Physics. Whether the question seems highly tough, a physicist will dedicate himself/herself to solve the mysteries and explain that very question. With the tagline - "From atom to universe, we'll find the physics of everything", ANUSANDHAN PHYSICS SOCIETY" has been serving Motilal Nehru College, University of Delhi to the best of its abilities. With a dedicated team of Union Leaders, Convenors and Teachers, Team heads, and all the personnels of the society, we work round the clock to work as active students, students who are hungry for answers to various mysteries.

Established back in the year 2006, the PHYSICS SOCIETY had its priorities set. Priorities that led to the foundation of our society. 17 years since its foundation, society has actively participated in various events. The primary goal of our society is to indulge a scientific temperament in the people of the world. Considering the current world, people try to fool/scam around every time. In such a scenario, if one knows the basics of the topic/product concerned, it would be comparatively easier for us to tackle such a situation. Thus, our utmost priority is to educate people regarding the Physics behind things. As a society we are constantly trying to increase our base by including students from other courses too.

We have been very successful in terms of providing exposure as many of our students has been invited/participated in many National level programs. There are lot of students who have qualified for various National Level Institutes through IIT JAM, TIFR, etc. and have done/doing wonderful work there. As a society we are very inclusive of other cultures too. We have a lot of students who are placed in various other societies, and some are even working as office bearers in societies like Abhiyanjana, Placement Cell, NESO, etc.

In our efforts to collaborate with national level research institutes, the society has collaborated with the Institute of Plasma Research (IPR), Tezpur University, Radio Astronomy at Home (RAD@Home). Under such collaborations, a series of webinars/seminars has been arranged. Various tasks related to the collaborations had also been assigned to the students. We also try to be creative from time to time. Our team also organises Meme Making Competitions which are very interesting and funny sections. These memes are generally concentrated on Physics topics and some of them are even uploaded in our Instagram handle. Apart from that we also publish an annual magazine named QUANTA during our departmental fest (INERTIA). Quanta is one of the most liked magazines in our college. Every year people (primarily students) from outside the college also take part in the creation of the magazine.

STUDENT UNION BODY 2023-24 (ANUSANDHAN PHYSICS SOCIETY)



Kaustav Kapil - President

Hariom Sharan - Vice President

Rohan Mathur - Treasurer

Christine Alva Marwein - Secretary

Rohit Punia - Social Media Head

Kashifuddin - Logistics Head

Rakshita Singh - Event Management Head

Bharat Kumar Sharma - Public Relation Head

Harshvardhan - Research & Development Head

Jitanshu Samal - Dy. Head, Event Management

Parth Khare - Dy. Head, Event Management

Annu Priya - Executive, Event Management

Mukul Jamini - Operational Executive

Ayush Sangwan - Dy. Head, Finance Management

Suryansh Shukla - Executive, Social Media

ANTARIKSH 2023

The inaugural event of the academic session 2023-24 was themed to celebrate the success and ambitious launch of our Indian Space Program's futuristic endeavors. Indian Space Research Organisation (ISRO) is the leading government agency in the nation which is doing wonderful work in the space research sector. Most importantly, ISRO missions are for both research and public benefit purposes. In the current world, space research means a very heavy investment. Considering the Indian economy and demands, it is



very hard to invest so much into space sector development as compared to countries like the USA, Russia, China, etc. But ISRO made the impossible possible. With a limited expenditure of ~ \$ 75 million, Chandrayaan 3 landed on the south pole of the moon and marked India's historical entry into the "Moon Race". Indian scientist's and engineers' ambitions and dedication cannot be neglected and must be praised. Be it limited resources, a large set of people affiliated with ISRO's projects never looked back.



Thus to mark respect and celebrate their dedication and success, the Department of Physics and the Anusandhan Physics Society of Motilal Nehru College organised the event '**ANTARIKSH 2023**' at Lecture Theatre 2 of the college. "Antariksh" is a Hindi word which means 'Space'. The event was themed with "**CHANDRAYAAN 3 and ADITYA L1**". Thus this event's competition was conducted under the above-mentioned theme.

This event was a great success and it was able to lay the foundation of curiosity for many of the students in the college. It was an event full of information.

Every participant presented the same but yet something unique. It was an event full of skill. It was an event where we all got the chance to pay our respects to the great scientists and engineers involved in the success of these missions. Space exploration is a section that is questioned a lot by the general mass. But the reality is that these missions were the ones that were celebrated by the general mass too.

WORLD STANDARD'S DAY - BUREAU OF INDIAN STANDARDS

Conducted in collaboration with Bureau of Indian Standards (BIS) - Delhi Branch, the event was a Day Long Programme. The event commenced on 14th October 2023 from 10:30 AM to 4:30 PM at the Seminar Hall of the college. Resource person from BIS were Anupam Rai and Vivek Prakash. The talk cum presentation, delivered by the two focused on awaring the students on the importance of knowing the quality of products that are available at the marketplaces.



They mentioned how various product's standardization on qualities is set by the BIS. They gave a brief history on the establishment on major institutions like Indian Standardization Institute (ISI).



They also showed the correct ways to identify the authentic product and enlightened us on the importance of Quality Products use. They also gave the interested students an opportunity to join their 'Youth to Youth Connect' initiative based on BIS Quality Care application promotion.

Later part of the event had 3 competitions with a net prize pool of Rs. 8250.00 (Rs. 2750 x 3). The competitions were namely Slogan Writing Competition, Painting/Poster Making Competition and Quiz Competition.

The two resource persons alongside a few senior teachers of the Department of Physics judged and invigilated through the course of the 3 competitions which were held at the Seminar Hall and nearby classrooms. Lunch was distributed to all the attendees from BIS at the college canteen. A footfall of nearly 80+ students and teachers were observed. Nearly 30+ students participated in the 3 competitions.

INTER UNIVERISTY ACCELERATOR CENTRE (IUAC) VISIT



अंतर विश्वविद्यालय त्वरक केंद्र
Inter-University
Accelerator Centre - (IUAC)

Located near Vasant Kunj - New Delhi, the Inter-University Accelerator Centre (IUAC) was set up by the University Grants Commission (UGC) as the first Inter-University Centre (IUC) called Nuclear Science Centre after due approval of the Planning Commission and the Prime Minister in October 1984. The construction started in December 1986 and was completed in December 1990.



The basic objective of the Inter-University Accelerator Centre (IUAC) is to provide front-ranking accelerator-based research facilities to create possibilities for internationally competitive research within the university system. For accelerator-driven research, IUAC is India's premier laboratory for university researchers. The vision of this facility is to 'open new windows to the young minds of our nation and strengthen the pool of scientists by building a brighter future through scientific understanding.'

On 16 October 2023, a set of 20 students from 3rd year - B.Sc. (H) Physics, escorted by Dr. Kailash Chandra and Dr. Richa Jain * from the Department of Physics of the college, visited the Inter-University Accelerator Centre (IUAC) at Vasant Kunj. This trip/visit was much requested by the students because of the high benefits in terms of knowledge. The trip was organised under a visitor program provided by IUAC, New Delhi. With an introductory presentation on the basics of accelerator physics and the various instruments available at the facility by Mr. Rajeev Sharma (Scientist D, IUAC), the tour started. Alongside the students from Motilal Nehru College, three other colleges were also participating in this visitors program.

The Lab tour started at around 12 p.m. after the talk. Facilities that were shown and briefed about to the students were High Current Injector (HCI), Indian National Gamma Array (INGA) and Hybrid Recoil Mass Analyzer (HYRA), In Situ X-Ray Diffractometer (XRD), Raman Spectrometer and the National Array of Neutron Detectors (NAND), Control Room of the Pelletron Accelerator.

Students had a very interactive and informative visit there. Such visits are highly appreciated by the Department of Physics.

RASTRAPATI BHAVAN VIMARSH SRIKHALA

On December 14th of 2023, the winners and some organising members were presented with an opportunity to join a valuable seminar held at Rashtrapati Bhawan Auditorium under the banner of Rashtrapati Bhawan Vimarsh Shrinkhala. The guest speaker in this seminar was none other than the chairman of Indian Space Research Organisation (ISRO) and Secretary of the Department of Space, Government of India. Shri S. Somanath.

Students from various college of Univesity of Delhi were invited in this program.



Other than students, many eminent faculty members and researchers were also present in the seminar. Motilal Nehru College was escorted by senior teachers Ms. Sushma Yadav, Dr. Y Prem Kumar and Dr. Simrata Bindra. The students from our college also got to interact with senior researchers from Delhi University Prof. Ashutosh Bharadwaj and Prof. Anjan Dutta.



The lecture taken by S. Somanath was very versatile. In what it appeared like a talk on the recent two missions, Shri Somanath took us through a ride of Indian Space Research Organisation (ISRO). He not only discussed about Chandrayaan mission series and Aditya L1 mission, but also briefed us through the technicalities of all the previous missions ISRO did. Not only history, he also explained how the future missions like the Ganganyaan, NISAR is going to help our nation.

The future of Indian Space Program is bright and full of potential, but not easy. Shri Somanath also briefed us about the new fuel type rocket propulsion systems like the - Electrical propulsion, Nuclear propulsion system and the Methane propulsion system that are under research and developmental work. He also discussed about the upcoming Indian Space Station which is targeted to be completed by 2035.

It was very enlightening opportunity for the students of the department of physics !

PROJECT AMRIT - SNCF

Sant Nirankari Charitable Foundation (SNCF) organized 'PROJECT AMRIT'- A water conservation initiative across 1100+ locations with 3.5 Lakh volunteers participated & contributed 21 Lakh Manhours in India on 26th February 2023. In continuation to 2023, SNCF will organize Project Amrit on 25th February 2024 across 1200+ locations across India with the theme of 'Swachh Jal Swachh Mann'. In NCR, the event will focus on the cleaning of Yamuna Ghats with the theme of 'Aao Sawarein, Yamuna Kinare'. This initiative will not only improve the overall health of the Yamuna River but also contribute to the preservation of aquatic life and enhance the overall beauty of the surrounding areas.

**MOTILAL NEHRU COLLEGE,
UNIVERSITY OF DELHI**

SANT NIRANKARI CHARITABLE
FOUNDATION'S

PROJECT AMRIT
SWACHH JAL SWACHH MANN

WITH THE THEME OF "AAO
SWAREIN, YAMUNA KINARE" THE
INITIATIVE IS TO CONTRIBUTE
TOWARDS WATER CONSERVATION
AND BEAUTIFY THE
SURROUNDINGS.

DATE: 15/02/24
TIME: 11:00AM-12:00PM
REPORTING
TIME: 10:45AM
VENU: SEMINAR HALL,
MOTILAL NEHRU
COLLEGE, SOUTH
CAMPUS, NEW DELHI

ALL THE RESPECTED TEACHERS AND STUDENTS ARE
REQUESTED TO ATTEND THE EVENT.

REGISTER

PROF. YOGESHWAR
SHARMA
OFFICIATING
PRINCIPAL

PROF. A.M. KHAN
IQAC
COORDINATOR

PROF. SEEMA VATS
EVENT
COORDINATOR

KASHIFUDDIN
STUDENT
COORDINATOR
+91 8447237948

This event commenced on 15th February 2024 (Thursday) at the Seminar Hall of our college from 11 AM to 12 PM. With the inauguratory speech of Prof. Seema Vats (TIC – Dept. Of Physics), she encouraged the students and the teachers to listen to the talk on such a important topic like Water Conservation. Prof. AM Khan (Dept. Of Chemistry / IQAC Coordinator) also briefed the students on how Chemistry and water are linked so closely that one may not be possible without the other. A song was presented by the band of the SNCF, highlighting the importance of water in life.

Several members of their resource person team (on a shuffle) then explained the several issues, needs, do and don'ts related to water. They briefed the students on terminologies like zero day and gave many insightful data. SNCF's "PROJECT AMRIT" emphasizes the fact that topics like water conservation need to be implemented than just discussed.

Refreshments were distributed from the foundation's end to all the attendees. Interviews (bites) were also taken from the media team from some attendees. They set registrations desks at the Quadrangle in the college campus for the 25th of February 2024 - Yamuna Cleaning Voluntary initiative. In terms of numbers, more than 50 students attended the event and around 15 teachers came. SNCF's team had nearly 15-20 members.



SCIENCE BASH 2024 - NATIONAL SCIENCE DAY



National Science Day is celebrated in India on February 28 each year to mark the discovery of the Raman effect by Indian physicist Sir C. V. Raman on 28 February 1928. For his discovery, Sir C.V. Raman was awarded the Nobel Prize in Physics in 1930.

On account of this glorious day, Anusandhan Physics Society conducted two competitions namely Quiz Competition and Poster Making Competition. The competitions were open for all and was participated by more than 40 students across the two competitions. The entire event was planned in a very short span of time and a very little budget was invested in the preparations of the event. Guidance by Prof. Seema Vats (TIC) alongside the able team of Anusandhan made it possible to conduct the competitions smoothly and commence them on time.



Available Physics Laboratory 1 was used as the location of the event. Students and teachers, lab staff were actively involved in the success of the event.

Speeches were delivered during the course of the event letting the students and participants know of the significances of the day.

उदय: नए भारत की नींव

The event revolved around two sections which were all conducted in the seminal hall of the college, which was not only attended by students of our college but also Gargi Collage. These sections included

- A speaker session on “Dynamics of Sun” by one the renowned scientist of the Physical Research Laboratory, Ahmedabad Prof. (Dr.) Rajmal Jain Kothari.
- A presentation competition that was on the topic “Role of physics in Viksit Bharat



The program started at 10:30, as the anchors Parth Khare and Divyam Pant who are both students of physics honors studying in the 1st year, introduced the speaker who has numerous achievements to his name including being a acclaimed international scientist and a fellow of the Gujarat Science Academy. Prof. (Dr.) Rajmal was very willing to share his extremely insightful knowledge of physics and it intricate working especially when in comes to understanding the sun and it is mysteries. This session was aimed at inspiring the young minds in physics about the mysterious works of our very own star and life

giver as the beauty of physics is displayed through Prof. Rajmal Jain’s lecture. Sir also provided with instances for his life where he was able to over come setbacks, which truly inspired the students to follow the path of research and development. The lecture ended with an incredible video of the ‘Kohinoor’ phenomena filmed in Antarctica.

It stated his was aimed at making the students aware of the importance of physic when it comes to building a free and sustainable future for our county, it was also to get the insights of students on how they personally think they can contribute to that future

There was a total of 4 participance. The judges included - Jyoti Ma’am, Mahesh Sir, Manohar Sir, Sukriti Ma’am.

The winners of this competition were -
Kaustav Kapil (B.Sc. (H) Physics) – 1st prize
Swarnim Rastogi (B.A Program) - 2nd prize

A closing speech by Dr. Sushma marked the end of the first part of the event at around 12:30 PM. This was followed by a teKa break for everyone present for the lecture



INERTIA 2024 - ANNUAL DEPARTMENT FEST

The annual departmental fest - INERTIA is a very famous and joyful fest celebrated at Motilal Nehru College. Students across from University of Delhi participate in the thrilling events organised under the bannership of INERTIA.

Annually in this event, we observe an average footfall of more than 150 students with around 20% coming from different colleges and courses.



INERTIA 2024 started with a movie screening of the film 1917 which is about the journey of Two soldiers who are assigned the task of delivering a critical message to another battalion, of 1,600 men who were deep into enemy territory fighting battles, who were risking their lives for the job in order to prevent them from stepping right into a deadly ambush.

It was followed by the inauguration of the principal and the teachers of the department and a speech by the President of Anusandhan, Kaustav Kapil. A speech by the principal for motivating the students followed by the launching of the annual physics magazine "QUANTA" which highlights the knowledge and passion of the students in the different fields of the physics. The program ended with handing out certificates of appreciation to the member of the society and the executive members for the genuine and heartfelt contribution to the society and the department. The certificates were handed out by the teachers of the department to each and every member of the society.



The day ended with the debate competition that started at 1:30 PM, which was conducted in the Asian Parliamentary Debate with a total of 4 teams in the competition. The competition ended with Government winning and Himanshu who was the Deputy Leader of Opposition winning the best speaker of the whole debate. This concluded the first day of the fest.

The second day started with the sudoku at 10 am in the morning, which aims to challenge the logical ability and deduction capability of the students by filling in a simple sheet with numbers but is something that is harder than it looks.

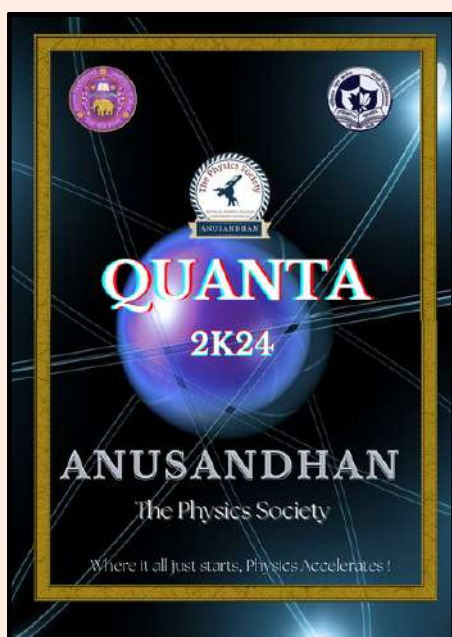
The second competition that was held on the second was the quiz competition which highlights the knowledge and ability of the students to keep up with this ever changing world as they try to process and grapple with the information they are given. The question was made by Hariom, Harshvardhan and Jitanshu on a multitude of topics ranging from science, sports, current affairs etc. The quiz competition marked the end of the annual feast for the year 2024, as the efforts of everyone involved has bore fruit and will forever be one of the precious memories that we carry with us.

QUANTA 2024 - ANNUAL DEPARTMENTAL MAGAZINE



The Annual Departmental (Physics) Magazine “QUANTA” highlights the knowledge and passion of the students in the different fields of the physics and related fields. This is an outlet for the students to show off their passion through articles, passages, photos, pomes and other literacy tools which is a great opportunity for them.

The previous editions QUANTA 2022, QUANTA 2023 were appreciated a lot across the University. The content were focussed on to different aspects of life. The main idea behind the content mostly revolves to bring in different aspects like Films, Devices and many other applicational objects and to relate it with Physics or explain them. The language mostly remains such that it is easily understandable by non science oriented people too.



QUANTA 2024 also aims at doing the same. Quality of the content is foremost for the department. The E magazine editions from 2022 are available at the website of Motilal Nehru College under Physics society section. In case of any difficulty in accessing, you can mail us at anusandhanphysicsociety@gmail.com . Our team will help you out.

RESEARCH & OUTREACH ACTIVITIES

The students of department of physics are very active when it come to wokring in practical applications alongside their regular coursework. The environment of learning through various oppurtunities is well appreciated. This academic session, through the physics society, students have initiated various activities relating to research and outreach based activities. Few of them are mentioned below.

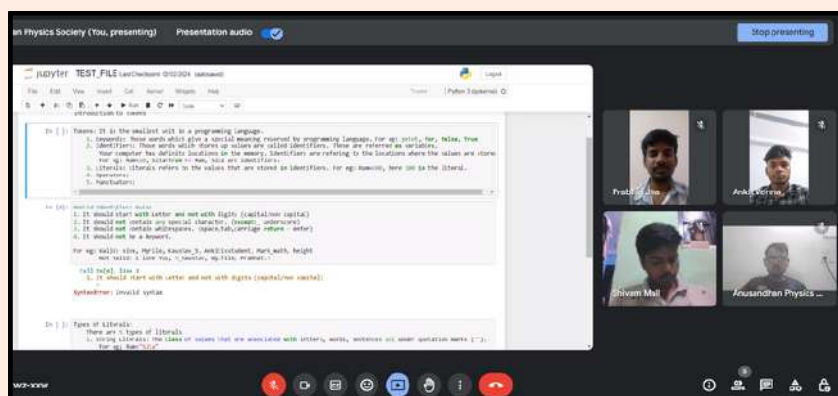
1. EDUCATIONAL OUTREACH TO PM SHRI K.V R.K PURAM SECTOR-4

The educational outreach program to the school was a major success. The topic that was presented on by the students of the physics society was “LASER AND ITS APPLICATIONS”. The lecture had given the students at the school a new perspective to think of. It allowed them explore a very new field of physics.

Students and staff members of the K.V appreciated the entire team for their generous efforts towards such interesting educative initiatives.



2. PYTHON/C++ SESSIONS BY ANUSANDHAN



After many requests coming in from the students of B.Sc. (H) Physics of Motilal Nehru College, that they require a basic programming courses designed such that it allows them to cope up with the college coursework. Society after much consultations, took the issue and designed two separate courses namely “Basic of Python” (taught by Kaustav Kapil) and

“Introduction to C++” (taught by Kaushal Joshi). Many sessions have been completed and are very well appreciated by the students.

3. MECHANICAL SOLAR OBSERVATORY PROJECT (R&D)

The project deals at building a mechanical-optical device that allows the user to take observations like Azimuth, Altitude, Angular Spread and some other technical quantities of the sun.

Initial proposals has been made by the team and briefings are being done. Although due to the complex nature of the optical tube relating with trigonometric quantities for observation, the project is still under progress. It is being lead by Kaustav Kapil and other members are Harshvardhan, Deepanshu, Hariom Sharan.

