

हंसराज महाविद्यालय

दिल्ली विश्वविद्यालय
महात्मा हंसराज मार्ग,
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HANSRAJ COLLEGE

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(2025-2026)

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| <u>Name of the Event</u> | : CSIR-NPL Open Day Visit 2025 |
| <u>Society Name</u> | : Lumen |
| <u>Date of the Event</u> | : 17 th October, 2025 |
| <u>Duration</u> | : 9:30 A.M. to 12:00 P.M. |
| <u>Venue of the Event</u> | : CSIR- National Physical Laboratory |
| <u>Convenor</u> | : Rajendra Prasad Tiwari |
| <u>Core</u> | : Shivam Singh, Manas Lohani, Srijal Kumar, Karan, Vedika Puri |

CSIR-NPL Visit 2025



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On **October 17th, 2025**, the **Lumen Society** organized a **Visit to the CSIR-National Physical Laboratory** on its open day on account of its Foundation Day for the 2025–26. The visit aimed at providing exposure to students, aspiring to be researchers, to the technological work being carried out in the esteemed Laboratory.



21 curious and enthusiastic students, showed up for the visit, accompanied by 4 faculty, Dr Neelakshi N. K. Borah, Dr. Nishant Shankhwar, Dr. Ganesh Lal and Dr. Rajender Prasad Tiwari.

The visit began with a presentation by Miss Bhavna Rajput, a PhD Scholar, on “Waste to Wealth for a Circular Economy”. The research involved processing multilayered plastic and pharma waste into pellets which then get turned into lightweight yet durable tiles. Similarly, it included extracting carbon

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from used batteries. An anti-dust coating to raise the efficiency of solar panels was also discussed, among other elements.



The next stop was the CSIR-NPL Central Workshop which provides technical services like design, fabrication, and repair for the Laboratory. Students stood in awe as Technician, Sh Vijay introduced them to the CNC (Computer numerical control) Milling Machine, with an accuracy of 1 micrometre. Its high programmability reduces the requirement of manual skill. Senior Technician, Suresh Kumar then introduced the students to the auto-milling machine, which, like the CNC milling machine is compatible with several programming languages like G-code and M-code, and also has a hydraulic system. The group then split up to explore the myriad machines in the workshop.

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CNC Milling Machine



Auto-milling machine

This was followed by a presentation by Nitesh Sethi, working under Dr. Rajesh P, on design and development of drone. Students quenched their curiosity by asking introspective questions. The project designers aspire to apply their technology in the defence sector.



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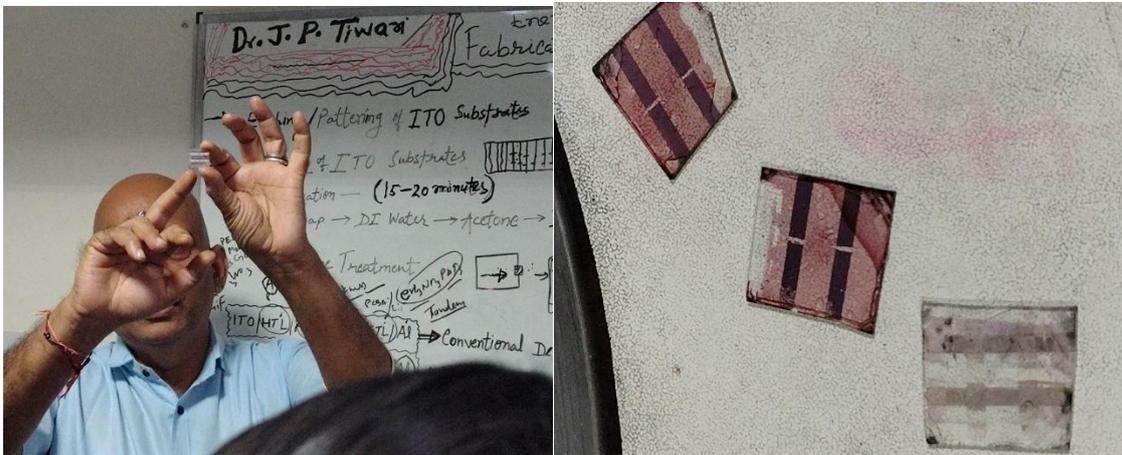
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This was followed by an enthusiastic presentation on the Fabrication of Organic Solar Cells by Dr. J. P. Tiwari. To increase the efficiency of solar cells, he mentions that Perovskite was used in tandem with Silicon, however there is a drawback to this method due to lead exposure during Perovskite's manufacturing process. An interesting point discussed was the possible tuning of band gap using conducting polymers in solar cells.

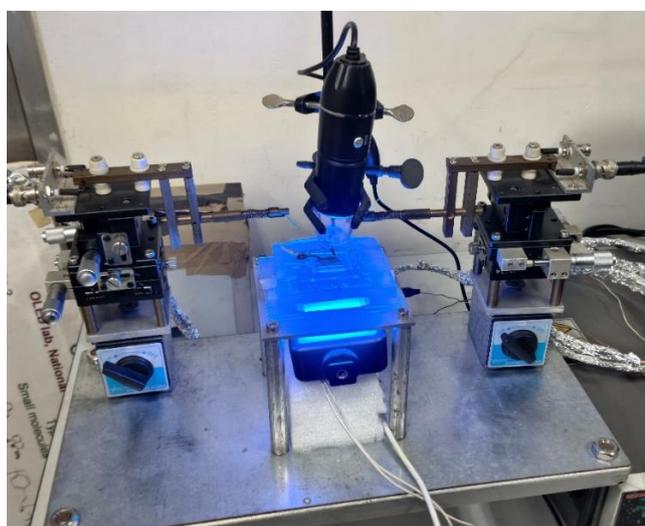


Thermal evaporator

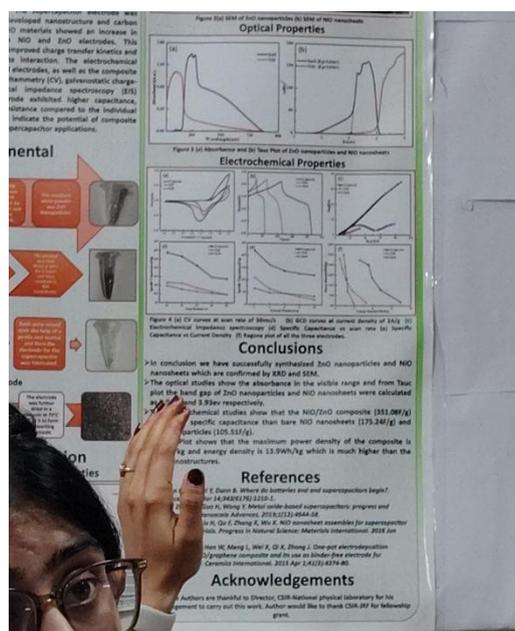
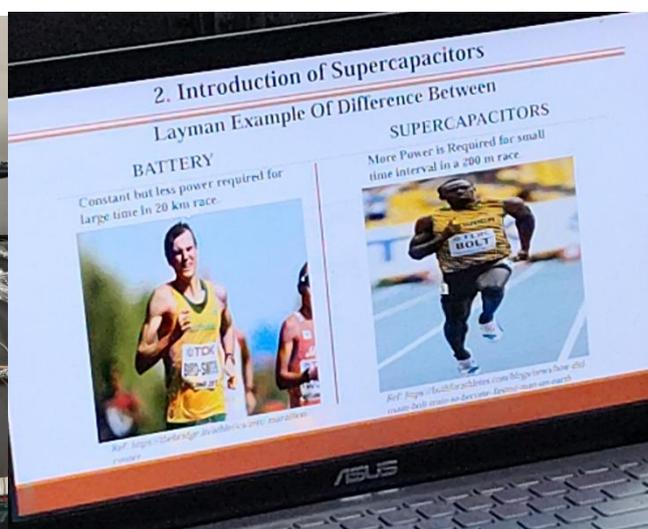


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The next presentation was on the working of Photodetectors and Neuromorphic Memristors, given by Miss Megha Rana, a PhD scholar. It was followed by one on Hybrid batteries that use Supercapacitors, given by PhD Scholar, Miss Riya Mallik, who introduced the concept with not just hardcore data but also an appropriate and memorable analogy. Dr. C.K. Suman, principal scientist, was impressed by the students' interest and enthusiasm.



Photodetector being tested



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The group then witnessed a presentation by Mr. Jayant on Solar Photovoltaic Systems. Mr. Jayant engaged the students by asking them questions and exhibited his specimens, including a solid silicon ingot and PV modules.



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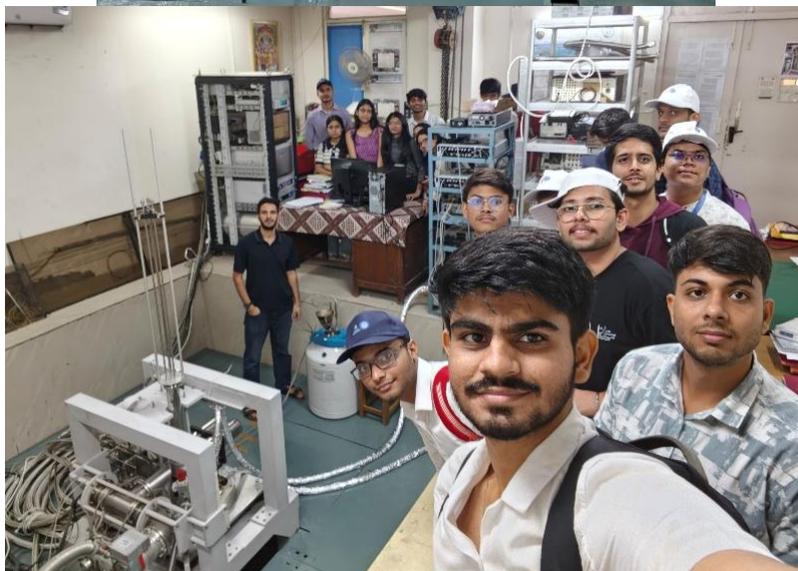
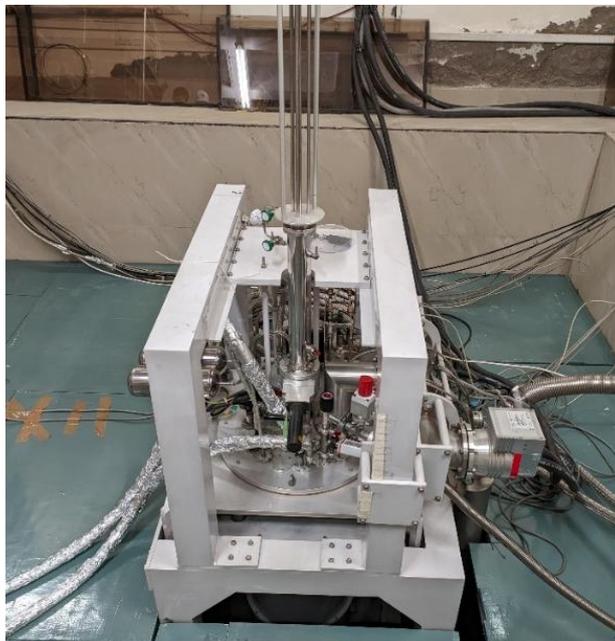
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Lastly, the students visited the lab they had all been waiting for, the Quantum Structure Laboratory. There, Mr. Majid Yousuf, PhD Scholar, introduced the students to the Superconducting Nanowire Single Photon Detector. The apparatus was built underground to reduce thermal noise when taking observations. The system was cooled to a whopping 10 milikelvin which is about -273.14 degrees Celsius, using liquid helium.



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Overall, the visit was both educational and inspiring. Each presentation was followed by a heated QnA session, where students learnt even more about the research projects. Students were also excited to receive the merchandise issued by the Laboratory as well as the light refreshments.



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List of Student Participants

| No. | Name | Course | Roll No. | Year |
|-----|-------------------------|-------------|-----------|------|
| 1. | Shivam Singh | Electronics | 13689 | 3rd |
| 2. | Ayush Soni | Electronics | 13597 | 3rd |
| 3. | Srijal Kumar | Electronics | 13599 | 3rd |
| 4. | Aryan Rana | Electronics | 13594 | 3rd |
| 5. | Ashwani | Electronics | 13579 | 3rd |
| 6. | Shobhit | Electronics | 13582 | 3rd |
| 7. | Devansh | Electronics | 13561 | 3rd |
| 8. | Shreyash Pandey | Electronics | 25568018 | 1st |
| 9. | Varsh | Electronics | 25568041 | 1st |
| 10. | Sumit Kumar | Electronics | 25568020 | 1st |
| 11. | Varun Kumar | Electronics | 245583579 | 2nd |
| 12. | Aarti | Electronics | 245583582 | 2nd |
| 13. | Kritika | Electronics | 245583569 | 2nd |
| 14. | Nikita Tyagi | Physics | 13969 | 3rd |
| 15. | Bhavishya Varshney | Physics | 25567084 | 1st |
| 16. | Atharv Kumar | Physics | 25567015 | 1st |
| 17. | Anya Garg | Physics | 25567011 | 1st |
| 18. | Naveda Noor Kharnongrum | Physics | 25567032 | 1st |
| 19. | Aman Kumar | Physics | 25567007 | 1st |
| 20. | Heman | Physics | 245673918 | 2nd |
| 21. | Utkarsh Singh | Electronics | 245583567 | 2nd |