

## **Physics and Photonics Science**

The Physics & Photonics Science department at National Institute of Technology Hamirpur was established in 2009 as Department of Physics. There are 14 faculty members in the department, including Guest faculty. National Institute of Technology Hamirpur is situated in the land of Gods i.e. Himachal Pradesh. The campus sits in the lap of scenic beauty and the snow-clad mountains of Dhauladhar range are vividly visible from the campus. The Department is providing world-class undergraduate and postgraduate education, as well as research facilities for doctoral program in diverse areas of fundamental and applied Physics. The department is one of the few places offering a B.Tech. academic degree, in Engineering Physics from 2020. This unique course blends the best of contemporary physics and technology, to create professionals who are equally equipped with both science and technology. The department is equipped with the latest world class equipment available to facilitate the fundamental understanding of different concepts to UG and PG students and to give them more exposure of experimentation.

The department also started to offer 2-year M.Sc. program in Physics in 2017, while the Ph. D. program in various specialized areas of research in experimental and theoretical Physics is running since 2006. At present, there are 20 research scholars pursuing Ph. D. degree and more than 20 Ph.D. degrees have been awarded so far. The faculty members of the department have grants under different research projects sponsored by external agencies.

Within a very short span of time, the department has made an impression of excellence in the field of academics and research. Our graduated students have secured exceptionally good rankings/scores in competitive examinations like GATE, JEST, etc. and have been selected for Ph.D. programs at different Institutions like IIT-Bombay, IIT-Mandi, IIT-Hydrabad, ISER-Mohali, National University of Ireland Galway, Raja Raman Centre for Advanced Technology (RRCAT), Indore, IIT-Madras, Jawaharlal Nehru University-New Delhi, IIT-Dhanbad, IIT-Kharagpur, IIT-(BHU) Varanasi, Indian Institute of Science Education and Research Bhopal, NIT Jalandhar and NIT Kurukshetra, NIT Durgapur, Indian Institute of Technology Delhi, and Tata Institute of Fundamental Research Mumbai .

The department is actively involved in organizing activities like, Conferences, Workshops, Symposium, DST sponsored SERC School, Seminars,

Short-term Courses etc. and planning to organize many more of such events in the near future. The department is proactive and would like to attract talented students.

### Recent Achievements:

- Mr. Yash Saraswat, M.Sc. (Physics) of Department of Physics & Photonics Science, National Institute of Technology Hamirpur got offer to study for Ph.D. degree at Indiana University Bloomington. His study is fully funded which includes stipend, tuition fee and health insurance. The



amount of total study package is more than fifty five lakh per year.

- Mr. Karan Roy M.Sc. (Physics) student got a Ph.D. Fellowship – Micropower Devices Development - in the Micro Nano Systems Centre of the Tyndall National Institute, Ireland.
- Mr. Deepak Bhardwaj of M.Sc. (Physics) student has been awarded a Quantum Engineering CDT international studentship to pursue Ph.D. in Quantum Engineering at the University of Bristol beginning in the academic year 2023-24 under the supervision of Professor Jorge Barreto. He was given a scholarship of more than two crores (Indian



Rupees) for pursuing Ph.D. in Shaken Lattice Interferometry with Ultra-Cold Alkali Atoms.

- Ms. Mansi Talwar, M.Sc. (Physics) student, has been selected for Ph.D. programme in the Department of High Energy Physics at the Tata Institute of Fundamental Research (TIFR) in Mumbai.
- Ms. Kiran has been selected at Indian Institute of Science Education and Research Mohali (ICSER) to pursue a Doctor of Philosophy (Ph.D.).



- Ms. Anjali Yadav has been offered to learn about research work on ultrafast dynamics at surfaces and interfaces at the Department of Physics, University of Duisburg-Essen. She will work on “Time resolved X-ray absorption spectroscopy and sample preparation by pulsed laser deposition”. After period of three months, there will be an opportunity for her to get registered for Ph.D. Program with a monthly gross salary 2,558,30 EURO.

- Mr. Bisaj Sujith Kumar, M.Sc. (Physics) has been admitted to the Master in Advanced Functional Materials course at Technische Universität Chemnitz (University of Technology), 09107, Chemnitz, GERMANY.



- Mr Shivansh of B.Tech. (Engineering Physics) got selected to pursue a Master of Technology in Quantum Materials and Technology” at Punjab Engineering College Chandigarh (Punjab). And Mr. Vaibhav Sharma of

B.Tech. (Engineering Physics) has accepted an admission offer to pursue Master of Technology in “Semiconductor Materials and Devices” at the Indian Institute of Technology Hyderabad

- B.Tech. (Engineering Physics) 4th Year



students Mr. Ashutosh Prajapati, Mr. Prashant Dhiman, Mr. Aryan Verma, and Mr. Amarendra Kumar have been selected by M/s Hiremi.



- B.Tech. 4th year (Engineering Physics) students Parinay Rana and Praveen Yadav have been selected by M/s @Decision Point through Training and Placement Cell NIT Hamirpur.

- B.Tech. 4th year (Engineering Physics) student Mr. Uttam Kumar has been selected by M/s C-DAC Hyderabad through Training and Placement Cell NIT Hamirpur.



- Ms. Kajal Kumari B.Tech. (Engineering Physics) and Mr. Nayan Kumar Agarwal M.Sc. (Physics ) Students have been selected by M/s Sri Chaitanya Educational Trust.

- B.Tech. 4th year (Engineering Physics) Mr. Md Taushif





Ali and Mr. Vitthul Chandrakant Mute M.Sc. (Physics) students have been selected by M/s Avanti Fellows.



➤ B.Tech. 4th year (Engineering Physics) Ms. Vidhi Garg has been selected by M/s CDIL.

➤ M.Sc. (Physics) student, Mr. Sri Ram G., has been appointed as a Scientific Officer (C), at the Bhabha Atomic Research

Centre. And

based on the results of the National Level- Combined Graduate Level Examination, 2020, another M.Sc. (Physics) student Mr. Praveen Kumar



of the Department has been appointed as Inspector of GST & Central Excise.

➤ B.Tech. (Engineering Physics) student Mr. Uttam Kumar and M.Sc. Physics student Ms. Kashish Verma has qualified the Joint CSIR-UGC NET Dec. 2023 examination.

➤ B.Tech.(Engineering Physics) 4th year Uttam Kumar, Shivansh Sharma, and M.Sc. Physics students Rupam Roy , Ms. Kiran have qualified Joint Entrance Screening Test-2024 (JEST-2024).



➤ Mr. Girish Gaurav Sharma of B.Tech. (Engineering Physics), 3rd year student participated in the National Level "35th DAE All India Essay Contest" on the theme of Nuclear Science and Technology which was organized by Department of Atomic Energy. Students from various reputed institutions like Indian universities, IITs, Medical and Engineering colleges were invited to participate. The essay contest was on three topics: i) Nuclear



Power-a viable option against global warming, ii) Radioisotopes and radiation Technology: Harbinger of Prosperity and well-being?, and iii) Applications of Lasers and Plasma Technologies in the Nuclear Fusion energy. A total 30 students, 10 from above each category were shortlisted for oral presentation at Bhabha Atomic Research Centre (BARC) Mumbai. Traveling fare, boarding and lodging born by Department of Atomic Energy-Government of India-New Delhi. This event was conducted for a period of ten days at Bhabha Atomic Research Centre-Mumbai. Beside this, students also visited various international-level facilities of country such as Dhruv Nuclear Reactor, Bhabha Atomic Research Centre, Electron Beam Centre, Tarapur Nuclear Power Plant etc.. Mr. Girish Gaurav Sharma won the first prize along with cash prize of Rs. 25,000 in the subject category head: Nuclear Power-a viable option against global warming.

- M.Sc. (Physics) student, Amardeep Singh Jhala, secured second place in the preliminary round of the National Anveshika Experimental Skill Test (NAEST), an annual competition in India that aims to evaluate and develop students' experimental, analytic, and observational skills in physics and students must create and build their own tools, read, analyse errors, and present a comprehensive report. Amardeep Singh Jhala has conducted the three experiments listed below:



1. Analysing the characteristics of small particles
  2. Examine the waves produced by the water manometer.
  3. Using a water box prism for measurements
- The National Anveshika Network of India (NANI), a division of the IAPT, in collaboration with Shiksha Sopan, organises the NAEST.

- Mr. Yash Upadhyay 4th year student of B.Tech. (Engineering Physics) of Department of Physics and Photonics Science, National Institute of Technology Hamirpur participated in 2024 in New York University Abu Dhabi (NYUAD) Hackathon for Social Good focusing on Quantum Computing and the UN Sustainable Development Goals. The Hackathon is held



in person in Abu Dhabi from April 25 to April 28, 2024. The NYUAD Hackathon is supported by top global Quantum Computing experts from both industry and academia such as NYUAD Center for Quantum and Topological Systems, Technology Innovation Institute (TII), Geneva Science and Diplomacy Anticipator (GESDA), Xanadu, ETH Zurich in Quantum Information, Zurich EPFL Center for Quantum Science and Engineering (QSE Center), University of Calgary's Institute for Quantum Science and Technology (IQST), IBM, qBraid, QWorld, NIEW, the MIT's iQuHACK, QC Hack (Yale, Stanford, and Berkeley QC Hackathon), and many others to mentor teams and explore along with the students the quantum computing solutions to a wide range of challenging projects from machine learning and AI, to physics (complex simulation problems), chemistry, computer science, Healthcare, Math, to climate change, healthcare, online gaming, security, social sciences and the arts (quantum-generated artwork). The NYUAD Hackathon Award covers financial support for the cost of air travel, visa charges, food charges, hotel charges, local transportation, etc. for him. He achieved the fourth position in this event.

- Mr. Amardeep, Mr. Ashutosh, Mr. Denesh, Mr. Amit, Mr. Mahendra, M.Sc. Students establish their presence among the many departments within the institute by finishing second in an Inter-Branch Table Tennis (TT) Tournament.
- The technical team of the department was declared as the overall winner and the best team in the annual technical function (NIMBUS) of NIT Hamirpur.

