

## IIT Delhi to create new centre to boost research in optics and photonics

New Delhi, 24 May (India Science Wire): In order to take teaching, research, development, and innovation in different areas of optics and photonics to a higher level, while keeping a balance between classical and modern areas, Indian Institute of Technology (IIT) Delhi will create a new centre named 'Optics and Photonics Centre'. The Institute's Board of Governors has given its approval to the creation of the new centre.



IIT Delhi

Optics and photonics is the study of the fundamental properties of light and harnessing them in practical applications. To list a few, the areas covered under optics and photonics include Optical imaging, Optical metrology, Sources and detectors of light, Lasers, Fiber optics, Optical communication, Optical sensors, Colour of light, Vision optics, Remote sensing, Illumination, Diffractive optics, Adaptive optics, Holography, Fourier optics, Optical image processing, Opto-electronics, Optical data storage, Optical computing, Microscopy, Bio-medical optics, Nonlinear optics, IR optics, Terahertz optics, Photonic circuits, Nano-photonics, Plasmonics, Ultra-fast optics, Photonic quantum technologies etc.

The Optics and Photonics Centre, IIT Delhi will seek collaboration with establishments such as the Defence Research and Development Organisation (DRDO), Council of Scientific and Industrial Research (CSIR), Department of Atomic Energy (DAE), Indian Council of Medical Research (ICMR) and industry to undertake R&D in the areas of importance for them. DRDO is already collaborating in this area through a vertical in Photonics in the Joint Advance Technology Centre (JATC) at IIT Delhi.

“As the spread of photonic technology and its usage is increasing, there would be many opportunities for such collaborations including setting up of start-ups. Apart from this, the Centre will play a pivotal role in the near future development of photonics-based quantum technologies, for next generation computing, secure communications etc. Sustained linkages with industry will also be developed and established,” said Prof Joby Joseph, Coordinator, Optics and Photonics Centre, IIT Delhi.

On the teaching side, the Centre will focus on doctoral and postgraduate programmes including special programs for industry professionals. Innovation and translation of research into products would be very important for the Centre. It will also encourage and help students in entrepreneurial efforts and connect them with suitable investors through due processes at the Institute.

IIT Delhi has been known for its contributions in Optics in India and abroad. Many faculty members in Physics Department, Electrical Engineering, Centre for Sensors, Instrumentation and Cyber Physical System Engineering (SeNSE) and several other academic units are engaged in Optics & Photonics R&D. Over the years, four faculty members of the Physics Department have been recognized with the coveted Shanti Swarup Bhatnagar Prize for their work in optics and photonics.

Prof. Anurag Sharma, JC Bose Fellow, Dept. of Physics, IIT Delhi said, “The Centre will synergize and significantly enhance the activities in Optics and Photonics at IIT Delhi. This is particularly important in view of the strong interdisciplinary nature of the subject.”

Optics and photonics have become extremely important today as enabling technologies, and have immense applications in diverse fields such as communication and information processing; quantum information and computing; energy harvesting and green energy; lighting- particularly solid-state lighting; imaging- particularly bio-imaging; and several engineering fields- aerospace, civil and environment, agriculture, micro-nano fabrication, automotive engineering, research and industrial instrumentation, surveillance and offence in the military.

Many agencies such as the DRDO, CSIR, DAE, Department of Space and industries are increasingly turning towards optics and photonics for technological solutions.

Many new application areas are emerging day-by-day. In recognition of the importance of this, the UN declared 2015 as the International Year of Light and Light-based Technologies and since 2018, May 16 is celebrated as the International Day of Light. (India Science Wire)

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