



Talk by Prof. Kedar Khare, IIT Delhi



Vortex Enhanced Computational Imaging



06/02/2026
(Friday)



3.15 PM



C-109 (D1)
Interdisciplinary
block

This talk will highlight the importance of optical vortex phase in both coherent and incoherent optical imaging systems. First I will show how charge-1 vortex illumination solves the long-standing stagnation problems in Fourier phase retrieval. Further, I will discuss the concept of vortex phase diversity with incoherent illumination to demonstrate high contrast imaging with effective system OTF better than that of a diffraction-limited system. Finally a brief discussion will be provided about our initial results on learning vortex phase diversity using deep networks and how this may aid in realizing compact high quality imaging systems.

About the speaker



Kedar Khare is a Professor and Head of the Optics and Photonics Centre, Indian Institute of Technology Delhi and additionally serves as the Editor-in-Chief for Journal of Modern Optics. Prof. Khare completed his Integrated MSc in Physics from IIT Kharagpur with highest honors and a PhD in Optics from The Institute of Optics, University of Rochester, USA. Prior to joining IIT Delhi as a faculty member in 2011, he worked for over five years as a Lead Engineer at General Electric Global Research, USA, where he contributed to inverse problems relevant to CT and MRI systems. At IIT Delhi, Prof. Khare has made several contributions to the area of computational imaging (optics, coherent X-ray, cryo-electron microscopy and MRI) and structured light in random media.

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