

THE DEPARTMENT OF ELECTRICAL & COMPUTER
ENGINEERING SPEAKER SERIES

PRESENTS

Antenna-Coupled Optoelectronics With Two-Dimensional Materials



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Monday, 11/5, 9:55 am

Room W122, Engineering Building 2

LECTURE ABSTRACT

Optical antennas are analogs of radio-antennas that work for visible light. We introduce the concept of optical antennas, and highlight the control over light-matter interaction strength that they afford. Next, we present our work on optoelectronic devices using 2D materials, including an all-MoS₂ LED and an ultrafast light-emitting tunnel junction. Further, we show that plasmonic antennas coupled with 2D materials offer control over emission directionality.

SPEAKER BIOSKETCH

Palash did his Bachelors and Masters in Electrical Engineering at the IIT Bombay in India. In 2003, he moved to the US for a PhD in Physics at the University of Rochester, where he worked in the group of Prof. Lukas Novotny on plasmonic optical antennas. He moved to Switzerland in 2012 to work as a Postdoc in the Photonics Laboratory at ETH Zurich, where he worked on two-dimensional optoelectronics. He has been an Assistant Professor at Rice University since 2016.

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