

INDIAN ASSOCIATION FOR THE CULTIVATION OF SCIENCE

2A & 2B, Raja S.C. Mullick Road, Jadavpur, Kolkata-700032, India

Seminar Notice

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School of Physical Sciences

Title:	THz 2D coherent spectroscopy and anomalous non-linear optical response of $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$
Speaker:	Dipanjan Chaudhuri, Department of Physics and Astronomy, Johns Hopkins University, Baltimore, USA
Date:	February 11, 2020 (Tuesday)
Time:	16:00 Hours
Venue:	Physics Seminar Room (C-406), 3rd Floor, Centenary Building, IACS
Abstract:	I will introduce THz 2D coherent spectroscopy, a new non-linear technique that is capable of giving qualitatively new information on quantum materials and then discuss our recent results on $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$ (LSCO), a prototypical hole-doped single layer cuprate superconductor. We investigate the low frequency broadband non-linear optical response of LSCO across a wide range of doping as a function of temperature. In addition to the large optical non-linearities that is expected in the superconducting state, we find anomalous $\chi^{(3)}$ response even in the normal state, well above the superconducting critical temperature. This is in sharp contrast to the clean BCS type superconductors where the strong non-linear response at low temperatures promptly disappear at the critical temperature. Using 2D THz spectroscopy on these samples we can identify the different underlying non-linear processes that give rise to the overall anomalous response.

All are cordially invited to attend the seminar