

Prof. Debabrata Goswami

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Indian Inst. of Tech. Kanpur*

**Seminar: Thursday August 10th @11:00 AM
BRK 1001**



On using “Shaped” light for understanding molecular length scale events of biological importance

Abstract:

Understanding molecular length-scale light-matter interactions through superresolution microscopy is of immense interest in modern biology. In this regard, shaping lasers is of utmost importance to provide the maximum spatial resolution at nanometer scales and temporal control and interactions. This presentation will discuss concepts relating to shaping lasers for their specific applications pedagogically. Based on our recent research, we will focus on measurement and confinement at molecular scale resolutions. This is drawn from our recent indigenous research of femtosecond optical tweezers and the superresolution microscopic studies performed at the minimum photon flux instrument, commercially known as MINFLUX. In particular, the discussions will focus on the recent localization studies with both these instruments, though they encompass significantly distinct ranges of light-matter interactions.

Bio:

Prof. Debabrata Goswami is the Prof. S. Sampath Chair Professor of Chemistry, at the Indian Institute of Technology, Kanpur. Goswami is an associate editor of the open-access journal Science Advances. He is also an Academic Editor for PLOS One and PeerJ Chemistry. He has contributed to the theory of Quantum Computing as well as nonlinear optical spectroscopy. His work is documented in more than 200 research publications. He is an elected Fellow of the Royal Society of Chemistry, Fellow of the Institute of Physics, the SPIE, and The Optical Society. He is also a Senior Member of the IEEE, has been awarded a Swarnajayanti Fellowship for Chemical Sciences, and has held a Wellcome Trust Senior Research Fellowship. He is the third Indian to be awarded the International Commission for Optics Galileo Galilei Medal for excellence in optics.