Physics Colloquium
Physics Faculty and Search Committee Candidate:

Mayukh Lahiri

Thursday, February 16\textsuperscript{nd} at 4:10 pm in LL 316.
Refreshments available at 3:45.

Imaging and Correlation Measurements with Undetected Photons

A recent application of the principle of complementarity has led to a unique imaging technique in which the photon interacting with an object is never detected to obtain the image. I will discuss the associated theory and show how the underlying phenomenon leads to a new research direction in the field of quantum information science, where the measurement of correlation between two particles is of crucial importance. In particular, we have developed a method of measuring the correlation between momenta of two photons by detecting only one. This method enables us to consider wavelengths for which good detectors are not available, extending the experimental reach further. The aim of future research is to develop analogous methods that will allow us to verify entanglement for two or more particles.

Dr. Mayukh Lahiri is a postdoctoral researcher at the University of Vienna and the Institute for Quantum Optics and Quantum Information (IQOQI) of the Austrian Academy of Sciences. He received his Ph.D. in Physics from the University of Rochester with a thesis on the theory of optical coherence and its applications to optical scattering problems. His current research focuses on quantum optics with an emphasis on quantum correlations and entanglement.