

Title

Microscale Magnetic Field Sensing
with Color Defects in Diamond

Speaker

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Date & Time

Wednesday, 23rd November
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Meeting Link

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Venue

Physics Department Auditorium, IISc

Abstract: Color centers in diamond have proven to be promising candidates for not only quantum computing but also for quantum sensing. Amongst the various color defects, nitrogen-vacancy centers (NV centers) could provide a platform for precision magnetometry allowing for nanoscale magnetic imaging with applications in brain imaging, magnetotactic bacteria, quantum materials, geomagnetic fields, and many others. In this talk I will give an overview of our research towards the development of an imaging tool, aka, the quantum diamond microscope. While NV centers are routinely used for measuring static magnetic fields in a wide field of view with diffraction limited spatial resolution, dynamic widefield magnetometry has been very challenging. I will describe the first demonstration of dynamic widefield magnetometry using Nitrogen vacancy centers in diamond and its applications.

Biography: Kasturi Saha is an associate professor in IIT Bombay in the Electrical Engineering Department. She was a postdoctoral fellow in [Prof. Paola Cappellaro's](#) group in the Research Laboratory of Electronics at Massachusetts Institute of Technology. She obtained her Ph.D. in [Prof. Alexander Gaeta's](#) group in the School of Applied and Engineering Physics in Cornell University. Prior to that she did her M.Sc. from IIT-Delhi and B.Sc.(Hons.) from St. Stephen's College, Delhi. Her research interests include quantum sensing, nanophotonics, precision metrology, and quantum computation with solid state color defects. She is a recipient of the DST-INSPIRE faculty fellowship and the IIT Bombay young faculty award.

