

Colloquium

Quantum Sensing with Nitrogen Vacancy Centres in Diamond

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Colour centres in diamond have proven to be promising candidates for not only quantum computing but also for quantum sensing. Amongst the various colour defects, nitrogen-vacancy centres (NV centres) 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 a variety of applications of NV centres for quantum sensing. I will describe our work towards dynamic widefield imaging, its challenges and its application to reconstructing current flows in semiconductor chips and magnetic materials with bulk NV centres. Further, I will discuss the use of nanodiamonds for magnetic field and temperature sensing.

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4:00 PM (Tea / Coffee 3.45 PM)

Auditorium, TIFR-H