A quantum diamond microscope for mapping magnetic fields

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Abstract: Tremendous research activity worldwide has focused on attempting to harness the exotic properties of quantum physics for new applications in metrology, computation, and communications - a push to develop “engineered quantum systems”. Color centers in diamond such as, nitrogen-vacancy centers (NV centers) could provide a platform for precision magnetometry allowing for nanoscale magnetic resonance imaging (MRI) of individual complex molecules. In this talk, I will give an overview of our research towards development of imaging tool mapping neuronal signals from mammalian brain cells.