

# **Quantum sensing with single spins in diamond**

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Diamond has emerged as a unique material for a variety of applications, both because it is very robust and because it has defects with interesting properties. One of these defects, the nitrogen-vacancy center, has a single spin associated with it that shows quantum behavior up to room temperature. Our group is harnessing the properties of single NV centers for high resolution magnetic sensing applications.

In this talk, I will discuss the basics of diamond-based quantum sensing and highlight some key applications pursued in our laboratory, including nanoscale nuclear magnetic resonance experiments, scanning imaging of currents in 2D conductors, and measurements of magnetic phase transitions.