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Investigating spin decoherence in nanodiamonds using a multi-frequency electron spin resonance A. DAS, V. STEPANOV, Z. KOBOS, Z.H. WANG, S. TAKAHASHI, University of Southern California — Nitrogen-vacancy (NV) centers in nanodiamonds (NDs) are extremely useful for applications of nanoscale magnetic sensing as well as for conducting fundamental science because of their unique spin properties including capability to initialize the NV spin state and their long decoherence time even at room temperature. Various sizes of nanodiamonds are commercially available. Spin properties of NV centers in NDs are often quite different from those of bulk diamonds. Possible reasons for the difference are surface defects and surface distortions and strains. In this presentation, we will discuss spin properties and spin decoherence in various NDs studied by X-band (10 GHz) and high field (230 and 115 GHz) spectrometers. We will also study properties of environmental noises in NDs using dynamical decoupling techniques.

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