Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Increasing Spin Coherence in Nanodiamond via Dynamic Nuclear Polarization TORSTEN GAEBEL, EWA REJ, THOMAS BOELE, DAVID WADDINGTON, DAVID REILLY, ARC Centre of Excellence for Engineered Quantum Systems, School of Physics, University of Sydney, Sydney, NSW 2006, Australia — Nanodiamonds are of interest for quantum information technology, as metrological sensors, and more recently as a probe of biological environments. Here we present results examining how intrinsic defects can be used for dynamic nuclear polarization that leads to a dramatic increase in both T_1 and T_2 for ^{13}C spins in nanodiamond. Mechanisms to explain this enhancement are discussed.

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Date submitted: 11 Nov 2016 Electronic form version 1.4