

Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Nitrogen-vacancy centers in diamond: a local probe to study magnetic oxides LAETITIA PASCAL, CLAIRE MCLELLAN, GINO GRAZIANO, PREETI OVARTCHAIYAPONG, BRYAN MYERS, ANIA JAYICH, University of California Santa Barbara, JAYICH GROUP TEAM — We report on the development of a diamond-based scanning probe magnetometer (SPM) that operates over a wide range of temperature from 300 K to 4 K. The magnetic sensor is a nitrogen-vacancy (NV) center in diamond, which is read out via optically detected magnetic resonance. This sensor promises non-invasive imaging with single spin sensitivity and spatial resolution down to ~ 10 nm. We have fabricated single-crystal diamond scanning probes with an embedded RF antenna for coherent manipulation of the NV electronic spin. The SPM is integrated into a variable temperature transport set-up in order to study interface magnetism in complex oxide heterostructures.

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Date submitted: 28 Nov 2012

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