

Abstract Submitted
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Imaging magnetic field vectors using nitrogen-vacancy centers in diamond¹ B.J. MAERTZ, A.P. WIJNHEIJMER², G.D. FUCHS, M.E. NOWAKOWSKI, D.D. AWSCHALOM, Center for Spintronics and Quantum Computation, University of California, Santa Barbara, CA 93106 — The localized spin triplet state of nitrogen-vacancy (NV) centers in diamond can be used in atomic-scale detection of local magnetic fields. Here we present a technique to image fields around magnetic structures[1]. We extract the magnetic field vector by probing resonant transitions of the four fixed tetrahedral NV orientations. In combination with confocal microscopy techniques, we construct an image of the local magnetic field vectors. Samples consist of patterned permalloy structures with integrated microwave antennas formed by optical lithography on single-crystal diamond substrates with high NV center concentrations. Measurements are done in external fields of less than 50 G at ambient conditions.

[1] B. J. Maertz *et al.* (2009).

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