

Abstract Submitted
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Measurement of the Berry Phase in a Single Solid-State Spin Qubit KAI ZHANG, N.M. NUSRAN, B.R. SLEZAK, M.V. GURUDEV DUTT, University of Pittsburgh — Geometric phases in quantum mechanics have a long history and may offer some advantages in quantum information processing techniques, e.g. geometric phases are intrinsically robust to fluctuations in control parameters. We demonstrate a controlled way of accumulating geometric phase by Berry's method in a single Nitrogen-Vacancy (NV) center in diamond lattice. We perform state tomography measurement to confirm this Berry phase and we find no evidence for geometric dephasing in our system.

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