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High dynamic range diamond magnetometry for time dependent magnetic fields[1] M. UMMAL MOMEEN, N.M. NUSRAN, M.V. GURUDEV DUTT, Department of Physics and Astronomy, University of Pittsburgh — Nitrogen-Vacancy (NV) centers in diamond have become a topic of great interest in recent years due to their promising applications in high resolution nanoscale magnetometry and quantum information processing devices at ambient conditions. We will present our recent progress on implementing novel phase estimation algorithms with a single electron spin qubit associated with the NV center, in combination with dynamical decoupling techniques, to improve the dynamic range and sensitivity of magnetometry with time-varying magnetic fields.

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M. Ummal Momeen
Department of Physics and Astronomy, University of Pittsburgh

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