Preservation of bipartite pseudo-entanglement in solids using dynamical decoupling

Ya Wang,1 Xing Rong,1 Pengbo Feng,1 Wanjie Xu,1 Bo Chong,1 Ji-Hu Su,1 Jiangbin Gong,2 and Jiangfeng Du1,*

1Hefei National Laboratory for Physical Sciences at Microscale and Department of Modern Physics, University of Science and Technology of China, Hefei, Anhui 230026, People's Republic of China
2Department of Physics and Centre for Computational Science and Engineering, National University of Singapore, 117542, Singapore

A crucial challenge for future quantum technologies is to protect fragile entanglement against environment-induced decoherence. Here we demonstrate experimentally that dynamical decoupling can preserve bipartite pseudo-entanglement in phosphorous donors in a silicon system. In particular, the lifetime of pseudo-entangled states is extended from 0.4 μs in the absence of decoherence control to 30 μs in the presence of a two-flip dynamical decoupling sequence.

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* Electronic address: djf@ustc.edu.cn