

Abstract Submitted
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Spectroscopy of composite solid-state spin environments in diamond NIR BAR-GILL, MY LINH PHAM, Harvard University, CHINMAY BELTHANGADY, DAVID LE SAGE, Harvard-Smithsonian Center for Astrophysics, MIKHAIL LUKIN, AMIR YACOBY, Harvard University, PAOLA CAPPELLARO, MIT, RONALD WALSWORTH, Harvard-Smithsonian Center for Astrophysics — We apply dynamical decoupling pulse sequences to nitrogen-vacancy centers in diamond in order to spectrally decompose the dynamics of their spin environment, which consists of nuclear and electronic spin impurities. We study a variety of diamond samples to identify the dynamics of the different spin baths and the interplay between them. These results are useful for the basic understanding of spin dynamics in solid-state systems and the central spin problem and could inform efforts in engineering optimized samples for collective quantum information processing and quantum metrology.

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