

Abstract Submitted  
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**Spin Relaxation in Pure and Doped GGG** MICHAEL SCHMIDT, THOMAS ROSENBAUM, DANIEL SILEVITCH, University of Chicago, GABRIEL AEPPLI, University College London, SAYANTANI GHOSH, Y.K. VERMA, University of California, Merced — Geometric frustration in Gadolinium Gallium Garnet (GGG) leads to local regions of correlated spins that can be manipulated without affecting the background spin susceptibility. These “quantum protectorates” can be accessed via the non-linear response at milliKelvin temperatures using a hole burning technique. We study the effect of impurities on both the structure of the spin clusters and the dissipation spectrum in Neodymium-doped GGG crystals via pump-probe ac magnetic susceptibility and direct optical measurements.

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