

Abstract Submitted  
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**Analysis of Cd jump rates among the two Ga sublattices in Ga<sub>7</sub>Pd<sub>3</sub> using a stochastic model of hyperfine interactions**<sup>1</sup> M. O. ZACATE, Northern Kentucky University, Highland Heights, KY, W. E. EVENSON, Utah Valley University, Orem, UT, G. S. COLLINS, Washington State University, Pullman, WA — Atomic jump rates of Cd among the two inequivalent Ga sublattices in Ga<sub>7</sub>Pd<sub>3</sub> were measured using perturbed angular correlation spectroscopy (PAC). Atomic jumps result in a reorientation and/or change in strength of electric field gradients experienced by the Cd PAC probes. Spectra were fitted to model functions generated using a stochastic model for fluctuating EFGs under the assumption that Cd probes can jump to nearest neighbor sites of each Ga sublattice. Jump activation energies were determined by fitting spectra collected at different temperatures simultaneously under the constraint that jump rates obey Arrhenius behavior. The following activation energies were determined for intra- sublattice jumps: 0.52(1) eV for Ga(3)→Ga(3) and 0.25(4) eV for Ga(4)→Ga(4) and for inter-sublattice jumps: 0.6(3) eV for Ga(3)→Ga(4) and 0.47(9) eV for Ga(4)→Ga(3), in which Ga(4) denotes the site with  $\bar{3}m$  point symmetry.

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