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Tracer jump frequencies on inequivalent Ga sublattices in Ga₇Pd₃: stochastic models*

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Using the method of perturbed angular correlation of gamma rays (PAC), we previously showed that jump frequencies of tracer atoms can be measured via relaxation of the nuclear quadrupole interaction. This microscopic method allows one to differentiate between jump rates on inequivalent sublattices, as demonstrated by experiments on Ga₇Pd₃ in a companion paper. Underlying the observed relaxation of the two quadrupole interaction signals are four possible types of jumps that tracer atoms can make within and between two Ga-sublattices. In the present paper, a detailed stochastic model is applied to fit spectra with four jump rates: two for intra-sublattice jumps and two for inter-sublattice jumps. Details of the model and resulting analysis will be presented.

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