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**Jump frequencies of Cd tracer atoms in L1<sub>2</sub> lanthanide stannides**<sup>1</sup> MEGAN LOCKWOOD, New Mexico State University, GARY S. COLLINS, Washington State University — Diffusional jump frequencies of Cd tracer atoms were measured as functions of temperature in four lanthanide stannides, Sn<sub>3</sub>Pr, Sn<sub>3</sub>Nd, Sn<sub>3</sub>Sm, and Sn<sub>3</sub>Gd, using perturbed angular correlation of gamma rays (PAC). Jumps of tracer atoms on the Sn sublattice lead to fluctuating electric field gradients (EFG) that cause damping of the PAC quadrupole perturbation function. Large jump frequencies were observed as in previous studies on Sn<sub>3</sub>La and Sn<sub>3</sub>Ce and on lanthanide indides and gallides. Between 800-1100 K, jump frequencies in all stannides were in the range 1-30 MHz. Jump frequencies were thermally activated with fitted activation enthalpies in the range 0.73-1.46 eV and jump-frequency prefactors in the range ~0.1-50 THz. For some alloys, measurements were made both for Sn-rich and Sn-poor samples. It was found that the jump frequencies in Sn<sub>3</sub>Sm and Sn<sub>3</sub>Gd were greater at the Sn-poor boundary compositions, as previously found also for Sn<sub>3</sub>La and Sn<sub>3</sub>Ce. Detailed trends will be discussed.

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Prefer Oral Session  
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Megan Lockwood  
mml@nmsu.edu  
New Mexico State University

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