

Abstract Submitted  
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**New Phase transitions in ceramic SrSnO<sub>3</sub>: Raman scattering and differential thermal analysis** MANOJ SINGH, N.K. KARAN, RAM S. KATIYAR, Department of Physics, University of Puerto Rico, PR, USA, J.F. SCOTT, Department of Earth science, University of Cambridge, UK, H.M. JANG, Department of Materials Science and Engineering Pohang University of Science and Technology,, Pohang , Korea, J. F. SCOTT COLLABORATION, H. M. JANG COLLABORATION, R. S. KATIYAR TEAM — We report a continuous or nearly continuous order-disorder transition from orthorhombic (pseudo-tetragonal) to orthorhombic on heating in SrSnO<sub>3</sub> at 377 °C. The transition at 377 °C is manifested in an order of magnitude increase in Raman linewidths and in a  $\lambda$ -shaped anomaly in the specific heat. Previous work [Mountstevens et al., Phys. Rev. B71, 220102R (2005)] has interpreted the Pnma – Imma transition at ca. 636 °C as a continuous order-disorder transition and emphasized that this would be unique for an octahedron-tilting transition in oxide perovskite, which are always displacive. Our work on Raman scattering and Differential Thermal Analysis shows that the disorder sets in at much lower temperatures 377 °C, so that the 636 °C transition is disorder-disorder, or a displacive transition within an already highly-disordered lattice. Hence it may not be as unusual as had been claimed.

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