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Title:	Raman signatures of strong Kitaev exchange correlations in (Na _{1-x} Li _x) ₂ IrO ₃ : Experiments and theory
Authors:	Balodhi, A. (/jspui/browse?type=author&value=Balodhi%2C+A.) Mehlawat, K. (/jspui/browse?type=author&value=Mehlawat%2C+K.) Singh, Yogesh (/jspui/browse?type=author&value=Singh%2C+Yogesh)
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Abstract:	Inelastic light scattering studies on single crystals of (Na _{1-x} Li _x) ₂ IrO ₃ (x = 0.15) show a polarization-independent broad band at ~ 2750 cm ⁻¹ with a large band-width. For Na ₂ IrO ₃ the broad band is seen for temperatures and persists inside the magnetically ordered state. For Li samples, the intensity of this mode increases, shifts to lower wave numbers, and persists to higher temperatures. Such a mode has recently been predicted (by Knolle et al.) as a signature of the Kitaev spin liquid. We assign the observation of the broad band to be a signature of strong Kitaev exchange correlations. The fact that the broad band persists even inside the magnetically ordered state suggests that dynamically fluctuating moments survive even below T _N . This is further supported by our mean-field calculations. The Raman response calculated in mean-field theory shows that the broad band predicted for the SL state survives in the magnetically ordered state near the zigzag-spin liquid phase boundary. A comparison with the theoretical model gives an estimate of the Kitaev exchange interaction parameter to be .
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