

Abstract Submitted  
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**Raman scattering and the role of magnetic frustration in competing iron chalcogenide spin orders**<sup>1</sup> HARRISON RUIZ, Stanford University Department of Physics, YAO WANG, Stanford University Department of Applied Physics, BRIAN MORITZ, THOMAS DEVEREAUX, Stanford Institute for Material and Energy Sciences — Understanding the competition between different magnetic orders in the iron chalcogenides is crucial to unraveling the nature of leading instabilities in Fe-based superconductors. Previous studies have suggested that the magnetic properties can be well captured by an extended  $S = 1$  Heisenberg model. Using exact diagonalization, we map a phase diagram reflecting dominant magnetic orders and correlate this information with the temperature dependence of calculated Raman and spin response functions in the vicinity of phase boundaries. This behavior is reminiscent of recent experimental measurements on these materials and provides new perspectives on the role of frustration in iron chalcogenides.

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