

Abstract Submitted
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Bulk Properties and Neutron Scattering studies of LiVO₂ WEI TIAN, The University Of Tennessee, Oak Ridge National Laboratory, MATTHEW STONE, MATT CHISHOLM, RONGYING JIN, BRIAN SALES, Oak Ridge National Laboratory, STEPHEN NAGLER, DAVID MANDRUS, Oak Ridge National Laboratory, The University of Tennessee — LiVO₂ crystallizes in the space group R-3m with V³⁺ ($S = 1, t_{2g}^2$) ions forming a two-dimensional triangular lattice. Magnetically, the system changes from a high temperature Curie-Weiss paramagnetic state to a low-temperature non-magnetic state at $T \sim 500$ K. It has been proposed [1] that this phase transition is associated with a peculiar frustration-related orbital ordering resulting in trimers of V³⁺ ions forming a spin-singlet ground state. Single crystals of LiVO₂ with typical size approximately $3 \times 2 \times 0.1$ mm³ have been grown by the flux method. These crystals have been studied by electron diffraction, susceptibility, and specific heat measurements. The results are largely consistent with the V³⁺ trimer model picture. We also report recent powder and single crystal inelastic neutron scattering studies of the magnetic excitations in LiVO₂. [1] H. F. Pen *et al*, Phys. Rev. Lett. **78** (1997) 1323.

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