

Abstract Submitted
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Spin glass of a diluted Ising dipolar system KA-MING TAM,
MICHEL GINGRAS, University of Waterloo — The diluted dipolar Ising system
has been regarded as a standard example which exhibits spin glass properties. Re-
cent studies have challenged the existence of spin glass phase transition in one of
the materials in this category, $LiHo_xY_{1-x}F_4$. Using Monte Carlo simulations, we
calculate various quantities to address the current controversy of a possible spin
glass phase transition in this material. Beside the conventional method to locate
the spin glass transition by observing the crossing of Binder ratios of magnetization
moments, another crucial probe for the nature of spin glass, order parameter fluc-
tuations, is studied via the so-called fluctuation sensitive parameters. Crossing is
observed in the Binder ratio of overlap order parameter, and non-trivial structures
of overlap order parameter are obtained at low temperature.

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