Title:	High-temperature noncollinear magnetism in a classical bilinear-biquadratic Heisenberg model
Authors:	Pasrija, K. (/jspui/browse?type=author&value=Pasrija%2C+K.) Kumar, Sanjeev (/jspui/browse?type=author&value=Kumar%2C+Sanjeev)
Keywords:	Behavior High-temperature Magnetically Ferroelectrics
Issue Date:	2013
Publisher:	American Physical Society
Citation:	Physical Review B - Condensed Matter and Materials Physics,88(14).
Abstract:	Motivated by the magnetically driven high-temperature ferroelectric behavior of CuO and the subsequent theoretical efforts to understand this intriguing phenomenon, we study a bilinear-biquadratic Heisenberg model on a two-dimensional square lattice, which possesses some of the key features of the models proposed for CuO. We use a combination of variational calculations and classical Monte Carlo simulations to study this model at zero and finite temperatures. We show that the biquadratic coupling plays a crucial role in selecting the magnetic ground state. More importantly, a noncollinear magnetic state is found to be stable at finite temperatures. Our study demonstrates that higher-order interaction terms are of crucial importance if the stronger interactions together with the lattice geometry combine to generate a near degeneracy of magnetic states.
URI:	https://journals.aps.org/prb/abstract/10.1103/PhysRevB.88.144418 (https://journals.aps.org/prb/abstract/10.1103/PhysRevB.88.144418) http://hdl.handle.net/123456789/2793 (http://hdl.handle.net/123456789/2793)
Appears in Collections:	Research Articles (/jspui/handle/123456789/9)

Files in This Item:

File	Description	Size	Format	
Need to add pdf.odt (/jspui/bitstream/123456789/2793/1/Need%20to%20add%20pdf.odt)		8.63 kB	OpenDocument Text	View/Open (/jspui/bitstream/12345

Show full item record (/jspui/handle/123456789/2793?mode=full)
(/jspui/handle/123456789/2793/statistics)