Title:	Macroscopic Degeneracy and Emergent Frustration in a Honeycomb Lattice Magnet
Authors:	Kumar, Sanjeev (/jspui/browse?type=author&value=Kumar%2C+Sanjeev)
Keywords:	Diagonalizations
Issue Date:	2011
Publisher:	American Physical Society
Citation:	Physical Review Letters, 107 (7), art. no. 076405, .
Abstract:	Using a hybrid method based on fermionic diagonalization and classical Monte Carlo techniques, we investigate the interplay between itinerant and localized spins, with competing double- and superexchange interactions, on a honeycomb lattice. For moderate superexchange, a geometrically frustrated triangular lattice of hexagons forms spontaneously. For slightly larger superexchange a dimerized ground state is stable that has macroscopic degeneracy. The presence of these states on a nonfrustrated honeycomb lattice highlights novel phenomena in this itinerant electron system: emergent geometrical frustration and degeneracy related to a symmetry intermediate between local and global. © 2011 American Physical Society.
Description:	Only IISERM authors are available in the record.
URI:	http://prl.aps.org/abstract/PRL/v107/i7/e076405 (http://prl.aps.org/abstract/PRL/v107/i7/e076405) DOI:10.1103/PhysRevLett.107.076405 (DOI:10.1103/PhysRevLett.107.076405)
Appears in Collections:	Research Articles (/jspui/handle/123456789/9)