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Title: Spin waves in the classical Heisenberg antiferromagnet on the Kagome lattice

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The dynamics of spin waves in the classical Heisenberg antiferromagnet on the Kagome lattice is best explored at very low temperature since nematic order is then well established and excitations can easily be classified as in-plane or out-of-plane. Using the Heatbath Monte Carlo technique and the simulated-tempering method in combination with a loop-flip update we were able to establish thermal equilibrium at $T=10^{-6}J/k_{\rm B}$. Such temperatures give rise to a highly degenerate coplanar state, with each spin pointing in one of three directions separated by angles of $2\pi/3$. Based on these directions spin orientations can be measured in local coordinate systems, thus providing a genuine description of the state of the system [1]. We used these and global coordinates to calculate time-dependent spin-spin correlation functions in subsequent spin dynamics simulations and performed Fourier transforms in order to determine dispersion relations of present spin waves. The analysis of the different components of the structure factor $S({\bf q},\omega)$ reveals that signals found at certain wave numbers ${\bf q}$ can originate from spin waves with different ${\bf q}$. We discuss our findings and compare to previous theoretical [1] and numerical [2] studies.\\ Research supported by NSF\\ \ [1] A.\ B.\ Harris, C.\ Kallin, and A.\ J.\ Berlinsky, Phys. Rev. B {\bf 45}, 2899 (1992).\\ \ [2] J.\ Robert, B. Canals, V.\ Simonet, and R.\ Ballou, Phys. Rev. Lett. {\bf 101}, 117207 (2008).