Dzyaloshinskii-Moriya interactions in valence bond systems I

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The central result is that a short-ranged valence bond phase, when perturbed with Dzyaloshinskii-Moriya interactions, will remain time-reversal symmetric in the absence of a magnetic field but the susceptibility will be nonzero in the zero temperature limit. Applied to ZnCu$_3$(OH)$_6$Cl$_2$, this model provides an avenue for reconciling experimental results, such as the lack of magnetic order and lack of any sign of a spin gap, with known theoretical facts about the kagome Heisenberg antiferromagnet.

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