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Spinon-vison interactions in kagome-lattice spin liquids DEBANJAN CHOWDHURY, SARANG GOPALAKRISHNAN, SUBIR SACHDEV, Harvard University — Recent neutron-scattering measurements on the kagome-lattice antiferromagnet Herbertsmithite [1] suggest that the ground state is well-described by a spin liquid consisting of weakly correlated (i.e., non-dispersing) singlets. We consider how these observations can be accounted for within a Schwinger-boson mean-field theory, by including interactions between spinons (i.e., the spin-1/2 excitations of the Z_2 spin liquid) and the topological excitations known as visons. We compute the dynamic structure factor (which is measured in the experiments of Ref. [1]) as a function of a phenomenological spinon-vison coupling constant, and discuss how this coupling constant may be extracted from numerics. [1] T.H. Han et al., to appear.

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