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Spin Triplet Excitations of the Heisenberg Antiferromagnet on the Kagome Lattice KWON PARK, Korea Institute for Advanced Study, BOHM-JUNG YANG, Seoul National University, YONG BAEK KIM, University of Toronto, JAEJUN YU, Seoul National University — The Kagome lattice Heisenberg antiferromagnet is one of the most frustrated spin systems in two dimension, which has generated various theoretical proposals for the ground state. While recent experiments strongly suggest that the ground state is not magnetically ordered, identification of the true ground state remains highly controversial. Possible candidate phases include various spin liquids and a valence bond solid, particularly with a 36-site unit cell. It is therefore important to theoretically explore decisive properties of the candidate ground states which can be directly compared with experiments. To this end, we investigate the low-energy spin triplet excitations of the valence bond solid state with a 36-site unit cell, which are gapped in contrast to spin singlet excitations. Implications to future experiments are discussed.

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