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Microscopic magnetic modeling for the spin-$\frac{1}{2}$ kagome compound $[\mathbf{NH}_4]_2[\mathbf{C}_7\mathbf{H}_{14}\mathbf{N}][\mathbf{V}_7\mathbf{O}_6\mathbf{F}_{18}]$[1] OLEG JANSON, ALEXANDER A. TSIRLIN, National Institute of Chemical Physics and Biophysics, Tallinn, Estonia, IOANNIS ROUSOCHATZAKIS, Institute for Theoretical Solid State Physics, IFW Dresden, Germany, HELGE ROSNER, Max Planck Institute for Chemical Physics of Solids, Dresden, Germany, RAIVO STERN, NICPB — In the recently synthesised compound $[NH_4]_2[C_7H_{14}N][V_7O_6F_{18}]$, magnetic $S=\frac{1}{2}$ V^{4+} atoms form an ideal kagome lattice [1]. Very recent μSR studies indicate the emergence of a gapless spin liquid state [2]. Using density functional theory calculations, we address the microscopic magnetic model of this interesting compound. We show that its peculiar symmetry gives rise to two inequivalent nearest-neighbor couplings. The behavior of the resulting spin model is studied using exact diagonalization and compared to the experiments.

[1] F.H.Aidoudi *et al.*, Nature Chem. **3**, 810 (2011).
[2] L.Clark *et al.*, Phys. Rev. Lett. **110**, 207208 (2013).

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