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Magnetic relaxation in $TM_3V_2O_8$ (TM = Cu, Ni, Co and Mn) staircase Kagome compounds AMBESH DIXIT, C. SUDAKAR, Department of Physics and Astronomy, Wayne State University, N. ROGADO, DuPont, E. MOROSAN, Rice University, R.J. CAVA, Princeton University, A.P. RAMIREZ, LGS Innovations, GAVIN LAWES, Department of Physics and Astronomy, Wayne State University — The transition metal vanadate oxides having a staircase Kagome lattice structure exhibit rich magnetic phase diagrams, which arise from the complex geometry of these materials. Among these compounds, $Ni_3V_2O_8$ is particularly widely studied, as it develops simultaneous ferroelectric and incommensurate magnetic ordering at a single phase transition. In order to investigate the low frequency spin dynamics in these layered materials, we have probed the ac magnetic properties in these systems. We find that the Cu, Co, and Mn systems display strong magnetic relaxation in a spin ordered phase, with activation energies on the order of hundreds of Kelvin. We discuss these results in the context of spin-glass behaviour and domain wall motion.

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