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Spin dynamics in the extended kagomé $YBaCo_4O_7$[1] MICHAEL HOCH, PHILIP KUHNS, TIGLET BESARA, ARNEIL REYES, National High Magnetic Field Laboratory at Florida State University, Tallahassee, FL, JOHN MITCHELL, Argonne National Laboratory, Argonne, IL — The extended kagomé systemYBaCo$_4$O$_7$ consists of antiferromagnetically coupled Co^{2+} and Co^{3+} ions arranged in stacks with alternating kagomé and triangular layers in ab planes in the orthorhombic lattice. The oxygen-stoichiometric material orders below 110 K. The system exhibits interesting exchange topology with both trigonal bipyramids and triangular kagomé clusters of Co ions. Model calculations and neutron scattering experiments, made by other workers, have provided considerable information on the magnetic structure. Ordered chains are found for the apical ions along the c-axis with neighbor chains having oppositely directed polarizations perpendicular to c in an antiferromagnetic configuration. Only short range order is present in the kagomé planes at temperatures as low as 2 K. The present pulsed NMR measurements, made on a single crystal, both in zero magnetic field and in low applied fields, distinguish the Co ion sites and provide information on the evolution of the spin dynamics for the plane and chain sites as a function of temperature in the range 1.7 - 50 K above which signal wipe-out occurs. A dramatic change in the spin dynamics is found below 5 K.

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