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Ba NMR studies of the triangular lattice antiferromagnets GEORGIOS KOUTROULAKIS, Los Alamos National Laboratory, TONG ZHOU, Department of Physics & Astronomy, UCLA, CRISTIAN BATISTA, YOSHITOMO KAMIYA, JOE THOMPSON, Los Alamos National Laboratory, STUART BROWN, Department of Physics & Astronomy, UCLA, HAIDONG ZHOU, Department of Physics & Astronomy, University of Tennessee — $Ba_3MSb_2O_9$, with M=Co, Ni are triangular lattice magnetic systems with near-neighbor antiferromagnetic exchange. Previous studies have shown that $Ba_3CoSb_2O_9$ has a stabilized up-up-down spin configuration with in-plane field and the resultant one-third magnetization plateau has been observed. On the other hand, for the M=Ni system with 6H-B structure there has been no evidence of a magnetic ordered phase and thus it is being seen as a candidate spin-liquid material. Existing NMR data show a very broad Ba line comprised of signals from three different Ba sites, and the relaxation rate show a very weak temperature dependece, which is similar to the Co compound in the high symmetry phase. Here we report on Ba nuclear magnetic resonance (NMR) spectroscopy and spin-lattice relaxation measurements for both compounds. For the Co system, we will report data revealing the magnetization process up to 30T and present a detailed picture of the phase diagram. For the Ni compound, we are reporting the temperature evolution of the spectra and the temperature dependence of the relaxation rate for both Ba and Sb.

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