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μ SR study of NaCaNi₂F₇ in zero field and applied longitudinal magnetic field YIPENG CAI, MURRAY WILSON, ALANNAH HALLAS, McMaster University, LIAN LIU, BENJAMIN FRANDSEN, Columbia University, SARAH DUNSIGER, Ohio State University, JASON KRIZAN, ROBERT CAVA, Princeton University, YASUTOMO UEMURA, Columbia University, GRAEME LUKE, McMaster University — Rich physics of abundant magnetic ground states has been realized in the A₂B₂X₇ geometrically frustrated magnetic pyrochlores. Recently, a new spin-1 Ni²⁺ pyrochlore, NaCaNi₂F₇, was synthesized and shown to have spin freezing at 3.6 K with a frustration index of $f \sim 36$ and antiferromagnetic exchange interactions [1]. This structure has chemical disorder on the A site caused by randomly distributed Ca and Na ions, which causes bond disorder around the magnetic Ni sites. We present Zero Field (ZF) and Longitudinal Field (LF) muon spin rotation (μ SR) measurements on this single crystal pyrochlore. Our data shows that the Ni²⁺ spins start freezing around 4 K giving a static local field of ~ 140 G. The data show no oscillations down to 75 mK which indicates no long range magnetic order. They are well described by the dynamic Gaussian Kubo-Toyabe function with a non-zero hopping rate that is not easily decoupled with an applied longitudinal field, which implies persistent spin dynamics down to 75 mK.

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