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Magnetic Bose glass in Br-doped $NiCl_2$-4SC$(NH_2)_2$: Magneto-Electric Effect LIANG YIN, JIAN-SHENG XIA, NEIL SULLIVAN, University of Florida, VIVIEN ZAPF, LANL, ARMANDO PADUAN-FILHO , Univeridade de Sao Paulo — $NiCl_{1.85}Br_{0.15}$-4SC$(NH_2)_2$ is a candidate for Bose glass state of the magnetism at low temperatures, which is the bosonic analog of Anderson localization. Here we explore the glassy dynamics of the magnetization taking advantage of magneto-electric coupling in this material. We report measurements of the magneto-electric effect in $NiCl_{1.85}Br_{0.15}$-4SC$(NH_2)_2$ using two different experimental setups: (i) magnetic field-induced polarization and (ii) electric-field-induced magnetization. Both measurements show that the proposed Bose glass state in a high magnetic field is sensitive to the applied frequencies of AC magnetic and electric fields, with a maximum response between 700Hz and 1000Hz. This frequency-dependent behavior could provide information about the characteristic response time and the size of magnetic clusters.

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