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Mixed magnetic behavior in Ce doped perovskites¹ EUGENIO E. VOGEL, JAIME CARTES, Universidad de la Frontera, Temuco, Chile, PATRICIO VARGAS, Universidad T. F. Santa Mara, Valparaíso, Chile, GABRIELA ALEJANDRO, LAURA STEREN, Centro Atomico Bariloche, Argentina — $\text{La}_{(0.67-x)}\text{Ce}_x\text{Ca}_{0.33}\text{MnO}_3$ samples have been prepared for $x=0.0$, 0.10 , and 0.20 . We report here magnetization measurements leading to hysteresis curves showing several interesting features: low coercive field, magnetization jumps at magnetic fields less than coercive field, loops not quite reproducible, and virgin curve outside of the main loop. These and other characteristic properties are more pronounced for the sample with $x=0.20$. We present a simple model based on an Ising Hamiltonian with mixed but segregated ferromagnetic and antiferromagnetic interactions to qualitatively explain these phenomena. We conclude that groups of spins with in-plane ferromagnetic interactions are overturned at critical values of the field for which pinning due to off-plane antiferromagnetic interactions is compensated. The role of the Ce doping is discussed.

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