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Low-temperature magnetoelectric effect in multiferroic h-Yb1-xHoxMnO3 JINCANG ZHANG, QIANG GANG, YIFEI FANG, Materials Genome Institute, Shanghai University, Shanghai — In this work, we study the low-temperature ferroelectricity, magnetic property and ME effect in $Yb_{1-x}Ho_xMnO_3$. In $YbMnO_3$, ferroelectric polarization (P) is closely related with the structure change derived from spin-reorientation process. The initial symmetric relationship of P between the upper and lower half of magnetic sublattice will be broken, which gives rise to the detectable polarization. Additionally, the asymmetry of the $P-T$ curves revealed the pinning effect of the defects in the material. In Ho-doped samples 2D antiferromagnetic perturbation as well as the second AFM ordering have been observed. Substitution of Yb by Ho atoms shows great influences on electric properties and the lowdoping concentration tend to be more favorable for the enhancement of P. The maximum polarization has been promoted hugely in $Yb_{0.8}Ho_{0.2}MnO_3$. We suggested the variation of P is closely related with the stronger exchange interaction in Mn-O-Ho as well as the establishment of new Ho layers with the increase of Ho.

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