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**Specific heat and magnetoelectric study of the $YMn_{1-x}Ti_x$ solid solution**[1] A. DURAN, C. OCHOA, G. GUZMAN, S. CARDENA, Centro de Nanociencias y Nanotecnologia-UNAM, F. MORALES, R. ESCAMILLA, R. ESCUDERO, Instituto de Investigaciones en Materiales-UNAM — Multifunctional materials have received wide attention in the last few years. In particular, biferroics where both ferromagnetism and ferroelectricity coexist in the same volume of the same substance. The coupling between these two order parameters is of fundamental interest because of open routes for technological applications. One of these compounds is the $YMnO_3$ where has been observed the ferromagnetic and ferroelectric coupling at 80 and about 913 K, respectively. We have studied here, the crystal structure, magnetic, and dielectric properties of the solid solution of $YMnO_3$:Ti synthesized by solid state reaction. We have found that the doped-system retains its hexagonal structure (P63/mmc) up to 10 % of Ti. Afterwards of this concentration, a rhombohedral phase (R3c) takes place. The susceptibility and specific heat measurements indicated that the magnetic signal and the magnetic entropy at $T_N$ decreases as Ti is replaces by Mn ion. We believe that the distribution of the Ti ($d^0$) on the Mn ($d^4$) sites dilutes the Mn-Mn interaction decreasing the magnetic fluctuation around of the $T_N$.

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