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Dielectric characteristics of Mn-doped $LaTiO_{3+\delta}$ ceramics. YAN CHEN, YIMIN CUI, BeiHang University — A series of ceramic composites of Mn-doped $La_{1-x}Mn_xTiO_{3+\delta}$ and $LaMn_xTi_{1-x}O_{3+\delta}$ (x = 0.1, 0.2) were synthesized by conventional solid-state reaction method. The low-frequency complex dielectric properties of the composites were investigated as functions of temperature (77 K $\leq$ T $\leq$ 360 K) and frequency (100 Hz $\leq$ f $\leq$ 1 MHz), respectively. The dielectric constant of A-site doped samples is higher than that of B-site doped samples. The loss tangent of low doped samples is much less than that of high doped samples. The A-site doped composites exhibit intrinsic dielectric response with a dielectric constant of ˜40 in the temperature below 250 K. Interestingly, the dielectric constants of B-site doped ceramics increase slightly in the temperature range from 77 to 360 K. And it is clearly observed that extraordinarily high dielectric loss tangent (˜6) appear at low frequency (100 Hz) in $LaMn_{0.2}Ti_{0.8}O_{3+\delta}$, which is ˜8 times larger than that of $LaMn_{0.1}Ti_{0.9}O_{3+\delta}$, which indicates that the doped content can affect the intrinsic dielectric characteristics significantly.

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