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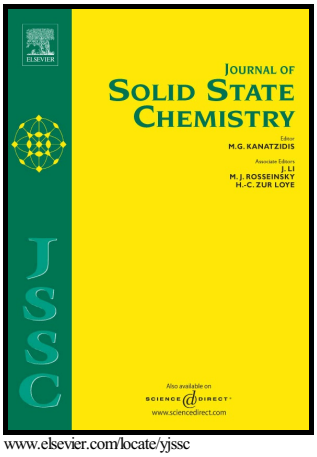

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High-pressure Synthesis and Relationship Between A-site Ordering and Local Structure of Multicomponent Perovskites $(Ln_{0.25}Mn_{0.75})(Al_{0.25}Ti_{0.75})O_3$, *Ln* = La, Pr, Nd, Sm, Gd, Tb, Dy, Y

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ABSTRACT

The synthesis of multicomponent perovskites $(Ln_{0.25}Mn_{0.75})(Al_{0.25}Ti_{0.75})O_3$ (Ln = La, Pr, Nd, Sm, Gd, Tb, Dy, Y) have been investigated using a high-pressure and high-temperature (6 GPa, 1175 °C) technique. When Ln^{3+} is larger La^{3+}, Pr^{3+}, Nd^{3+}, the A-site ordered perovskites, $LnMn_3(Al_{0.25}Ti_{0.75})_4O_{12}$ in Im-3, have been successfully synthesized. The A-site partially disordered one, $(Sm_{0.80}Mn_{0.20})(Sm_{0.07}Mn_{0.93})_3(Al_{0.25}Ti_{0.75})_4O_{12}$ is also obtained. In the case of smaller

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