

論文 / 著書情報
Article / Book Information

題目(和文)	鉄、マンガン基四面体配位化合物の新物質と不純物効果
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著者(和文)	石田純一
Author(English)	Junichi Ishida
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論文要約

論文題目 Thesis Title	<p style="text-align: center;">New Materials and Impurity Effect in Tetrahedral Fe, Mn Based Compounds (鉄,マンガン基四面体配位化合物の新物質と不純物効果)</p>
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要約

The discovery of high temperature superconductivity in iron pnictides sparked the intensive research on the physical property and the new materials exploration. In this study, we measured the impurity effect on Zn-doped $\text{LaFeAsO}_{1-x}\text{H}_x$ and Co-doped $\text{KCa}_2\text{Fe}_4\text{As}_4\text{F}_2$ to reveal the superconducting property. Moreover, new materials research was performed to find such compounds bearing the tetrahedral local structure, which is the similar building block as iron-based superconductor. As a result, five new materials were discovered; layered oxychalcogenides CaFeOS , CaCoOS with vertex-sharing $[\text{Fe}(\text{Co})\text{S}_3\text{O}]$ tetrahedra, double layered manganese arsenides RbMn_4As_3 , CsMn_4As_3 , and tunnel type KMn_4As_3 with edge-sharing $[\text{MnAs}_4]$ tetrahedra. Although these compounds didn't show the superconductivity, their electronic and magnetic structures were uncovered by density functional theory calculation and the neutron diffraction measurement.