第 11 回 GRL 浜松セミナー

～若手研究者のための光･電子･情報科学に関する情報交換～

12 月 2 日(木)15:00～16:00 浜松キャンパス 総合研究棟 2 階 R204 室

Phase transition and piezoelectric properties of perovskite-type ternary solid solutions

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Perovskite-type $PbTiO_3$-$PbZrO_3$ solid solution ceramics located at morphotropic phase boundary exhibit superior piezoelectric performances but the relative low Curie point limits their high temperature application. $Bi(Zn_{1/2}Ti_{1/2})O_3$ and $BiFeO_3$ can be used to enhance the Curie temperature of solid solution formed with $PbTiO_3$, among which the Curie temperature of $Pb_{0.6}Bi_{0.4}(Ti_{0.75}Zn_{0.15}Fe_{0.1})O_3$ was measured about 705^{o}C. In this presentation, the studies on nature of ferroelectric phase transition and the factors determining the Curie point was firstly briefed; and then experimental investigations of the phase transitions of $Pb_{0.6}Bi_{0.4}(Ti_{0.75}Zn_{0.15}Fe_{0.1})O_3$-$CaTiO_3$, and $PbTiO_3$-$PbZrO_3$-$Bi(Zn_{1/2}Ti_{1/2})O_3$ solid solution systems were presented and discussed; at last their dielectric and piezoelectric properties were presented and potential application were discussed.

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