

La³⁺ and Y³⁺ DOPING EFFECTS IN FERROELECTRIC
SrBi₂Nb₂O₉ CERAMICS

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Bi-layered ferroelectric materials including SrBi₂Nb₂O₉(SBN) paid much attention because they show good long-term reliability properties such as fatigue for ferroelectric memory applications. But they have relatively low remanent polarizations and need relatively higher process temperature. Recently ion doping or substitution effects in Bi-layered materials have been studied to overcome these problems. La³⁺ substituted Bi₄Ti₃O₁₂ was reported to show high polarizations and lower processing temperature.[1] Recently, La³⁺ and Ca²⁺ ion doping effects in SBN ceramics have been reported to show the increasing of transition temperature and smaller *dc* conductivity.[2] Contrary to the previous result, the transition temperature was decreased down to 330°C in 10% La³⁺ doped SBN from 465°C in un-doped one. For the Y³⁺ ion doping, however, the transition temperature increased to 490°C in 10% Y³⁺ doped SBN. These results show that the ion size rather than valency strongly affects the ferroelectric transition temperature. Not only transition temperature but also remanent polarization and *dc* conductivity as functions of temperature will be presented.

- [1] B. H. Park, B. S. Kang, S. D. Bu, T. W. Noh, J. Lee and W. Jo, Nature **401**, 682 (1999).
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This work was supported by Korea Research Foundation Grant (KRF-2000-005-Y00070).