Name of Presenter

Adisu Tsige Shibiru

Affiliation

Graduate School of Interdisciplinary Research, University of Yamanashi

Poster No. : 1-P-12

Grain Size-Optimized Tuning of Piezoelectric Properties in Barium Titanate Ceramics Through AC Field Poling Above the Curie Temperature

Adisu Tsige Shibiru[1], Ichiro Fujii[1], Shintaro Ueno[1] and Satoshi Wada[1*]

[1]Graduate Faculty of Interdisciplinary Research, University of Yamanashi

[*]swada@yamanashi.ac.jp

Keywords : Grain size, Domain size, Poling, Barium titanate, Piezoelectric

Highlights of This Poster Presentation

➢ Target

To enhance piezoelectricity in $BaTiO_3$ ceramics by studying the effect of AC + DC poling above the Curie temperature compared to conventional DC poling, and by optimizing grain size for maximum performance.

➢ Conclusion

AC + DC poling outperformed conventional DC poling, yielding a maximum Impedance d_{33} of 480 pC/N at 1.2 µm grain size. The improvement arose from smaller domain formation from field-induced phase transition and reduced defect-related pinning.

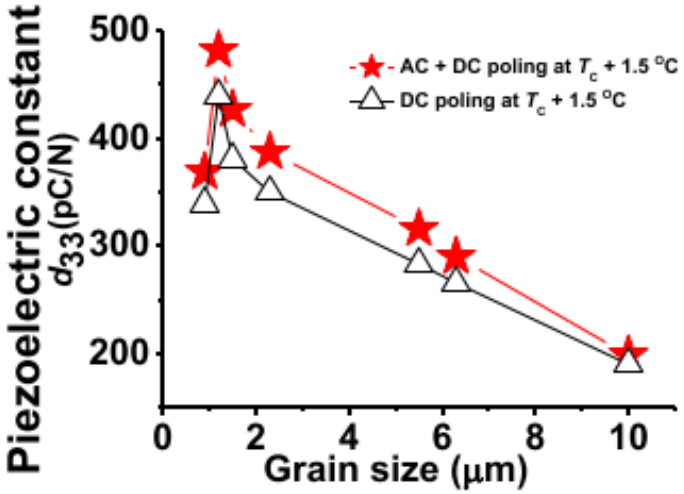

Fig. 1. Piezoelectricity as a function of grain size