



TECHNOLOGY

Lead-Free Antiferroelectric Compounds

OVERVIEW

Solid solution $\text{PbZr}_{1-x}\text{TixO}_3$ in composition range 0

Researchers at the University of Maryland have come up with an invention pertaining to perovskite compounds of formula $\text{BI}_{1-x}(\text{RE})_x\text{FeO}_3$, where RE is one or more of La, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, and Lu. The materials are at or near morphotropic phase boundary compositions which display antiferroelectric properties. The materials may possess electrostrictive characteristics.

The novel compounds are lead-free and are antiferroelectric at room temperature with simple perovskite-based structures. They display robust piezoelectric properties. They can be used in piezoelectric actuators, piezoelectric motors, pyroelectric detectors, pyroelectric imagers, ferroelectric memories, ferroelectric capacitors, dielectric capacitors, tunable microwave filters and circulators.

For further information, please contact the Office of Technology Commercialization, 301-405-2824 or Email: otc@umd.edu.

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Additional Information

INSTITUTION

University of Maryland, College Park

PATENT STATUS

Patent(s) pending

LICENSE STATUS

Contact OTC for licensing information

CATEGORIES

- Chemical
- Materials
- Microelectronics

EXTERNAL RESOURCES

- [US Patent 8,179,025](#)

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