

## Designing Morphotropic Phases in a Ferroelectric

### Disclosure Number

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### Technology Summary

Piezoelectric materials tie structure to electrical charge. The application of a bias changes crystal structure and/or a change in crystal structure induces charge. The most important classes of current piezoelectric materials are typically engineered through complex engineering of alloying composition to achieve a crystal phase near a morphotropic phase boundary where the electromechanical properties are maximal. This invention shifts rhombohedral crystal structures into morphotropic phases without the need for trial and error alloy engineering of parent compounds. The process is simple and can be achieved with readily available infrastructure already in-place in most standard wafer fabrication facilities.

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