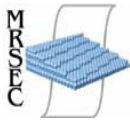


Discovery of a Pb-free morphotropic phase boundary (MPB) in a high T_c piezoelectric perovskite



Piezoelectric materials are used for a variety of actuator and sensor applications. Finding a Pb-free replacement for the popular $\text{Pb}(\text{Zr},\text{Ti})\text{O}_3$ has been a major challenge for the community.

Using the Combinatorial Laser MBE, we have rapidly mapped composition phase diagrams of doped BiFeO_3 and identified a novel Pb-free composition at a structural phase boundary. Piezoelectric properties at the boundary are comparable to those of $\text{Pb}(\text{Zr},\text{Ti})\text{O}_3$.

