

## **Phase diagram of Tetragonal Tungsten Bronze material**

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### **Abstract:**

The ferroelectric properties and the phase diagrams of Tetragonal Tungsten Bronze ferroelectrics are investigated within the framework of Landau Theory of phase transitions. The coefficients of the Landau functional are determined by mean-field approach of multicomponent Ising model.

We studied the different possibilities of the phase diagram according to the values of the Landau coefficients.

The obtained phase diagram is compared with experimental data and Monte Carlo simulations.

**Keyword:** Tetragonal Tungsten Bronze, Ferroelectrics, Landau theory, mean field theory, phase transition.