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**Domain structure and polarization of ferroelectric graded multilayers and nanograded films.**

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The equilibrium domain structure and its evolution under an electric field in ferroelectric graded films and multilayers are considered. The equilibrium graded film is self-poled and contains a single-domain and a polydomain (with 180$^\circ$ domains) layers. The polarization of a graded multilayer and films proceeds by movement of wedge-like domains as a result of progressive transformation of polydomain layers to a single-domain state. The change of the energy of domain walls accompanying growth and shrinkage of wedge domains can be taken into account by introducing a local effective field on the boundary between polydomain and single-domain parts of a film. It makes the movements of this boundary irreversible and contributes to the hysteresis of polarization. The theory provides the principal explanation of dielectric and pyroelectric behavior of graded ferroelectric films including enhanced dielectric constant and giant pyroeffect. The theory will be applied to the discussion of several related problems: (1) elastic domains as a result of structural transformations in graded materials; (2) domains in graded ferromagnetic films; (3) domain structures under non-uniform fields, particularly, the formation of zigzag interdomain and interfacial walls under a local field.