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Nanostructuring of Ferroic and Multiferroic Low-Tolerance-Factor Perovskite Oxides; 2.1 Introduction; 2.2 Synthesis of Perovskites Oxides; 2.2.1 General Information on the Preparation of Low-tolerance-Factor Perovskite Oxides; 2.2.2 Mechanochemical Activation and Mechanosynthesis Applied to Low-Tolerance-Factor Perovskite Oxides; 2.3 Processing of Ferroic and Multiferroic Materials: From the Ceramic Method to the Current Assisted Methods
2.3.1 SPS Applied to the Preparation of Ferroic Ceramic Materials2.4 Combination of Mechanosynthesis and Spark Plasma Synthesis: The Right Track to the Nanoscale in Ferroic Materials; 2.5 Conclusions; Acknowledgments; References; 3 Core-Shell Heterostructures: From Particle Synthesis to Bulk Dielectric, Ferroelectric, and Multiferroic Composite Materials; 3.1 Introduction; 3.2 Liquid-Phase Synthesis of Core-Shell Particles; 3.2.1 Controlled Assembly of Preformed Nanoparticles; 3.2.2 Precipitation; 3.3 BaTiO3@polymer Particles and Composites
3.4 Inorganic Core-Shell Particles with a Ferroelectric Core3.5 Multiferroic Core-Shell Particles and Composites; 3.6 Conclusions and Outlook; References; 4 Modeling of Colloidal Suspensions for the Synthesis of the Ferroelectric Oxides with Complex Chemical Composition; 4.1 Introduction; 4.2 Solid-State Synthesis; 4.3 Colloidal Interactions and Aggregation; 4.3.1 DLVO Theory; 4.3.2 Modeling of Aggregate Formation and Their Structure; 4.4 Aggregation in the Three-Component System; 4.5 Applying the Modeling Results to Enhance Properties of Ferroelectric Complex Oxides
4.5.1 PMN Synthesis by Controlled Aggregation of Reagent Particles

Sommario/riassunto

"Covers topics such as nanostructuring, functional ceramics based on nanopowders micromechanical systems, self-assembling and patterning, porous structures etc."--