



Nanoscale Ferroelectrics and Multiferroics: Key Processing and Characterization Issues, and Nanoscale Effects, 2 Volumes

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DESCRIPTION

This two volume set reviews the key issues in processing and characterization of nanoscale ferroelectrics and multiferroics, and provides a comprehensive description of their properties, with an emphasis in differentiating size effects of extrinsic ones like boundary or interface effects. Recently described nanoscale novel phenomena are also addressed. Organized into three parts it addresses key issues in processing (nanostructuring), characterization (of the nanostructured materials) and nanoscale effects.

Taking full advantage of the synergies between nanoscale ferroelectrics and multiferroics, the text covers materials nanostructured at all levels, from ceramic technologies like ferroelectric nanopowders, bulk nanostructured ceramics and thick films, and magnetoelectric nanocomposites, to thin films, either polycrystalline layer heterostructures or epitaxial systems, and to nanoscale free standing objects with specific geometries, such as nanowires and tubes at different levels of development.

This set is developed from the high level European scientific knowledge platform built within the COST (European Cooperation in Science and Technology) Action on Single and multiphase ferroics and multiferroics with restricted geometries (SIMUFER, ref. MP0904). Chapter contributors have been carefully selected, and have all made major contributions to knowledge of the respective topics, and overall, they are among most respected scientists in the field.

ABOUT THE AUTHOR

Dr Miguel Algueró is Senior Researcher at Instituto de Ciencia de Materiales de Madrid (ICMM), of Consejo Superior de Investigaciones Científicas (CSIC), Spain. He is a material scientist with a strong expertise in ferroelectrics, mainly for piezoelectric applications, from which he approached the resurgent field of multiferroics. His research interest covers all ceramics and thin films, processing and properties with an emphasis on nanostructuring issues and size effects at the nanoscale.

Professor J. Marty Gregg holds a chair in the School of Mathematics and Physics at Queen's University Belfast, UK. His current research interests are in the experimental exploration of the behaviour of ferroelectrics at reduced dimensions and in nanoshapes of complex morphology. He has co-organized various symposia including symposia E- Metal Oxide Nanostructures (EMRS, Strasbourg, 2009), Functional Ceramic Materials and Devices (EUROMAT 2009), and the International Symposium on Integrated Ferroelectrics held in Edinburgh in 2010.

Professor Liliana Mitoseriu is based at the Faculty of Physics, University "Alexandru Ioan Cuza" Iasi, Romania. Prof. Mitoseriu has co-authored 130 peer reviewed papers in the field of ferroelectric and multiferroic oxides. She has written six books for students (in Romanian) and edited two international books addressing modern topics in Electroceramics. She is currently the Chair of the FP7-ESF-COST Action MP0904 Single- and multiphase ferroics and multiferroics with restricted geometries, and the major outputs are presented in this book.

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