

Final
Program



Toledo, Spain 18-22 June, 2006

COST 539, ELENA - Wednesday, June 21 - Morning (Hall 4)

8.30 - 9.00 COST-I-03 INVITED

CONTROLLED PATTERNING OF FERROELECTRIC NANOSTRUCTURES

F. ROSEI

Institut National de la Recherche Scientifique, Energie, Materiaux et Telecommunications, Université du Québec, Varennes (Qc), Canada.

9.00 - 9.15 COST-O-25

PROPERTIES OF COMPOSITIONALLY GRADED $Ba_{(1-x)}Sr_xTiO_3$ THICK FILMS

M. VIVIANI¹, J. BARREL², M.T. BUSCAGLIA¹, V. BUSCAGLIA¹, M. VARDAVOULIAS³, E. STYTSENKO²

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³Pyrogenesis Sa, Lavrio, Greece.

9.15 - 9.30 COST-O-26

SCREEN PRINTED PLTZ THICK FILMS PREPARED FROM NANOPOWDERS

B. STOJANOVIĆ¹, V. MITIĆ², V. PEJOVIĆ¹, M. VASIĆ¹, M.A. ZAGHETE³

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9.30 - 9.45 COST-O-27

TEXTURE-STRUCTURE-MICROSTRUCTURE-PHASE ANALYSIS OF MULTI-PHASED CERAMICS AND FILMS USING X-RAY AND NEUTRON DIFFRACTION: EXAMPLES OF SINTER-FORGED Bi_{2223} - Bi_{2212} , MELT TEXTURED GROWTH Y-BA-CU-O AND NANO-Si

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9.45 - 10.00 COST-O-28

EFFECTS OF THE DIOL BASED AND AQUEOUS SOL-GEL ROUTES ON THE PROPERTIES OF DERIVED $(Pb,Ca)TiO_3$ THIN FILMS

I. BRETOS¹, R. JIMÉNEZ¹, M.L. CALZADA¹, M.K. VAN BAELE^{2,3}, A. HARDY^{2,3}, D. VAN GENECHTEN^{2,3}, J. MULLENS^{2,3}

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10.00 - 10.15 COST-O-29

THE INVESTIGATION OF KEY PROCESSING PARAMETERS IN FABRICATION OF $Pb(Zr_xTi_{1-x})O_3$ THICK FILMS FOR MEMS APPLICATIONS

S. CORKOVIC, Q. ZHANG

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10.15 - 10.30 COST-O-30

SYNTHESIS AND CRYSTALLIZATION PATHWAY OF $Na_{0.5}Bi_{0.5}TiO_3$ (NBT) THIN FILMS OBTAINED BY A MODIFIED SOL-GEL ROUTE

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10.30 - 11.30 COFFEE BREAK AND POSTER SESSION

Book of Abstracts



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SCREEN PRINTED PLZT THICK FILMS PREPARED FROM NANOPOWDERS

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Lead lanthanum zirconium titanate -PLZT thick films formulated La/PbTiO₃/PbZrO₃ = 9.5/65/35 were prepared by polymeric precursor method from organometallic complex to obtain nanosized powders. A thick film paste was prepared by mixing PLZT fine powders and organic vehicle. The upper and bottom electrodes based on Ag-Pd and functional component based on PLZT were screen printed on alumina substrate and after that annealed in air atmosphere up to 800°C. The microstructure, dielectric and ferroelectric properties were measured. The effect of the number of layers of PLZT thick films on the properties was analysed.

TEXTURE-STRUCTURE-MICROSTRUCTURE-PHASE ANALYSIS OF MULTI-PHASED CERAMICS AND FILMS USING X-RAY AND NEUTRON DIFFRACTION: EXAMPLES SINTER-FORGED Bi₂223-Bi₂212, MELT TEXTURED GROWTH Y-BA-CU-O AND NANO-Si

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The controlled development of texture in polycrystalline materials appears to be more and more essential in ceramic and thin film processing, since potential applications require materials with macroscopic properties comparable to the intrinsic anisotropic tensors of the crystal structures. Texture analysis is consequently recognized as a really important tool in the characterisation of oriented samples. However, a quantitative texture analysis of these materials is usually not a simple task. In most cases, the diffraction spectra are very complex with many partially or fully overlapping diffraction peaks and with several crystallographic phases. To overcome this problem, the combination¹ of Rietveld, WIMV and Popa approaches, as implemented in the MAUD software (Materials Analysis Using Diffraction)², permits a comprehensive new approach to crystal structure-texture-microstructure-phase-stress analysis. In this study, we report the application of this method to different ceramic materials with different textures, crystallographic structures, microstructures ...

We demonstrate here the efficiency and reliability of iterative combination of algorithms for structure-phase determination, microstructure and OD calculation for oxide ceramics and silicon nanostructured films.

¹Chateigner D (2004) "Combined Analysis",

<http://www.ecole.ensicaen.fr/~chateign/texture/combined.pdf>

²Lutterotti L, Matthies S, Wenk H R, in: J.A. Szpunar (Ed.), Textures of Materials, vol. 2, NRC Research Press, Ottawa, 1999, 1599