

**5th Workshop COST 539, 1 September 2008, Manchester, UK,  
abstracts and CD proceedings**

**Influence of lanthanum doping on properties of BaTiO<sub>3</sub> prepared from  
organometallic complex**

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Barium titanate is the first discovered ferroelectric ceramic and one of the most widely used material for various applications. Doping of BaTiO<sub>3</sub> (BT) ceramics is very important for obtaining very interesting characteristics for potential applications.

Pure and doped with lanthanum barium titanate powders were prepared by polymeric precursors method through Pechini process (soft chemistry) which was carried out as a three-stage process from organometallic complex. Obtained powders were pressed into pallets and sintering was performed at 1300°C for 2-8 h. The heating rate was 10°C/min. XRD analysis was used to approve formation of phase and crystal structure of obtained BT powders and ceramics. Particle size distributions were measured using laser diffraction, specific surface areas were measured by nitrogen adsorption and average particle diameters ( $D_{\text{BET}}$ ) were calculated from the specific surface areas and agglomeration factor,  $F_{\text{agg}}$  was also calculated. Density of pure and doped barium titanate powders and ceramics were measured. It was studied the influence of lanthanum doping on powders particle size and morphology and microstructure of BT ceramics. The microstructure and morphology of nanopowders and sintered samples were investigated by scanning electron microscopy. It is well known that dopants such as lanthanum act as a grain growth inhibitor, therefore it was analyzed connection between grain size, structure and properties of obtained ceramics. Electrical measurement of BT ceramics were carried out and influence of lanthanum doping was discussed.