

**INFLUENCE OF PROCESSING METHOD ON DIELECTRIC PROPERTIES OF  
BaBi<sub>4</sub>Ti<sub>4</sub>O<sub>15</sub> CERAMICS**

**J.D.Bobić<sup>1</sup>, M.M.Vijatović Petrović<sup>1</sup>, S. Greičius<sup>2</sup>, J. Banys<sup>2</sup>, B.D.Stojanović<sup>1</sup>**

<sup>1</sup>Institute for Multidisciplinary Research, University of Belgrade, Serbia

<sup>2</sup>Faculty of Physics, Vilnius University, Lithuania

Family of bismuth oxides was discovered more than 50 years ago by Aurivillius. Recently, there has been renewed interest in the properties of the Aurivillius phases as temperature-stable ferro-piezoelectrics. Several bismuth-layered crystal structures and their properties have been investigated in detail. However, a lot of aspects of the preparation and properties of barium bismuth titanate, BaBi<sub>4</sub>Ti<sub>4</sub>O<sub>15</sub> [BBiT] remain unexplored, whereas being promising candidate for high-temperature piezoelectric applications, memory application and ferroelectric nonvolatile memories (Fe-RAM). In present work, BBiT was prepared by solid state reaction from mixture of oxides: BaO, TiO<sub>2</sub> and Bi<sub>2</sub>O<sub>3</sub> which was previously milled for 6 h (MA). The mixture was heated at 750 °C for 4 h. As a comparison, the same ceramics were prepared through conventional solid state reaction (CSS). The same oxides mixture was homogenized for 24 h in isopropanol as a liquid medium and calcinated at 950 °C for 4 h which is 200 °C higher temperature than for MA procedure. Sintering process was carried out at 1130 °C for 1 h in both synthesis methods. Smaller plate like grains are noticed in BBiT ceramics prepared from powders obtained by MA process comparing to CSS process. In the temperature dependence of the dielectric permittivity, the maximum associated to the Curie temperature was higher and narrower in ceramics prepared by CSS method. Influence of the grain and grain boundaries contribution to the dielectric behaviour in both ceramics were analyzed through impedance spectroscopy.