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Materials for use in Extreme Conditions “CEXTREME LAB” -  
Institute of Nuclear Sciences “Vinča”, University of Belgrade  
Faculty of Mechanical Engineering, University of Belgrade**

# **PROGRAMME AND THE BOOK OF ABSTRACTS**

**4<sup>th</sup> Conference of The Serbian Society for  
Ceramic Materials**

**June 14-16, 2017**

**Belgrade, Serbia**

**4CSCS-2017**

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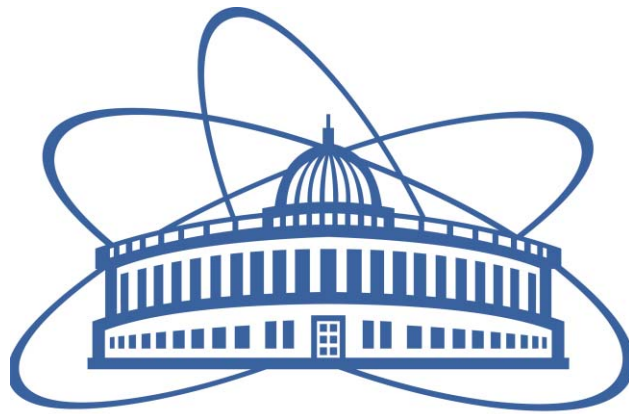
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**STRUCTURAL, ELECTRICAL AND MAGNETIC PROPERTIES  
OF MECHANICALLY ACTIVATED MANGANESE AND  
ZINC FERRITE**

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Milutinov<sup>2</sup>, Zorka Z. Vasiljevic<sup>3</sup>, Nebojsa Labus<sup>3</sup>, Obrad S. Aleksic<sup>1</sup>

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Starting hematite (Fe<sub>2</sub>O<sub>3</sub>), zinc oxide (ZnO) and manganese carbonate (MnCO<sub>3</sub>) powders were homogenized in a planetary ball mill in stainless steel bowls with stainless steel balls for 15 min, calcined in air at 1000 °C for 2 h, milled in a planetary ball mill for 30 minutes, followed by 4 h in an agate mill, sieved through a 325 mesh to form four starting powders: MnFe<sub>2</sub>O<sub>4</sub>, ZnFe<sub>2</sub>O<sub>4</sub>, Mn<sub>0.5</sub>Zn<sub>0.5</sub>Fe<sub>2</sub>O<sub>4</sub> and a two-phase mixture of zinc and manganese ferrite. Structural properties of the obtained powders were analyzed using XRD, SEM and EDS. Electrical properties of disk shaped samples were measured at room temperature on an impedance analyzer in the frequency range 100 to 40 MHz, enabling determination and comparison of dielectric permittivity and complex impedance. Complex relative permeability of toroid shaped samples was measured on an impedance analyzer in the frequency range from 1 MHz to 500 MHz.