

**Serbian Ceramic Society Conference**  
**ADVANCED CERAMICS AND APPLICATION II**  
**New Frontiers in Multifunctional Material Science and Processing**

**Serbian Ceramic Society**  
**Institute of Chemistry Technology and Metallurgy**  
**Institute for Technology of Nuclear and Other Raw Mineral Materials**  
**Institute for Testing of Materials**  
**Archeological Institute of SASA**

**PROGRAM AND THE BOOK OF ABSTRACTS**

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demonstrate prominent green luminescence centered at 550 nm after been excited with the infrared laser source ( $\lambda=978$  nm).

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**Dielectric characterization of microalloyed alumo-silicate ceramics by using linear regression model**

Jelena Purenović<sup>1</sup>, Vojislav Mitić<sup>2,3</sup>, Marjan Randjelović<sup>4</sup>, Branko Matović<sup>5</sup>, Milovan Purenović<sup>4</sup>

<sup>1</sup> University of Kragujevac, Faculty of Technical Sciences, Svetog Save 65, Čačak, Serbia

<sup>2</sup> University of Niš, Faculty of Electronic Engineering, Aleksandra Medvedeva 14, Niš, Serbia

<sup>3</sup> Institute of Technical Sciences of SASA, Knez Mihailova 35, Belgrade, Serbia

<sup>4</sup> University of Niš, Faculty of Sciences and Mathematics, Department of Chemistry, Niš, Serbia

<sup>5</sup> Institute of Nuclear Sciences “Vinča”, P.O.Box 522, Belgrade, Serbia

In this paper, dielectric characterization of porous alumo-silicate ceramics, modified by alloying with magnesium and microalloying with aluminum, was investigated. Microstructure investigations have revealed non-uniform and highly porous structure with broad distribution of grain size, specifically shaped grains and high degree of agglomeration. Complex multiphase system, as active microalloyed ceramics, has specific behavior under external electrical field influence. Dielectric properties (the changes of permittivity, electrical resistivity, dielectric losses and impedance) were measured in the frequency range 20 Hz – 1 MHz. All characteristics showed nonlinear distribution and complex functional dependences because of significant nonhomogeneity of active microalloyed ceramics. Values for permittivity ranged between 140 – 430. Order of magnitude for electrical resistivity was about  $10^6$   $\Omega$ m, for impedance  $10^4$  –  $10^8$   $\Omega$ , and loss tangent had values much greater than 0.05. Mathematical model of linear regression was applied on the dielectric characterization results. Consistency with experimental data was approved, since the values for correlation coefficient  $r$  and determination coefficient  $r^2$  were obtained near value 1.