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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
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Archeological Institute of SASA

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

P18

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

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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 Ωm, for impedance 10^4 – 10^8 Ω, 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.