

Programme & The Book of Abstracts

Twenty-first Annual Conference

**YUCOMAT 2019**

&

Eleventh World Round Table Conference

on Sintering –

Science of Sintering & Its Future: Fifty Years Later

**WRTCS 2019**

Herceg Novi, Montenegro September 2 - 6, 2019

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Organised by:  
**Materials Research Society of Serbia**  
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### **The BaTiO<sub>3</sub> nano-scale coated morphology influence on electronic properties and ceramics fractal nature frontiers**

Vojislav V. Mitić<sup>1,2</sup>, Goran Lazović<sup>3</sup>, Chun-An Lu<sup>4</sup>, Vesna Paunović<sup>1</sup>, Sandra Veljković<sup>1</sup>, Hans Fecht<sup>5</sup>, Branislav Vlahović<sup>6</sup>

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The BaTiO<sub>3</sub> ceramics applications based on electronic properties have very high gradient scientific and industrial-technological interests. Our scientific research has been based on nano BaTiO<sub>3</sub> with MOD-Y salts and also on Y<sub>2</sub>O<sub>3</sub>. The samples have been consolidated at sintering interval 1200 – 1350 °C. We demonstrate the new frontiers for different electronic properties between the layers of BaTiO<sub>3</sub> grains. As a research target we had GB composite, Nano size metal oxide dispersions, AC-DC safety capacitance, nano scale grain boundary control, capacitance, GB control mobility in DC BS operation voltage. We applied all related characterizations and especially SEM. Fractal nature characterization and corrections include influences grains and pores surface and Brownian motions of particles. We established relation with all of this characteristics and temperature. Throw this experiments and results and fractals characterization, we opened new perspectives for higher electronic properties integrations between the grains and practically established the control within the processing, morphological structures and designing the properties. This is very important, new approach towards further miniaturization-fractal miniaturization and related, advanced technologies.

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