Vojislav V. Mitic, J Material Sci Eng 2015, 4:4
http://dx.doi.org/10.4172/2169-0022.C1.024

OMICS International
conferenceseries.com

International Conference and Expo on
Ceramics
August 17-18, 2015 Chicago, USA

Vojislav V. Mitic
University of Nis, Serbia

Ceramics world: New fractal frontiers

The nature of ceramics grains contacts play an essential role in understanding complex electric and dielectric properties of electronic ceramics materials. Morphology of ceramics grains and pores as well as Brownian character of particle dynamics inside ceramics materials contributes to better understanding of the sintering process which is of basic importance in further electro-physical properties. Real inter-grain contact surfaces are highly irregular objects that can be described in the only adequate way, using fractal nature analysis. Using the method of fractal analysis, the micro-nanostructure configurations reconstruction, like shapes of grains pores or intergranular contacts is possible. Besides, we re-investigate intergranular capacity model as well as Heywang fractal modified model from the point of view of intergranular fractal formations. The area of grains' surface is calculated by using fractal correction that expresses the irregularity of grains surface through fractal dimension. This leads towards a more exact calculates of ceramics' electronics properties as well as more realistic understanding of electrical behavior of barium-titanate and other electronic ceramics materials and refractory ceramics, fly ashes, etc. In order to obtain an equivalent circuit model, which provides a more realistic representation of the electronic materials' electrical properties, we have determined and implemented an intergranular contacts model for the BaTiO3 electrical properties characterization in this paper. On the basis of micro-nanostructure fractal relations, a prognosis of the electronic properties of material can be deduced. Consi¬dering the obtained results, the new frontiers for deeper and higher level electronics circuit microelectronic integration are established, which is what is practically leading towards the new frame of fractal electronics.

Biography

Vojislav V. Mitic completed his B.Sc. from University of Nis in the year 1982, M.Sc. from University of Belgrade in the year 1990 and Ph.D. from University of Nis in the year 1995. Currently he is working as a Full Professor as a Faculty of Electronic Engineering, University of Nis.

vmitic.d2480@gmail.com

Notes: