
Contribution ID : **41** Type : **Oral Presentation**

# Evaluation of Graded Composite Film Morphology

*Monday, 13 August 2018 17:15 (15)*

The paper presents an efficient tool to research morphological properties of various composite structures. It focuses on the composites that are created by metal particles in a dielectric matrix. Nevertheless, the results could be used for other similar two-phase systems. The particles are assumed to be more or less randomly distributed in the matrix, and a low metal volume fraction is supposed. The hard-sphere model for generation of the composite structures is described. The Voronoi tessellation was chosen as a very efficient method of mathematical morphology. It is able to describe three-dimensional composite structure morphology simply using one two-dimensional section in the given structure. To evaluate the degree of disorder of the structure, a novel scalar measure is introduced. Results for homogeneous and graded composites are presented. It is shown that the scalar measure gives the possibility to precisely evaluate the degree of disorder of the composite structures. The sensitivity of the method is very good and its noise is low. It is independent of the section chosen.

**Primary author(s) :** Prof. NOVAK, Stanislav (Faculty of Science, J. E. Purkinje University)

**Co-author(s) :** Prof. HRACH, Rudolf (Faculty of Mathematics and Physics, Charles University); Dr SVEC, Martin (Faculty of Science, J. E. Purkinje University)

**Presenter(s) :** Prof. NOVAK, Stanislav (Faculty of Science, J. E. Purkinje University)

**Session Classification :** Speaker Sessions and Seminars

**Track Classification :** Thin Film