



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

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

**PROGRAM AND THE BOOK OF ABSTRACTS**

**Serbian Academy of Sciences and Arts, Knez Mihailova 35  
Serbia, Belgrade, 17-19. September 2018.**

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Dear Colleagues,

We have great pleasure to welcome you to the Advanced Ceramic and Application Conference VII organized by the Serbian Ceramic Society in cooperation with the Institute for Testing of Materials, Institute of Technical Sciences of SASA, Institute of Chemistry Technology and Metallurgy and Institute for Technology of Nuclear and Other Raw Mineral Materials.

Advanced Ceramics today include many old-known ceramic materials produced through newly available processing techniques as well as broad range of the innovative compounds and composites, particularly with plastics and metals. Such developed new materials with improved performances already bring a new quality in the everyday life. The chosen Conference topics cover contributions from a fundamental theoretical research in advanced ceramics, computer-aided design and modeling of a new ceramics products, manufacturing of nanoceramic devices, developing of multifunctional ceramic processing routes, etc. Traditionally, ACA Conferences gather leading researchers, engineers, specialist, professors and PhD students trying to emphasize the key achievements which will enable the wide spread use of the advanced ceramics products in High-Tech industry, renewable energy utilization, environmental efficiency, security, space technology, cultural heritage, etc.

Serbian Ceramic Society has been initiated in 1995/1996 and fully registered in 1997 as Yugoslav Ceramic Society, being strongly supported by American Ceramic Society. Since 2009, it has continued as Serbian Ceramic Society in accordance to the Serbian law procedure. Serbian Ceramic Society is almost the only one Ceramic Society in the South-East Europe, with members from more than 20 Institutes and Universities, active in 16 sessions, by program and the frames which are defined by the American Ceramic Society activities.

This year, the conference is dedicated to the memory of Academician Momčilo M. Ristić (1929-2018), Honorary President of the Serbian Ceramic Society and founder of Material Science in our country.

**Prof. Dr Vojislav Mitić,**  
*President of the Serbian Ceramic Society*  
*World Academy Ceramics Member*  
*European Academy of Sciences & Arts Member*

**Prof. Dr Olivera Milošević,**  
*President of the General Assembly of the Serbian*  
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## Conference Topics

Basic Ceramic Science & Sintering – *in memoriam Momčilo M.Ristić, academician*

Optical, Glass & Electro Ceramics

Nano & Bio Ceramics

Modeling & Simulation

Advanced Ceramics

Heritage, Arts & Design

Guide on Science Writing

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### Effects of ball-milling on properties of sintered alumina doped with $Mn_2O_3$

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Recently, with the huge use of smart gadgets, developing of smart jewelry represents a very interesting segment in material science, as well as in electronic science. Alumina is widely used ceramic in many industrial fields as pigments, catalysis, microelectronics, etc., mostly because of its low cost and appropriate mechanical and electrical properties, high surface area and thermal stability. Also, modified alumina could be applied in production of smart jewelry. Thus, the main objectives of this investigation is to improve features of sintered alumina doped with  $Mn_2O_3$  along with mechanical treatment, in order to obtain strong ceramic with low values of dielectric loss and low relative dielectric permittivity, as well as esthetic. Commercial alumina powder was doped with 1 wt % of manganese oxide and treated in planetary ball mill for an hour. Characteristic temperatures of both powders (non-activated and activated one) were investigated in detail by DTA and TG analyses. After sintering at 1200, 1300, and 1400 °C for 2 h, XRD patterns and SEM images were recorded. Furthermore, mechanical and electrical properties were examined for all sintered samples.

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### Cobalt impregnated acid modified smectite in heterogeneous catalytic oxidation of azo dye using Oxone®

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The starting clay from Bogovina (Serbia) rich in smectite was submitted to acid modification in order to improve textural properties. The acid modified sample was further impregnated with cobalt using 1 mol dm<sup>-3</sup> solution of  $Co(NO_3)_2$  followed by calcination at 450°C during 6