



**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
Ceramic Society
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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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Structural and magnetic properties of $Y_{1-x}Yb_xF_3$ solid solution

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In this work, the polycrystalline samples $Y_{1-x}Yb_xF_3$ ($x = 0.01, 0.05, 0.1, 0.25, 0.5, 0.75$ and 1) were synthesized and characterized by X-ray powder diffraction and magnetic measurements. In the first stage of synthesis, mixed sesquioxides $(Y_{1-x}Yb_x)_2O_3$ were obtained by ceramic technology. In the second stage, obtained mixed sesquioxides were treated with an excess of ammonium hydrogen fluoride in air at 170 °C for 20 h. In the third and last stage, $Y_{1-x}Yb_xF_3$ samples were obtained by heating the product from the second stage of synthesis at 500 °C for 3 h in an inert atmosphere. The X-ray diffraction revealed that the crystal structure of the $Y_{1-x}Yb_xF_3$ solid solution is orthorhombic (YF₃ structural type). The structure refinements were done by the Rietveld full-profile method within *Pnma* space group. Magnetic susceptibility measurements of all samples were done in a temperature range 2-300 K by SQUID magnetometer. The relation between magnetic and structural properties was discussed.