

MATERIALS RESEARCH SOCIETY OF SERBIA
INSTITUTE OF TECHNICAL SCIENCES OF SASA



Programme and the Book of Abstracts

**EIGHTEENTH YOUNG RESEARCHERS' CONFERENCE
MATERIALS SCIENCE AND ENGINEERING**

Belgrade, December 4–6, 2019

<http://www.mrs-serbia.org.rs/index.php/young-researchers-conference>

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**Materials Research Society of Serbia
&
Institute of Technical Sciences of SASA**

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Aim of the Conference

Main aim of the conference is to enable young researchers (post-graduate, master or doctoral student, or a PhD holder younger than 35) working in the field of materials science and engineering, to meet their colleagues and exchange experiences about their research.

Topics

Biomaterials
Environmental science
Materials for high-technology applications
Materials for new generation solar cells
Nanostructured materials
New synthesis and processing methods
Theoretical modelling of materials

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Results of the Conference

Beside printed «Program and the Book of Abstracts», which is disseminated to all conference participants, selected and awarded peer-reviewed papers will be published in journal “Tehnika – Novi Materijali”. The best presented papers, suggested by Session Chairpersons and selected by Awards Committee, will be proclaimed at the Closing Ceremony. Part of the award is free-of-charge conference fee at YUCOMAT 2020.

Sponsors



ANALYSIS
LABORATORY EQUIPMENT

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Effect of Gd³⁺ introduction on YF₃: Yb, Er structural, morphological and optical properties

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Monosized up-converting nanoparticles (UCNPs) with a spherical shape and biocompatible surface have a wide application in biomedicine as new cell markers or light-triggered drug delivery agents. The synthesis of the hexagonal β -NaYF₄:Yb/Er phase is of a great interest, because of its most efficient up-conversion luminescence. Beside it, synthesis of the UCNPs based on YF₃:Yb/Er phase is also attractive due to its orthorhombic phase arrangement and fact that higher concentration of dopants could be introduced in such crystal lattice. In this work the synthesis of pure and Gd-doped YF₃:Yb/Er phases were performed through hydro/solvo thermal method using a biocompatible chitosan as a surfactant. The XRD analysis showed that independently of the gadolinium content formation of the orthorhombic phase is achieved, but intensity of the green emission due to the (²H_{11/2}, ⁴S_{3/2}) → ⁴I_{15/2} electronic transitions was highest for un-doped YF₃:Yb/Er sample.