

Programme & The Book of Abstracts

*Twentieth Annual Conference*

# YUCOMAT 2018

Herceg Novi, Montenegro, September 3–7, 2018

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**TWENTIETH ANNUAL CONFERENCE**

# **YUCOMAT 2018**

Hunguest Hotel Sun Resort Herceg Novi, Montenegro,  
September 3-7, 2018  
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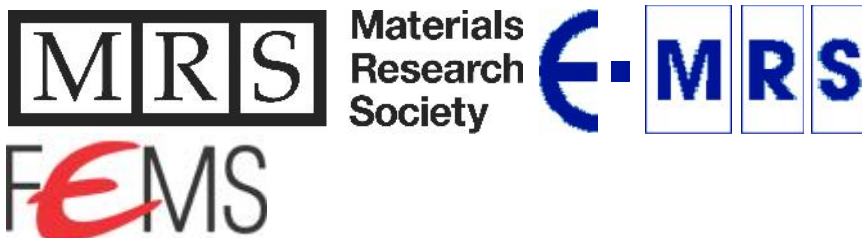
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**One-pot synthesis of biocompatible NaYF<sub>4</sub>:Yb,Er nanoparticles for cell labeling**

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In modern medical research, great attention has been focused to the development of the new biomarkers which include up-converting nanoparticles (UCNPs). Their optical response is triggered by NIR radiation that achieves deeper tissue penetration when compared with traditionally used fluorophores. In this work, biocompatible NaYF<sub>4</sub>: Yb, Er nanoparticles were synthesized by polymer assisted one-pot solvothermal processing using chitosan or poly(lactic-co-glycolic acid). X-ray powder diffraction and electron microscopy results revealed differences in crystal arrangement and morphology of the as-synthesized particles. Fourier transform infrared spectroscopy confirmed the presence of corresponding polymers moiety on UCNPs surface providing their biocompatibility and low cytotoxicity towards human gingival fibroblasts (HFG). As a consequence of efficient up-conversion, prominent green emission (between 512-533nm and between 533-560nm) as well as red emission (630-690nm) were recorded in the particles photoluminescence spectra, and these are applied further in the visualization of the HFG using the laser scanning microscopy with a NIR laser source.

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