



*Society of Physical Chemists of Serbia*

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# PHYSICAL CHEMISTRY 2021

*15<sup>th</sup> International Conference on  
Fundamental and Applied Aspects of  
Physical Chemistry*

# PC2021

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*The Conference is dedicated to the*

*30<sup>th</sup> Anniversary of the founding of the Society of Physical Chemists of Serbia*

*and*

*100<sup>th</sup> Anniversary of Bray-Liebhaafsky reaction*

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# PHYSICAL CHEMISTRY 2021

## 15th International Conference on Fundamental and Applied Aspects of Physical Chemistry

Organized by

*The Society of Physical Chemists of Serbia (SPCS)*



*in co-operation with*

*Institute of Catalysis, Bulgarian Academy of Sciences*



*Boreskov Institute of Catalysis, Siberian Branch of Russian Academy of Sciences*



*and*

*Members of the University of Belgrade:*



*Faculty of Physical Chemistry*



*Institute of Chemistry, Technology and Metallurgy*



*VINČA Institute of Nuclear Sciences*



*Faculty of Pharmacy*



*and*

*Institute of General and Physical Chemistry, Belgrade*





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**H-09-P****SYNTHESIS OF CORE-SHELL NaYF<sub>4</sub>:Yb,Tm@TiO<sub>2</sub>-Acac MICRO- AND NANO-SIZED PARTICLES FOR EFFICIENT PHOTOCATALYSIS**

S. Marković<sup>1</sup>, T.M. Machado<sup>2</sup>, I. Dinić<sup>1</sup>, Lj. Veselinović<sup>1</sup>, I. Janković-Častvan<sup>3</sup>, B.A. Marinković<sup>2</sup> and L. Mančić<sup>1</sup>

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Micro- and nano-sized core-shell particles for efficient photocatalysis were successfully synthesized by a two step wet-chemical route. The core composed of up-converting (UC) NaYF<sub>4</sub>:Yb,Tm phase was prepared through EDTA assisted hydrothermal process, while the shell of anatase TiO<sub>2</sub> – Acetylacetonate (TiO<sub>2</sub>-Acac) charge-transfer complex was formed *via* a sol-gel method. During coating, the effect of polyvinylpyrrolidone (PVP) addition on the core and shell coupling was investigated. Two forms of core structures were obtained: hexagonal microprisms of β-NaYF<sub>4</sub>:Yb,Tm and α-NaYF<sub>4</sub>:Yb,Tm nanospheres, both coated with TiO<sub>2</sub>-Acac nanocrystals.

**H-10-P****THERMALLY INDUCED PHASE TRANSFORMATIONS AND THEIR INFLUENCE ON FUNCTIONAL PROPERTIES OF MULTICOMPONENT Fe-BASED AMORPHOUS ALLOYS**

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In this work, results of the study of five multicomponent iron-based amorphous alloys are summarized and compared regarding their thermal stability, mechanism of thermally induced microstructural transformations and their effect on the functional properties of the alloys. The obtained informations can be significant for development of the materials with targeted properties.