

Programme & The Book of Abstracts

Twenty-first Annual Conference

**YUCOMAT 2019**

&

Eleventh World Round Table Conference

on Sintering –

Science of Sintering & Its Future: Fifty Years Later

**WRTCS 2019**

Herceg Novi, Montenegro September 2 - 6, 2019

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Organised by:  
**Materials Research Society of Serbia**  
&  
**International Institute for the Science of Sintering**

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**Structure, morphology and photocatalytic properties of  $\text{Co}_x\text{Mg}_{1-x}\text{Fe}_2\text{O}_4$  ( $0 < x < 1$ ) spinel ferrites obtained by sol-gel synthesis**

Zorka Z. Vasiljević<sup>1</sup>, Milena P. Dojčinović<sup>2</sup>, Vera P. Pavlović<sup>3</sup>, Jelena Vujančević<sup>1</sup>, Nenad B. Tadić<sup>3</sup>, Maria Vesna Nikolić<sup>2</sup>

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Nanocrystalline cobalt magnesium ferrites with varying cobalt and magnesium content ( $\text{Co}_x\text{Mg}_{1-x}\text{Fe}_2\text{O}_4$ ,  $0 < x < 1$ ) were synthesized using the sol-gel self-combustion method with citric acid as fuel, followed by calcination at 700 °C for 2 hours. Structural characterization was performed using X-ray diffraction (XRD), field emission scanning electron microscopy (FE-SEM) and Raman spectroscopy. It confirmed the formation of agglomerated nanocrystalline ferrites with an inverse cubic spinel structure. The optical band gap energy was determined using UV/Vis spectrophotometry. It reduced with increased Co content. Visible light photocatalytic activity was tested using natural and artificial light sources through a series of experimental degradations of the methylene blue (MB) solution.

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