

*Programme & The Book of Abstracts*

*Nineteenth Annual Conference*

# YUCOMAT 2017

Herceg Novi, Montenegro, September 4-8, 2017

*Organised by*

MATERIALS RESEARCH SOCIETY OF SERBIA

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**NINETEENTH ANNUAL CONFERENCE**

# **YUCOMAT 2017**

Hunguest Hotel Sun Resort Herceg Novi, Montenegro,  
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<http://www.mrs-serbia.org.rs>

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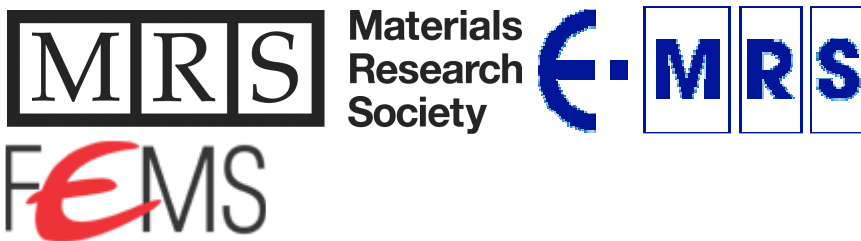
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**The slag based adsorbents for Cu<sup>2+</sup> removal from aquatic solutions**

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Smilja Marković<sup>4</sup>, Vuk V. Radmilović<sup>5</sup>, Velimir R. Radmilović<sup>6</sup>

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This study aims to understand the kinetic, thermodynamic and mechanism of Cu<sup>2+</sup> adsorption onto unmodified electric arc furnace slag (EAFS) and alkali modified EAFS. The adsorption process was investigated via a batch reactor system. The modified EAFS sample has been prepared by reacting an EAFS powder with an aqueous alkali silicate solution. The both samples were characterized by SEM, XRD, FTIR and porosimetric measurements.

The results have shown that alkali activation of EAFS favour adsorption process. The adsorption reaction on both adsorbents was found to be pseudo second order. Thermodynamic investigations have shown that adsorption process is spontaneous and endothermic. Mechanism of adsorption was investigated using the intraparticle diffusion and Boyd model which suggested that the both, film diffusion and diffusion within the pores of adsorbent controls the intraparticle diffusion of Cu<sup>2+</sup> onto and EAFS and modified EAFS and was mainly due to external mass transport. Besides, FTIR spectroscopy determined the surface functional groups of the EAFS and modified EAFS which participate in Cu<sup>2+</sup> bonding.

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