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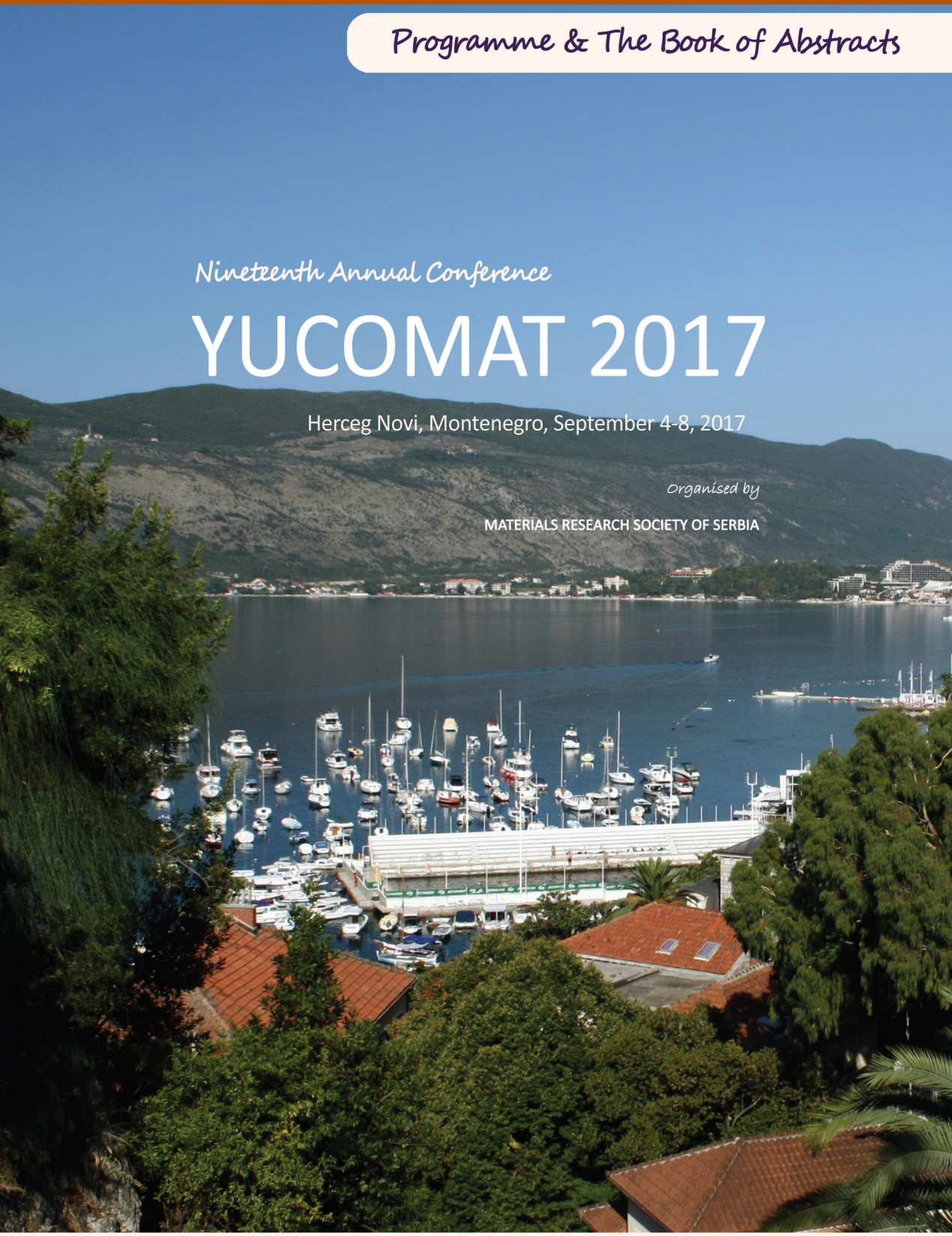

Nineteenth Annual Conference

YUCOMAT 2017

Herceg Novi, Montenegro, September 4-8, 2017

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MATERIALS RESEARCH SOCIETY OF SERBIA

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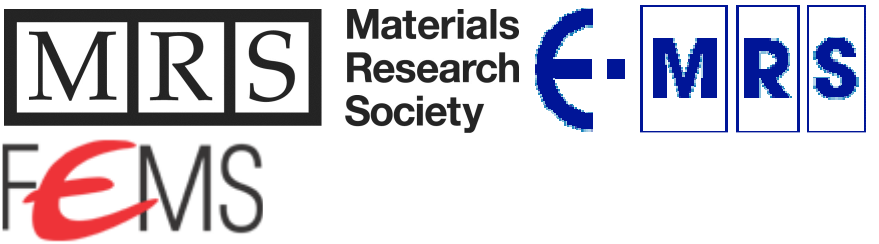

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Composition of red mud and/or metakaolin-based modified geopolymers

Mira Vukčević[1], Ivana Bošković[1], Snežana Nenadović[2], Miljana Mirković[2], Bojan Čalija[3], Vladimir Pavlović[4], and Ljiljana Kljajević[2]
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There is potential use of red mud for synthesis of inorganic polymeric materials through a geopolymerization process as an alternative in the sectors of construction and building materials. By introducing of inorganic and organic modificators of microstructure (calcium hydroxide, bi-functional epoxy resins, or various types of alkoxylanes) during the geopolymer synthesis the enhanced values of ductility and strength can be obtained.
Research was performed on alumosilicate material (red mud and metakaolin) and alkali activator raw mixture with defined quantity of modificator. The best sinthesys conditions were identified. Post-synthesis curing also play important role in obtaining of good-performing geopolymers. Characteristics of geopolymers were defined by measuring of compressive strength, N2-physisorption, as well as by SEM analysis, X-ray diffraction (XRD) and Fourier transform infra-red spectroscopy (FTIR). In addition the lower value of zeta potential was identified as the assisting factor for the specific structure domains formation (within the certain range of pH) accompanied by the high compressive strength.

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