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YUCOMAT 2023

**Program
and
Book of Abstracts**

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YUCOMAT 2023

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Program and Book of Abstracts

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P.S.3.

Basalt-based glass-ceramic composites

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Two series of glass-ceramic composites (basalt/mine tailings, basalt/basalt fibers) as well as one pure glass-ceramic were prepared from basalt rocks located in the SE part of Serbia (Lukovska Banja). Both composites contained 85, 90 and 95 wt.% basalt glass respectively. The basalt glass was obtained from initial melting of basalt at 1300 °C. In the present study, the crystallization process of basalt glass contained in the glass-ceramic composite, achieved by thermal treatment, was observed, and analyzed. The thermal treatment was done at 900 °C, 950 °C, 1000 °C and 1050 °C respectively, with the retention times of 1, 3, 6, 8 and 16 hours. It was found that the addition of mine tailings and basalt fibers caused a change in the density and microstructure. The study also showed that the best mechanical and structural characteristics of the examined glass-ceramics were attained at the temperature of 1050 °C, with the retention time of 1 hour. Additionally, structural and optical characteristics of the glass-ceramics were assessed.