

Programme & The Book of Abstracts

Seventeenth Annual Conference

YUCOMAT 2015

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MATERIALS RESEARCH SOCIETY OF SERBIA

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20th Anniversary YUCOMAT Conference

SEVENTEENTH ANNUAL CONFERENCE

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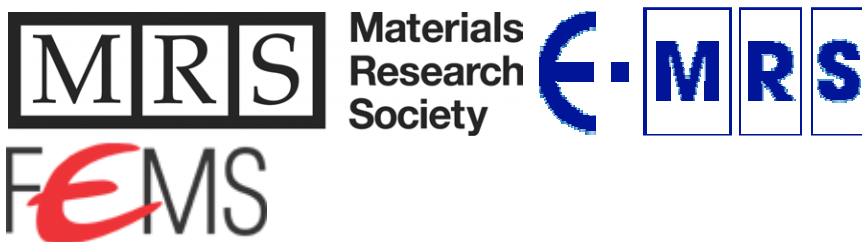
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**Determination of the Temperature Transfer Function
of Building Constructions Based on Measurement Data**

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In this paper a method of determination of transfer function for temperature measured inside and outside residential building in Belgrade is presented. The instantaneous measurements of indoor temperature inside a living room of the second floor flat of the five store building and outdoor temperature at close vicinity of the building facade were made. The external air temperature was also collected from nearby meteorological station few hundred meters apart of the building at the same moments. The measurements have lasted more than three months in period from 22nd April till the 2nd August, 2014. The data have been collected by data loggers every 5 minutes. Using a digital processing the periodical daily and seasonal variations have been extracted from indoor and outdoor temperature measurements. These variations for indoor and outdoor temperature are considered as excitation and response functions respectively. The periodic outdoor temperature variations could be considered as complex periodic excitation. The Z transformation has been adopted to obtain temperature variations in frequent domain and temperature transfer function for the considered building construction.