CONTEMPORARY SUPPORT OF TECHNOLOGICAL SCIENCES IN CULTURAL HERITAGE PRESERVATION & ETHICAL ASPECTS

Central Institute for Conservation
Society for Ethic and Evaluation of Culture and Science
Belgrade, 2017

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SOCIETY FOR ETHICS AND EVALUATION OF CULTURE IN SCIENCE
DRUŠTVO ZA ETIČNOST I VREDNOVANJE KULTURE U NAUCI

SCIENTIFIC MEETING WITH INTERNATIONAL PARTICIPATION

NAUČNI SKUP SA MEĐUNARODNIM UČEŠĆEM

CONTEMPORARY SUPPORT OF TECHNOLOGICAL SCIENCES IN CULTURAL HERITAGE PRESERVATION AND ETHICAL ASPECTS /

SAVREMENA PODRŠKA TEHNIČKO-TEHNOLOŠKIH NAUKA U OČUVANJU KULTURNE BAŠTINE I ETIČKI ASPEKTI

BOOK OF ABSTRACTS, SELECTED PAPERS AND POSTERS FROM THE CONFERENCE

KNJIGA APSTRAKATA, IZABRANIH RADOVA I POSTERA SA KONFERENCIJE

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PROGRAM

OPENING	
13:00 h	WELCOME SPEECH Dr Radomir Glavički President of the Control Committee of the Society for Ethics and Evaluation of Culture in Science President of the Technical Committee
13:15 h	INTRODUCTORY SPEECH Prof. Milesa Srećković President of the Scientific Committee
INVITED LECTURES	
13:30 h	Stanko Ostojić Faculty of Technology and Metallurgy, University of Belgrade Contemporary Approach of the Physics and Cultural Heritage Preservation
14:00 h	Suzana Polić Central Institute for Conservation, Terazije 26, 11000 Belgrade Philosophy of Technology in Preservation of Cultural Heritage and Ethical Aspects
14:30 h	PAUSE
SECTION 1 14:45 – 16:55	
1.1.	Marija Hribšek Faculty of Electrical Engineering, University of Belgrade, Bulevar Kralja Aleksandra 73, 11000 Belgrade The role of electronics and SAW sensors in preservation of cultural heritage
1.2	Zoran Karastojković, Radiša Perić, Milesa Srećković, Suzana Polić High Technical School of Professional Studies, Bulevar Zorana Đinđića 152a, 11070 Belgrade „Perić&Perić" d.o.o., Dunavska 114-116, 14000 Požarevac, Faculty of Electrical Engineering, University of Belgrade, Bulevar Kralja Aleksandra 73, 11000 Belgrade, Central Institute for Conservation, Terazije 26, 11000 Belgrade Difusion Welding of Golden Jewelry from Ancient Times up Today
1.3	Ljubinko Janjušević, Suzana Polić Goša Institute, Belgrade, Serbia Central Institute for Conservation, Belgrade, Serbia

	The significance of Mihailo Petrovic Alas for further technical and technological developments
1.4	Višeslava Rajković Institute of Science Vinča, Belgrade The importance of microscopic examination for the restoration and conservation of the cultural heritage
1.5	Biljana Đokić Milošević, Julijana Mirčevski Faculty of Electrical Engineering, University of Belgrade Management of Digitalized Document in Past and Present
1.6	Biljana Đokić, Jevrem Niković Faculty of Electrical Engineering University of Belgrade, Kontrolmatik doo, Belgrade Electrical Instalation and Automatisation in Reconstruction of Museum's Objects
1.7.	Veljko Zarubica Analysis d.o.o , Belgrade Selected problems in materials diagnostic of interest for cultural heritage
1.8	Aleksandar Čučaković, Magdalena Dragović Faculty of Civil Engineering, University of Belgrade The Role of Descriptive Geometry in Contemporary 3D Modeling of Cultural Heritage Objects
1.9	Živojin Petrović, Predrag Petrović, Vuk Velisavljev Technical School, Zrenjanin, Institute Kirilo Savić, Belgrade Faculty of Mechanical Engineering, University of Belgrade Role of Control of Gases in Preventive Conservation. Exhaust Emission Control of Internal Combustion Engines
1.10	Stanko Ostojic Faculty of Technology and Metallurgy, University of Belgrade, Karnegijeva 4, 11000, Belgrade, Serbia Problems in Fitting Processes of Experimental Data in Cultural Heritage
1.11	Milena Davidović University of Belgrade, Faculty of Civil Engineering Numerical modeling of laser beam interaction with material during conservation of cultural heritage
1.12	Milovan Janićijević Metalac d.o.o., Gornji Milanovac Modeling of interaction of laser beams by thermal approach in COMSOL and other program packages
1.13.	Milesa Srećković, Rajko Šašić, Svetlana Pelemiš, Slobodan Bojanić, Suzana Polić Faculty of Electrical Engineering, Belgrade, Faculty of Technology and Metallurgy, Belgrade,

1.8.

THE ROLE OF DESCRIPTIVE GEOMETRY IN CONTEMPORARY 3D MODELING OF CULTURAL HERITAGE OBJECTS

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Abstract

Contemporary graphic design is necessity in each area of cultural heritage research. However, descriptive geometry procedures are substantial and irreplaceable ''tool" for precise construction and presentation of 3D models of existing or virtual objects in cultural heritage area. Two examples of ruined medieval Serbian churches were given where the principles of Descriptive geometry were applied during creative 3D modeling processes of proposed reconstruction design. Based on the collected data from *„in situ"* measurements, the proposal is given in the form of horizontal/vertical plans and section solutions with respect to the style characteristics of similar cultural heritage objects of the Serbian medieval time. Geometric primitives were combined in creation of conceptual inner and outer spatial – architectural structures of the church. The inner structure combined mostly prismatic, cylindrical and spherical shapes/solids, while the outer structure consisted of prismatic, pyramidal and conic shapes/solids. In the reconstruction process of these two structures, the position, shape and size of non existing parts of devastated objects were explored, along with their proportions and mutual spatial relations. The optimal solutions for prototype 3D modeling techniques were defined, as the contribution to geometric research in the field of cultural heritage on Serbian teritory.

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Keywords: Descriptive geometry procedures, complex geometric forms, proportional analyses, 3D computer models, religious monuments.

1.9.

ROLE OF GAS MONITORING IN PREVENTIVE CONSERVATION. EXHAUST EMISSION CONTROL OF INTERNAL COMBUSTION ENGINES

Zivojin Petrovic[1], Predrag Petrovic[2], Vuk Velisavljev[3]
Technical School, Zrenjanin, Serbia
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Faculty of Mechanical Engineering, Belgrade, Serbia

Modern internal combustion engines have reached high levels of development but still is the question of their efficiency and the quality of emission. In this respect the most efficient engines will not enter the market without the vehicle system meeting emissions regulations. The most important toxic components are carbon monoxide, unburnt hydrocarbons, nitrogen oxides and particles.

Realizing low combustion temperature is a very important factor for achieving high thermal efficiency level and at the same time reducing pollution caused by exhaust gases. In order to achieve this challenge is to accomplish even better control of the combustion process which can be performed in several ways. Some of them are very important such as: fuel injection systems, turbines, control valve operation, computer control as well as the development and application of sensors. This way leads to new possibilities for control of the combustion process in real time using all the potential of reduced combustion temperatures.

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