



Proceedings of the selected papers,
abstracts and posters of
the First International Conference
**TRENDS IN HERITOLOGY: INDUSTRIAL
AND INTANGIBLE HERITAGE**

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CONTENTS:

1. Negotinske Pimnice – from Heritology to UNESCO List of Tentative Sites Sanja Petronic.....	2
2. Remote Monitoring Systems of Process Parameters Sasa Milic.....	13
3. Sunrise and Determination of Quenching Temperature for Swords from Alloyed Steel Zoran Karastojkovic, Milesa Sreckovic, Suzana Polic, Nikola Bajic, Zoran Janjusevic, Jasmina Pekez,.....	18
4. Silver Alloys Usable in Production of Coins Zoran Karastojkovic, Radisa Peric, Suzana Polic, Nikola Bajic, Zoran Janjusevic, Jasmina Pekez, Aleksandra Pataric.....	29
5. Modern Technologies for Restoration and Replication in Heritology and Industrial Heritage Srdjan Milanovic, Milica Cikusa, Milesa Sreckovic.....	35
6. Graphics Through Time, Recording Technology, Printing, Trend, Ecology and Safety Nada Borna.....	41
7. Stadion for Grand, Belgrade Slavic Sokol Slet in 1930 Dragan Pavlovic, Jovan Cvetic.....	50
8. Golden Ratio in Heritology and Mathematical Formulations Stanko Ostojic, Milesa Sreckovic, Magdalena Dragovic, Zoran Karastojkovic, Slobodan Bojanic.....	59
9. Paradigmae, Definitions and Boundary Possibilities of Laser Systems Of Interest For Cultural Heritage Milesa Sreckovic, Stanko Ostojic, Vesna Zeljkovic.....	65
10. Talbot Effect in Optics and It's Application Milena Davidovic, Vladan Mlinar, Dragana Nikolic.....	76
11. Synthesis of Ceramics Based on Natural Mineral Resources Aleksandra Saponjic, Djordje Saponjic, Maja Kokunesoski.....	80
12. Infrared Therapy Diagnostics in Hydropower Plants Zoran Stevic, Elena Ponomaryova, Dragan Milenkovic.....	87
13. Interaction of Laser Beams with Material: Characteristic Shapes of Microdamages Zeljka Tomic.....	92
14. Railway Time Distribution System Through Time Sanja Jevtic, Dragan Jevtic.....	99
15. Industrial Heritage of Industry of Motors Rakovica – IMR Zivojin Petrovic.....	105
16. The Potential of FAP as an Industrial Heritage of Republic of Serbia Marija Jecmenica –Ducic, Sanja Petronic, Andjelka Milosavljevic, Katarina Colic, Dimitrije Maljevic.....	110

17. Importance of Domestic and Domesticated Vegetable Varieties for Protection of Cultural Heritage	
Katarina Zarubica, Djordje Moravcevic, Mirjana Vasic, Jelica Gvozdenov-Varga....	116
18. A Possible Application of Close Range Photogrammetry in Geodetic/site Plan Creation - a Belgrade Study: the Usage of Photogrammetrically Processed Digital Photos of “Spanish house” Facades for its Efficient Footprint Generation	
Djordje Djordjevic, Nikola Popovic, Gordana Djukanovic, Mirjana Devetakovic Radojevic.....	121
19. Heritology Character of Mini Hydroelectric Power Plants in Serbia	
Sanja Petronic, Marija Jecmenica Ducic, Andjelka Milosavljevic, Katarina Colic, Branislava Savic, Valentin Birdeanu.....	130
20. Old Machines for the New Age	
Jovan Cvetic, Vladimir Malic, Dragan Pavlovic, Nikola Mijajlovic, Ratko Kovacic, Marko Cvejic, Branislav Juranovic, Milan Ignjatovic, David Flores.....	136
21. Additional Motivation in Education: Contemporary Geometricanalayzes of Cultural Heritage Monuments	
Magdalena Dragovic, Aleksandar Cucakovic, Svetlana Cicevic, Aleksandar Trifunovic, Alina Duta.....	137
22. Corrosion Protection of the Metal Cultural Heritage between Science and Practice	
Svetlana Pelemis, Marija Pridjosic.....	139
23. Modeling of Ultra-Short Laser Beams with Materials Relevant to Cultural Heritage: Issues of Averaging and Short Time Intervals	
Milovan Janicijevic, Dragana Nikolic.....	141
24. Deposits of Bioorganism on Objects of Cultural Heritage	
Aleksandar Bugarinovic.....	142
25. Computer Support, Algorithms and Potential Possibilities of Interest for Cultural Heritage	
Slobodan Bojanic.....	143
26. New Trends in Recycling Technologies for Improvement of Plastic Materials re-use	
Carmela Sica, Aleksandra Dimitrijevic, Pietro Picuno.....	144
27. Heritology’s View of the Russian Emigration in Serbia Presented in the Movies of Bosko Milosavljevic	
Zdravko Babic, Visnja Milosavljevic.....	146
28. Detection of the Outer-Cage Rotor Bar Fault in an Induction Motor: a Comparative Analysis	
Zoran Lazarevic, Zarko Janda, Alauldin Adel Hamodi Albla.....	148
29. Grapes and Iron	
Viseslava Rajkovic.....	149
30. The Social Framework of Memory: Murals of Milan Movosavljevic - Derox	
Katarina Nasradin, Jelena Milosavljevic.....	150
31. Technology of Digitalization and Intangible Cultural Heritage in a Recent History of Russia	
Suzana Polic, Dragan Simeunovic.....	152

32. Quantification of Visual Information Image Quality Analyzes	
Predrag Jovanic.....	154
33. The Role of Reflectivity and Permeability in the Diagnostics and Conservation of Cultural Heritage Sites	
Veljko Zarubica.....	156
34. Contemporary Trend in Documentation and Analyzes of Cultural Heritage Objects	
Aleksandar Cucakovic, Marko Pejic, Magdalena Dragovic.....	159
35. Industrial Heritage in Development of Electronics	
Marija Hribsek.....	160
36. Analysis of Laser Beam Radiation Interaction with Material Using Analytical and Numerical Approaches	
Zoran Fidanovski.....	161
37. Organized Cervical Cancer Screening as Non-Material Heritage	
Tamara Naumovic.....	162
38. English Computer Terms and Serbian Translational Equivalents	
Milos Djuric.....	164
39. One Approach to Laser Scanning Problems for Improving Techniques for Old Roads Age Determination	
Nikola Slavkovic, Rade Sekulic.....	165
40. Artwork Surface Characterization by Texture Image Analysis	
Rade Sekulic, Nikola Slavkovic, Sladjana Pantelic.....	167
41. Seismic Trends	
Lazar Kricak, Stanko Ostojic, Milesa Sreckovic, Amy Barr.....	168



PREFACE

The Proceedings includes the selected papers, abstracts and posters presented at The First International Scientific Conference "TRENDS IN HERITOLGY: INDUSTRIAL AND INTANGIBLE HERITAGE". The Conference was held on 28th June 2018 at College of Applied Engineering Studies "Tehnikum Taurunum", Zemun, Belgrade.

It was organized by Central Institute for Conservation, Belgrade, Association for Ethics and Evaluation in Culture and Science, Belgrade and College of Applied Engineering Studies "Tehnikum Taurunum", Zemun, Belgrade.

The aim of Conference was to bring together on an international level scientists and specialists for discussion of current research progress and problems concerned primarily with industrial and intangible heritage.

The Conference brought together scientists from following institutions: Central Institute for Conservation, Belgrade; University of Belgrade: Institute of Nuclear Science "Vinca", Faculty of Electrical Engineering, Faculty of Mechanical Engineering, Faculty of Agriculture, Faculty of Philosophy, Faculty of Philology, Faculty of Traffic and Transport, Faculty of Civil Engineering, Faculty of Architecture, Faculty of Political Science, Faculty of Mining and Geology, Faculty of Technology and Metallurgy, Technical Faculty in Bor; College of Applied Engineering Studies "Tehnikum Taurunum", Zemun, Belgrade; IHIZ – IRC Technoexperts, Zemun; University of Novi Sad: Technical Faculty "Mihajlo Pupin" Zrenjanin, Institute for Technology of Nuclear and other Mineral Raw Materials; University Singidunum, Belgrade; Universidad de Madrid, Spain, Brown University, USA; Southampton University, Great Britain; College of Science and Technology, Lincoln University, USA; University of Baghdad, Iraq; Sorbonne University, France; University of Basilicata – Potenza, Italy; National R&D Institute for Welding and Material Testing- ISIM Timișoara, Romania; Innovation Centre Faculty of Mechanical Engineering, Belgrade; Electrical Engineering Institute "Nikola Tesla", Belgrade; ICT College of Vocational Studies, Belgrade; Regional Center for Talents Belgrade 2; Railway High School Vocational Studies, Belgrade; Technical School Ada, Zrenjanin; University of Montenegro: Faculty of Philology, Niksic, Faculty of Political Science; University of East Sarajevo, Faculty of Technology; School of Computing, University Union; Plan Protection Directorate; Analysis a.d.d.; DATA COM; Metalac, d.o.o.; Gornji Milanovac; Perić & Perić d.o.o. Požarevac; TELEKOM, Republika Srpska.

The Conference had a multidisciplinary character, exhibited a total of 47 scientific papers, submitted by over 90 participants from 10 countries. The aim of the Conference was, also, to connect different/various fields of science, because many common points between different research areas could be found. Collecting researchers from different/various scientific disciplines open possibilities of developing new technologies or improving the old ones. Therefore, the Conference covered trends in heritology (industrial and intangible) from the points of view of the following fields: mechanical science, transport and traffic engineering, material science, metallurgy, electrical engineering, agriculture, architecture, medicine etc.

Although, the Conference had multidisciplinary character, the participants had very active discussion after the presentations and we hope that it will provoke the further cooperation between them with the new ideas.

The papers presentation was by oral and poster. The all papers are reviewed. The authors only are responsible for the accuracy and contents of all published papers.

We would like to thank all authors who have contributed to this Proceedings and also to the Scientific Committee, Organizing Committee, reviewers, speakers, chairpersons, and all the conference participants for their support for a successful scientific meeting.

Editors

The First International Conference

TRENDS IN HERITOLGY: INDUSTRIAL AND INTANGIBLE HERITAGE

1



ADDITIONAL MOTIVATION IN EDUCATION: CONTEMPORARY GEOMETRIC ANALYZES OF CULTURAL HERITAGE MONUMENTS

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New generations of student population have a constant need and *relation* to advanced technologies in every day living and communication. This means that contemporary graphic software solutions with 3D virtual environment become a necessity, specially in modern education of young engineers in several technical disciplines, such as architecture, civil engineering, traffic and transportation engineering, mechanical engineering, etc. The authors of this research started from the presumption that education which is sublimation of a game and research, uses application of current technologies and devices and brings real and "visible" rezult recognizable in engineering practice, parallel with benefits in final students' course score, is the one which motivates students to make additional efforts in learning. An novel approach in contemporary Descriptive Geometry education, at the Faculty of Civil Engineering in Belgrade, which uses creative workshop named "Facultative task" is here presented. Students' benefit from this task was to enhance his/her final course grade.

The task which contains analysis, creation and graphic presentation of geometric structure, inspired by a contemporary building (worlds' cultural heritage object with public, industrial or cultural function) was organized as the team work (three students were joined in a group). The focus was on characteristic geometric entities (roof, facade, wall, etc.) as dominants in architectural form. The methodology of the workshop is based on several "steps": geometric analysis of contemporary building-1; composition of a new structure-2; 2D classical hand drawings - orthogonal projections on the three coordinate planes (made of a cardboard)-3; 3D modeling of a structure in 3D computer environment (Auto CAD software)-4; mobile phone augmented reality application usage-5; poster presentation-6.



Specifically for the purposes of the research the questionnaire was created for students' response to the new method of teaching/learning, where they assessed the workshop, specified their affinity for the various phases of the work, gave comments and suggestions.

Key-words: Descriptive Geometry education, facultative task-workshop, geometric analysis, 3D modeling, cultural heritage buildings.

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