

UNIVERSITY OF BELGRADE
TECHNICAL FACULTY IN BOR



BOOK OF ABSTRACTS

8th INTERNATIONAL STUDENT
CONFERENCE ON TECHNICAL
SCIENCES



www.tfbor.bg.ac.rs



8th INTERNATIONAL
STUDENT CONFERENCE
on Technical Sciences

20-21 October,
Bor Lake, Serbia

Editor: Uroš Stamenković

Book of Abstracts,

8th International Student Conference on Technical Sciences ISC 2023

Editor:

Doc. dr Uroš Stamenković

University of Belgrade - Technical Faculty in Bor

Technical Editors:

Milan Nedeljković, dipl. ing.

Avram Kovačević, dipl. ing.

University of Belgrade - Technical Faculty in Bor

Publisher: *University of Belgrade - Technical Faculty in Bor*

For the publisher: *Dean, Prof. dr Dejan Tanikić*

Circulation: 50 copies

Year of publication: 2023

Printed by "GRAFIKA GALEB DOO" NIŠ, 2023

ISBN 978-86-6305-141-6

CIP - Каталогизacija у публикацији Народна библиотека Србије, Београд

622(048)

669(048)

66(048)

66.017/.018(048)

INTERNATIONAL Student Conference on Technical Sciences (8 ; 2023 ;
Borsko jezero)

Book of abstracts / 8th International Student Conference on Technical
Sciences ISC 2023, 20-21 October, Bor Lake, Serbia ; [organized by University
of Belgrade, Technical Faculty in Bor] ; editor Uroš Stamenković. - Bor :
University of Belgrade, Technical Faculty, 2023 (Niš : Grafika Galeb). - VII, 51
str. ; 24 cm

Tiraž 50. - Bibliografija uz većinu apstrakata.

ISBN 978-86-6305-141-6

a) Рударство -- Апстракти b) Металургија -- Апстракти v) Хемијска
технологија -- Апстракти g) Технички материјали -- Апстракти

COBISS.SR-ID 126594825

**8th International Student Conference on Technical Science,
ISC 2023.**

Is organized by

UNIVERSITY OF BELGRADE, TECHNICAL FACULTY IN BOR

and co-organized by

**University of Zenica, Faculty of engineering and natural sciences,
Zenica, Bosnia and Herzegovina**

**University in Priština, Faculty of Technical Science, Kosovska
Mitrovica,
Serbia;**

**University of Montenegro, Faculty of Metallurgy and Technology,
Podgorica, Montenegro;**

**University of Tuzla, Faculty of Technology, Tuzla, Bosnia and
Herzegovina;**

**University of Chemical Technology and Metallurgy, Faculty of
Metallurgy and Material Science, Sofia, Bulgaria;**

29.	<i>Student: Avram Kovačević; Mentor: Uroš Stamenković (Serbia)</i> <i>COMPARATIVE ANALYSIS OF TENSILE STRENGTH IN EN-AW 7075 ALUMINUM ALLOY: EMPIRICAL VS. THEORETICAL ASSESSMENT</i>	42
30.	<i>Student: Miljan Pankalujić; Mentor: Ivana Marković (Serbia)</i> <i>PROPERTIES OF SOME COINS IN CIRCULATION FROM SERBIA</i>	43
31.	<i>Student: Nemanja Marić; Mentor: Ivana Marković (Serbia)</i> <i>STUDY OF ISOTHERMAL AGEING IN Cu-Al-Ni-Fe ALLOY</i>	44
32.	<i>Student: Olivera Dragutinović; Mentors: Đorđe Veljović, Vaso Manojlović (Serbia)</i> <i>INVESTIGATION OF THE EFFECTS OF Ca/P RATIO AND DIFFERENT POLYMER-BASED COATINGS ON THE PROPERTIES OF MACROPOROUS CALCIUM PHOSPHATE MATERIALS</i>	45
33.	<i>Student: Ognjen Stanković; Mentors: Milovan Stanković, Mirjana Filipović, Vaso Manojlović (Serbia)</i> <i>THE FAVORABLE INFLUENCE OF Ni ON THE REDUCTION OF SEGREGATIONS DURING SOLIDIFICATION OF LEAD-TIN BRONZES CuSn10Pb10</i>	47
34.	<i>Student: Aleksandar Nikolajević; Mentor: Ljubiša Balanović (Serbia)</i> <i>CHARACTERIZATION OF COPPER ALLOYS MANUFACTURED IN SEVOJNO COPPER MILL</i>	48
35.	<i>Student: Nemanja Prvulović; Mentor: Ana Radojević (Serbia)</i> <i>RECYCLING OF END-OF-LIFE VEHICLES</i>	49
36.	<i>Student: Dalibor Jovanović; Mentor: Milan Gorgievski (Serbia)</i> <i>REMOVAL OF COPPER IONS FROM AQUEOUS SOLUTIONS USING HAZELNUT SHELLS AS AN ADSORBENT</i>	50

PROPERTIES OF SOME COINS IN CIRCULATION FROM SERBIA

Student: Miljan Pankalujć

Mentor: prof. dr Ivana Marković

University of Belgrade, Technical Faculty in Bor, Bor, Serbia

Abstract

Own currency of a country is one of the symbol of its power and the sovereignty [1]. The production of coins has a deep tradition on the territory of today Serbia [2]. The oldest found coins were from the 6th-5th centuries BC. King Radoslav (1227–1234) is considered as the first Serbian ruler who minted his own money. In 1875, dinar as national monetary unit was established [3,4]. Today's coins from 1 dinar are in circulation from 2003 by the National Bank of Serbia. During those 20 years, the material for coins was changed for 3 times. 1 dinar from 2003 and 2004 was made from Cu-18Zn-12Ni alloy. 1 dinar from 2005 to 2009 was made from Cu-24.5Zn-0.5Ni alloy. 1 dinar from 2009 to 2021 was made from low carbon steel coated with a layer of copper and a layer of brass [5]. In this paper, the microstructure (using scanning electron microscopy (SEM) by energy dispersive spectroscopy (EDS)) and mechanical properties (hardness and tensile strength) of the 1 dinar coins from 2004, 2006 and 2021 (with different chemical composition) were studied. 1 dinar from 2004 shows the microstructure of α solid solution with polygonal grains with twins similar to the microstructure of 1 dinar from 2006. Investigated microstructure of 1 dinar from 2021 consists of elongated coarse grains of α ferrite, perlite was not found. Steel was coated with copper layer, over which a brass layer was applied. The best mechanical properties show 1 dinar from 2006 (hardness of 130 HV and tensile strength of 720 MPa).

Keywords: Coin, Dinar, Chemical composition

REFERENCES

- [1] J. Šerák, *Manuf. Technol.*, 18 (4) (2018) 667-373.
- [2] P. Grierson, *Byzantine Coinage*, *Dumbarton Oaks*, Washington, D.C, 1999.
- [3] https://nbs.rs/sr/novac-i-placanja/numizmatika_str/istorijat-novca/
- [4] D. Nedvidek, *Serbian medieval coinage from the kingdom period*, *Museum of Vojvodina*, Novi Sad, 2017.
- [5] <https://nbs.rs/en/novac-i-placanja/kovanice/index.html>



www.tfbor.bg.ac.rs



**8th INTERNATIONAL
STUDENT CONFERENCE
on Technical Sciences**

**20-21 October, Bor Lake,
Serbia**

ISBN 978-86-6305-141-6