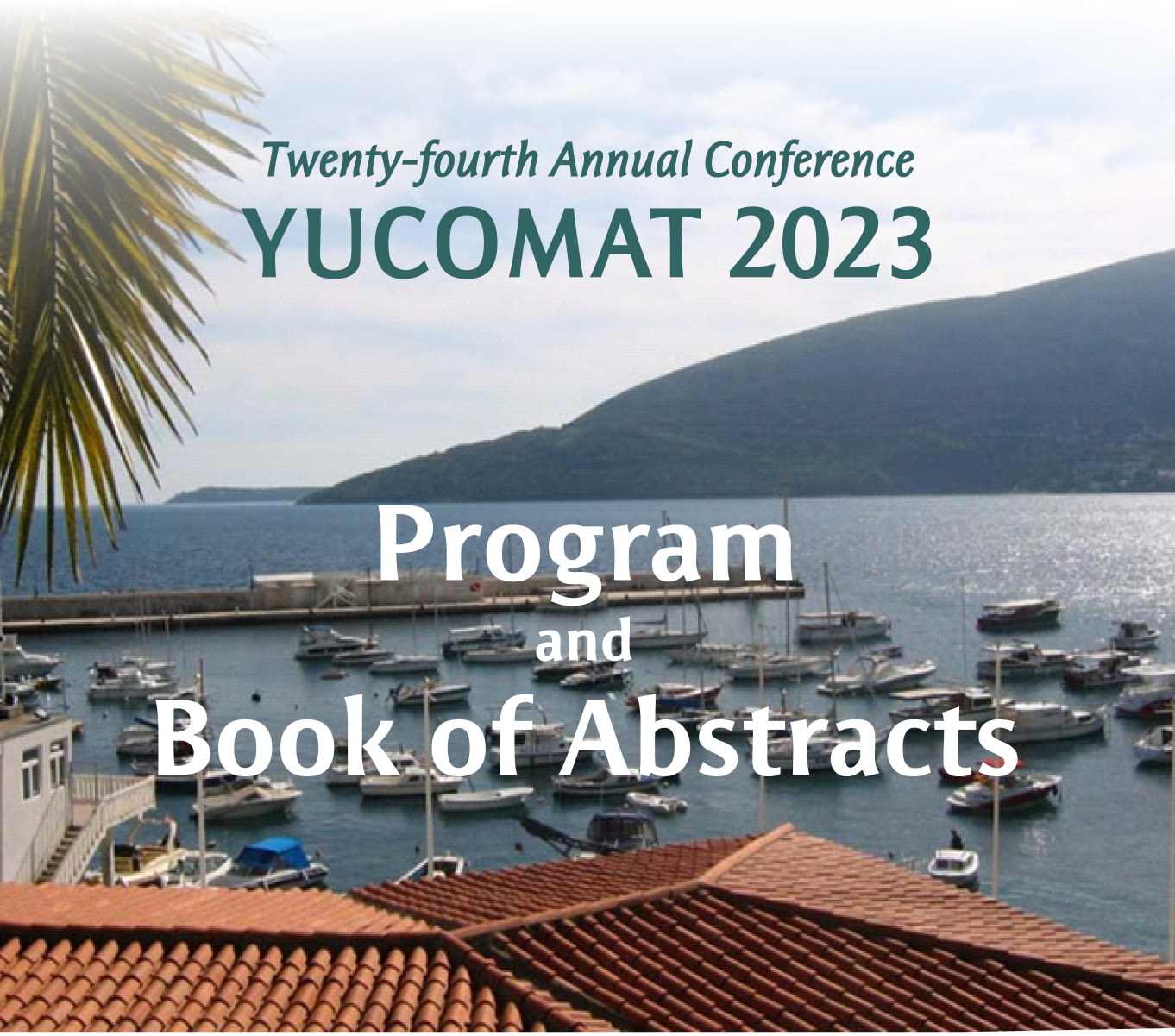
SERBIA MRS Materials Research Society of Serbia



Twenty-fourth Annual Conference

YUCOMAT 2023

Program and Book of Abstracts

endorsed by

FEMS
FEDERATION OF EUROPEAN MATERIALS SOCIETIES

Materials Research Society of Serbia
24 conference
SERBIA MRS
YUCOMAT 2023
Herceg Novi, Montenegro :: September 4-8, 2023

TWENTY-FOURTH ANNUAL CONFERENCE

YUCOMAT 2023

Hunguest Hotel Sun Resort, Herceg Novi, Montenegro
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11.40-12.20 **PL.S.18.**

Multifunction nanostructured coatings for corrosion protection and sensing. Contribution to a sustainable technology

Mário G. S. Ferreira, João Tedim, *Department of Materials and Ceramic Engineering, and CICECO – Aveiro Institute of Materials, University of Aveiro, Aveiro, Portugal*

12.20-13.00 **PL.S.19.**

Materials science of and for the poor

Vuk Uskoković, *TardigradeNano LLC, Irvine, USA and Department of Mechanical Engineering, San Diego State University, San Diego, CA, USA*

13.00-15.00 Break

First Oral Sessions, Competition for the best oral presentation, Main Conference Hall
15.00-18.30
Chairpersons: Đorđe Janaćković, Petar Uskoković

15.00-15.15 **O.S.1.**

Study of the structure and characteristics of new composite materials based on $AlB_{12}C_2$

Pavlo Barvitskyi[1], Prikhna Tetiana[1], Myroslav Karpets[1], Semen Ponomarev[2], Viktor Moshchil`[1], Lokatkina Anastasiia[1], Olena Prisiazhna[1], Olexander Borimskyi[1]
[1]V. Bakul Institute for Superhard Materials of the National Academy of Sciences of Ukraine (NASU), Ukraine, [2]Institute of Semiconductor Physics of the National Academy of Sciences of Ukraine (NASU), Ukraine

15.15-15.30 **O.S.2.**

Experimental investigation of the tensile properties of steel foam hollow sphere assemblies

Thomas Kalpakoglou, Stylianos Yiatros
Department of Civil Engineering and Geomatics, Cyprus University of Technology, Limassol, Cyprus

15.30-15.45 **O.S.3.**

Nanocomposites and coatings dedicated to the electromagnetic interference shielding

Adrian Radoń
Łukasiewicz Research Network, Institute of Non-Ferrous Metals, Gliwice, Poland

15.45-16.00 **O.S.4.**

Stability of solution processed transparent electrodes

Jovan N. Lukić, Vuk V. Radmilović
Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia

Oral Presentations

O.S.4.

Stability of solution processed transparent electrodes

Jovan N. Lukić, Vuk V. Radmilović

Faculty of Technology and Metallurgy, University of Belgrade, Serbia

With the growing need for more efficient optoelectronic devices, the demand for optimizing individual components soon follows. For the application in these devices, transparent electrodes (TE) require high optical transmittance and low sheet resistance as well as adequate electrical, thermal and chemical stability. In recent years silver nanowires (AgNWs), with their excellent conductivity and transmittance coupled with their good mechanical flexibility and the option of being solution processed, have been considered promising alternatives to current industry options. Nevertheless, low adhesion, high surface roughness and low thermal, electrical and chemical stability hinder further application of these TE. A way of overcoming these drawbacks is to introduce protective layers through the formation of nanocomposite structures, with n-type metal oxides frequently used due to their high electron mobility, high transmittance and low contact resistance with AgNWs. In this work AgNW/ZnO nanocomposites have been fully solution processed through spin coating, where ZnO was coated multiple times onto AgNWs which were previously thermally welded in order to decrease the junction sheet resistance. AgNW/ZnO samples were studied for electrical and chemical degradation, where optical and electrical properties were analyzed before and after degradation.