

TWENTY-FOURTH ANNUAL CONFERENCE

YUCOMAT 2023

Hunguest Hotel Sun Resort, Herceg Novi, Montenegro
September 4 - 8, 2023

Program and Book of Abstracts

Organised by
Materials Research Society of Serbia

Endorsed by
Federation of European Material Societies

CIP – Каталогизacija у публикацији
Народна библиотека Србије, Београд

66.017/.018(048)
621.762.5(048)

**DRUŠTVO za istraživanje materijala Srbije (Beograd). Godišnja konferencija
(24 ; 2023 ; Herceg Novi)**

Programme ; and The Book of Abstracts / Twenty-fourth Annual Conference YUCOMAT
2023, Herceg Novi, Montenegro, September 4 - 8, 2023 ; organized by Materials Research
Society of Serbia ; [editor Dragan P. Uskoković]. – Belgrade : Materials Research Society of
Serbia, 2023 (Herceg Novi : Biro Konto). - XLVII, 183 str. : ilustr. ; 24 cm

Tiraž 220. – Bibliografija uz pojedine apstrakte. - Registar.

ISBN 978-86-919111-8-8

a) Наука о материјалима -- Апстракти b) Технички материјали -- Апстракти
v) Синтеровање -- Апстракти

COBISS.SR-ID 122486537

Title: THE TWENTY-FOURTH ANNUAL CONFERENCE YUCOMAT 2023
Program and Book of Abstracts

Publisher: Materials Research Society of Serbia
Knez Mihailova 35/IV, P. O. Box 433, 11000 Belgrade, Serbia
Phone: +381 11 2185-437; <http://www.mrs-serbia.org.rs>

Editor: Prof. Dr. Dragan P. Uskoković

**Conference
Secretary:** Jasmina R. Jevtić

**Technical
editor:** Dr. Ivana Dinić

**Typesetting
and prepress:** Dr. Aleksandar Dekanski

Covers: Front cover photo: property of MRS Serbia
Back cover photo: J. Erskine-Kelli, Attribution-ShareAlike 2.0 Generic (CC BY-SA 2.0)

ISBN 978-86-919111-8-8

Copyright © 2023 Materials Research Society of Serbia - MRSS

MRSS is member of the
Federation of European Materials Societies



Printed in: **Biro Konto**, Sutorina bb, Igalo – Herceg Novi, Montenegro
Phones: +382-31-670123, 670025, E-mail: bkonto@t-com.me

Circulation: 220 copies. The end of printing: August 2023

YUCOMAT 2023

Conference Organising Committee

Chairpersons: Đorđe Veljović, Zoran Jovanović

Members: Branko Matović, Irena Nikolić, Bojana Obradović, Vuk Radmilović, Veljko Đokić, Ljiljana Damnjanović, Sonja Jovanović, Aleksandar Dekanski, Mira Vukčević, Željko Radovanović

Conference Secretary: Jasmina R. Jevtić

Conference Technical Committee

Ivana Dinić, Željko Mravik, Jelena Rmuš Mravik, Vukašin Ugrinović, Tamara Matić, Marija Milivojević, Jana Petrović, Jovan Lukić, Nemanja Barać, Marko Jelić

History

The First Conference on materials science and engineering, including physics, physical chemistry, condensed matter chemistry, and technology in general, was held in September 1995, in Herceg Novi. An initiative to establish Yugoslav Materials Research Society was born at the conference and, similar to other MR societies in the world, the programme was made, and objectives determined. The Yugoslav Materials Research Society (Yu-MRS), a non-government and non-profit scientific association, was founded in 1997 to promote multidisciplinary goal-oriented research in materials science and engineering. Main task and objective of the Society is to encourage creativity in materials research and engineering to reach a harmonic coordination between achievements in this field in our country and analogous activities in the world with an aim to include our country into the global international projects. Until 2003, Conferences were held every second year and then they grew into Annual Conferences that were traditionally held in Herceg Novi in September of every year. Following the political separation between Serbia and Montenegro, in 2007 Yu-MRS formed two new MRS: MRS-Serbia (official successor of Yu-MRS) and MRS-Montenegro (in founding). In 2008 MRS-Serbia became a member of FEMS (Federation of European Materials Societies).

General information

DATE AND VENUE: The conference will be held on September 4-8, 2023, at the Hunguest Hotel Sun Resort, in Herceg Novi, Montenegro. Participants will also be accommodated there. The conference will begin on Monday, September 4th, at 08.30 and end on Friday, September 8th, 2023, at 12.30.

REGISTRATION: Registration, registration fee payment, conference materials distribution, etc, will take place at the conference desk (Conference Secretariat) open on Sunday, September 3rd, and Monday, September 4th, from 7.30 to 19.00, on Tuesday, Wednesday and Thursday 07.30-12.00 and 19.00-20.00, and on Friday from 07.30 to 12.00. At registration, the participants are requested to submit a proof of their advance registration fee payment.

INSTRUCTION FOR AUTHORS: The conference will feature Plenary Sessions, Oral Sessions, and Poster Sessions. Time of papers' presentations to be given in Oral Sessions is limited. Time available for delivery is 40 min for plenary and 15 min for other papers, including discussion. Video-beam is available. PowerPoint presentations, recorded on CD or USB flash- memory, should be given at the start of the session. In Poster Sessions, the authors are requested to display their posters minimum one hour before the session and to be present beside their posters during the session. The poster sessions' venue will be open from Tuesday to Thursday.

CONFERENCE AWARDS: Joint Award by MRS-Singapore and MRS-Serbia at the YUCOMAT 2023 Conference. Sponsorship of the ten Awards in the financial amount by the MRS-Singapore, to the authors not older than 35 for the best: Five Oral presentation, Five Posters presentation, and one PhD Thesis. Awarded authors will be announced at the Closing Ceremony of the Conference. Each award consists of a financial amount honorarium, diploma, meeting registration fee to attend the next YUCOMAT 2024 Conference, and a one-year MRS Serbia membership.

ADDITIONAL ACTIVITIES: Traditional Cocktail Party on Monday evening and excursion on Thursday afternoon (boat trip around Boka Kotorska Bay) will be organized again.

P.S.24.

Recycling of flat glass for glass foam production

Veljko Savić¹, Vladimir Topalović¹, Jelena Nikolić¹, Marija Đošić¹, Srđan Matijašević¹,
Snežana Grujić²

¹*Institute for Technology of Nuclear and Other Mineral Raw Materials, Belgrade, Serbia,*

²*University of Belgrade, Faculty of Technology and Metallurgy, Belgrade, Serbia*

Open loop glass recycling is a process where the glass is recycled into a new product. Glass recycling helps reduce landfill waste. Glass takes up significant space in landfills and does not decompose. In many countries, landfills are filling up faster than we can create new ones. Recycling glass reduces the volume of waste, and increases the lifespan of landfills. One of examples of open loop recycling of glass is glass foam production. Glass foam production is a process that involves the creation of a light-weight glass material with a foam-like consistency. This type of glass is made by mixing a foaming agent with glass powder and heating to temperatures where decomposition of a foaming agent and sintering of glass happens. This results in the creation of a material that is light, strong, and has thermally-insulating properties.

Milled flat glass was mixed with sugar beet factory lime, a CaCO_3 – rich waste which has role of a foaming agent, in order to enter 5 % CaCO_3 in mixture and pressed at 20 MPa in hydraulic press. Raw pellets were sintered at 800 °C for 30 min. In obtained glass foam phase composition, pore size distribution, compressive strength and thermal conductivity were determined. Glass foam is emerging as a flexible, cost-effective, and sustainable material that can be utilized in numerous applications to promote sustainable development. Its features such as high insulation capacity, lightweight, and durability make it an ideal material for a wide range of industries.