

CROATIAN METALLURGICAL SOCIETY  
HRVATSKO METALURŠKO DRUŠTVO

13<sup>th</sup> INTERNATIONAL  
13. MEĐUNARODNI

SYMPOSIUM OF CROATIAN METALLURGICAL SOCIETY  
SIMPOZIJ HRVATSKOG METALURŠKOG DRUŠTVA

**S H M D '2018.**

MATERIALS AND METALLURGY  
MATERIJALI I METALURGIJA

**BOOK OF ABSTRACTS  
ZBORNİK SAŽETAKA**



Šibenik, CROATIA, June 24 – 29, 2018  
ŠIBENIK, HRVATSKA, 24. – 29. lipnja 2018.  
HOTELSKO NASELJE, SOLARIS HOLIDAY RESORT

**13<sup>TH</sup> INTERNATIONAL SYMPOSIUM OF CROATIAN METALLURGICAL SOCIETY  
»MATERIALS AND METALLURGY«, ŠIBENIK, JUNE 24 – 29, 2018**

**THE AIM OF SYMPOSIUM**

The aim of this Symposium is to point out all the possibilities of the materials and achievements in metallurgy.

13<sup>th</sup> International Symposium of Croatian Metallurgical Society “Materials and Metallurgy“ was held as a part of:

**100<sup>th</sup> Anniversary of the Foundation of the Technical Faculties University of Zagreb (1919–2019), Croatia**

**100<sup>th</sup> Anniversary of the Foundation of Dnepropetrovsk National University (1919–2019), Ukraine**

**80<sup>th</sup> Anniversary of Studies of Metallurgy University of Ljubljana (1939–2019), Slovenia**

**70<sup>th</sup> Anniversary of the Establishment of Institute of Materials Research, Slovak Academie of Sciences (1950–2019)**

**65<sup>th</sup> Anniversary of the Establishment of Technical University of Košice, (1952–2017), Slovakia**

**65<sup>th</sup> Anniversary of the Foundation of Croatan Metallurgical Society (from Society of Engineers and Technician Steel Works Sisak), (1952–2017), Croatia**

**55<sup>th</sup> Anniversary of the Establishment of Mechanical Engineering Study, Programms University Osijek, (1962–2017), Croatia**

**55<sup>th</sup> Anniversary of the Foundation and Publication of the Journal Metalurgija, (1962–2017), Croatia**

**Countries Participating at the 13<sup>th</sup> International Symposium of Croatian Metallurgical Society “Materials and Metallurgy“:**

- |                           |                |                  |                  |
|---------------------------|----------------|------------------|------------------|
| 1. Argentina              | 14. Egypt      | 27. Lithuania    | 40. Singapore    |
| 2. Austria                | 15. Finland    | 28. Macedonia    | 41. Slovakia     |
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| 11. Croatia               | 24. Japan      | 37. Russia       | 50. Vietnam      |
| 12. Czech Republic        | 25. Kazakhstan | 38. Saudi Arabia |                  |
| 13. England               | 26. Korea      | 39. Serbia       |                  |

**ACCEPTED ABSTRACTS 426**

Plenary Lectures	6
Materials – Section «A»	138
Process Metallurgy – Section «B»	118
Plastic Processing – Section «C»	66
Metallurgy and Related Topics – Section «D»	98
Rejected Abstracts	135
<b>TOTAL ABSTRACTS:</b>	<b>Σ 561</b>

**NAPOMENA:**

Mnogi autori/koautoru nisu se pridržavali zadanog oblika i dužine sažetka svojih referata. Znanstveni odbor je izveo usuglašavanje, te isprika ako postoje nedostaci. Moguće je i možebitni izostanak nekog sažetka. Iznovice isprika.

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**International Symposia have been held:**

- 1<sup>st</sup>: Zagreb – 1994 – February, 16-18 (88 lectures)
- 2<sup>nd</sup>: Split – 1996 – June, 20-22 (150 lectures)
- 3<sup>rd</sup>: Šibenik – 1998 – June, 25-27 (192 lectures)
- 4<sup>th</sup>: Opatija – 2000 – June, 25-29 (333 lectures)
- 5<sup>th</sup>: Šibenik – 2002 – June, 20-24 (375 lectures)
- 6<sup>th</sup>: Šibenik – 2004 – June, 20-24 (368 lectures)
- 7<sup>th</sup>: Šibenik – 2006 – June, 18-22 (475 lectures)
- 8<sup>th</sup>: Šibenik – 2008 – June, 22-26 (615 lectures)
- 9<sup>th</sup>: Šibenik – 2010 – June, 20-24 (541 lectures)
- 10<sup>th</sup>: Šibenik – 2012 – June, 17-21 (641 lectures)
- 11<sup>th</sup>: Šibenik – 2014 – June, 22-26 (689 lectures)
- 12<sup>th</sup>: Šibenik – 2016 – June, 19-23 (546 lectures)
- 13<sup>th</sup>: Šibenik – 2018 – June, 24-29 (561 lectures)

**NOTE:**

Many authors/co-authors have not observed the given form and length of abstracts of their reports. Scientific board has made adjustments, so we apologize if there are any faults. An abstract might be failing. Accept our apology again.

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- ISIJ - The Iron and Steel Institute of Japan
- JERN - Jernkontoret, Sweden
- SRM Romanian Society for Metallurgy
- SITPH - Association of Polish Metallurgical Engineers
- HOOGOVS, The Netherlands
- SHS - Slovak Metallurgical Society
- Sociedade Portuguesa de Materiais
- MVAE - Association of Hungarian Steel Industry
- Steel Federation of the Czech Republic
- Union of Bulgarian Metallurgists
- IBS - Instituto Brasileiro de Siderurgia
- AIM - Associazione Italiana di Metallurgia
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- Egyptian Association for Industrial Development

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