

**SURVEY OF 15<sup>th</sup> INTERNATIONAL SYMPOSIUM OF CROATIAN  
METALLURGICAL SOCIETY (CMS)  
»MATERIALS AND METALLURGY«**<http://pubweb.carnet.hr/metalurg>**S H M D ` 2022****Croatia, Zagreb, March, 22 – 23, 2022****(Based on the Agreement of Meetings of World Metallurgical Societies,  
Dusseldorf 2018 – 2021)****15<sup>th</sup> International Symposium of Croatian Metallurgical Society “Materials and Metallurgy” was devote as part of:**70<sup>th</sup> Anniversary of the Establishment of Technical University Košice, Slovakia, 1952 y70<sup>th</sup> Anniversary of the Foundation of Croatian Metallurgical Society

(from Society of Engineers and Technician Steel Works Sisak), Croatia, 1952 y

60<sup>th</sup> Anniversary of Establishment of Mechanical Engineering Study,

Programms University, Slavonski Brod, Croatia, 1962 y

60<sup>th</sup> Anniversary of the Foundation and Publication of the Journal Metalurgija, Croatia, 1962 y**Countries Participating at the 15<sup>th</sup> International Symposium  
of Croatian Metallurgical Society “Materials and Metallurgy”**

<b>1</b> Argentina	<b>18</b> Greece	<b>35</b> Portugal
<b>2</b> Austria	<b>19</b> Hungary	<b>36</b> Romania
<b>3</b> Belgium	<b>20</b> India	<b>37</b> Russia
<b>4</b> Belarus	<b>21</b> Indonesia	<b>38</b> Saudi Arabia
<b>5</b> Benelux	<b>22</b> Iran	<b>39</b> Serbia
<b>6</b> Bosnia and Herzegovina	<b>23</b> Italy	<b>40</b> Singapore
<b>7</b> Brazil	<b>24</b> Japan	<b>41</b> Slovakia
<b>8</b> Bulgaria	<b>25</b> Kazahstan	<b>42</b> Slovenia
<b>9</b> Chile	<b>26</b> Korea	<b>43</b> South Africa
<b>10</b> China	<b>27</b> Lithuania	<b>44</b> Spain
<b>11</b> Croatia	<b>28</b> Macedonia	<b>45</b> Sweden
<b>12</b> Czech Republic	<b>29</b> Malaysia	<b>46</b> Thailand
<b>13</b> England	<b>30</b> Mexico	<b>47</b> Turkey
<b>14</b> Egypt	<b>31</b> Montenegro	<b>48</b> Ukraine
<b>15</b> Finland	<b>32</b> Netherlands	<b>49</b> USA
<b>16</b> France	<b>33</b> Philippine	<b>50</b> Vietnam
<b>17</b> Germany	<b>34</b> Poland	

**All 15 Symposiums 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, 23-27 (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)
- 14<sup>th</sup> Šibenik: 2020, June, 21-26 (435 lectures)
- 15<sup>th</sup> Zagreb : 2022, March, 22-23 (527 lectures)

**TOPICS OF THE SYMPOSIUM WERE:****Materials**

- New Materials
- Refractory Materials
- The Development
- Applications
- Physical Metallurgy

**Metallurgy**

- Process Metallurgy and Foundry
- Plastic Processing of Metals and Alloys
- Technologies
- Energetics
- Ecology in Metallurgy
- Quality Assurannce and Quality Management

## ACCEPTED ABSTRACTS

1 - Materials – Section .....	90
Process Metallurgy – Section „B“ .....	118
Plastic Processing – Section „C“ .....	45
Metallurgy and Related Topics - Section „D“ .....	70
Rejected Abstracts .....	133
2 – Supplement of Abstracts .....	73
<b>Total Abstracts .....</b>	<b>529</b>

## WEB page of CMS

### IMPORTANT INFORMATION ABOUT 15<sup>th</sup> SYMPOSIUM „Materials and Metallurgy“

Due to the current situation with the CORONA pandemic, 15<sup>th</sup> Symposium **IS PERMANENTLY CANCELED!**

All Abstracts accepted for presentation at the SHMD ` 2022 are published in „ Book of Abstracts“, Journal Metalurgija 61 (2022) 2, 547-576 and now METALURGIJA 61 (2022) 3-4, 889-894.

All Articles accepted for presentation at the SHMD ` 2022 are published in Metalurgija 60 (2021) 1-4, 1-464, Metalurgija 61 (2022) 1, 3-285, Metalurgija 61 (2022) 2, 291-546, METALURGIJA 61 (2022) 3-4, 581-850

This means, that all the lectures accepted for presentation at the SHMD ` 2022 are available online on our WEB pages. There is not need for an online conference, and with time and money saved for travel and hotels.

## APOLOGY

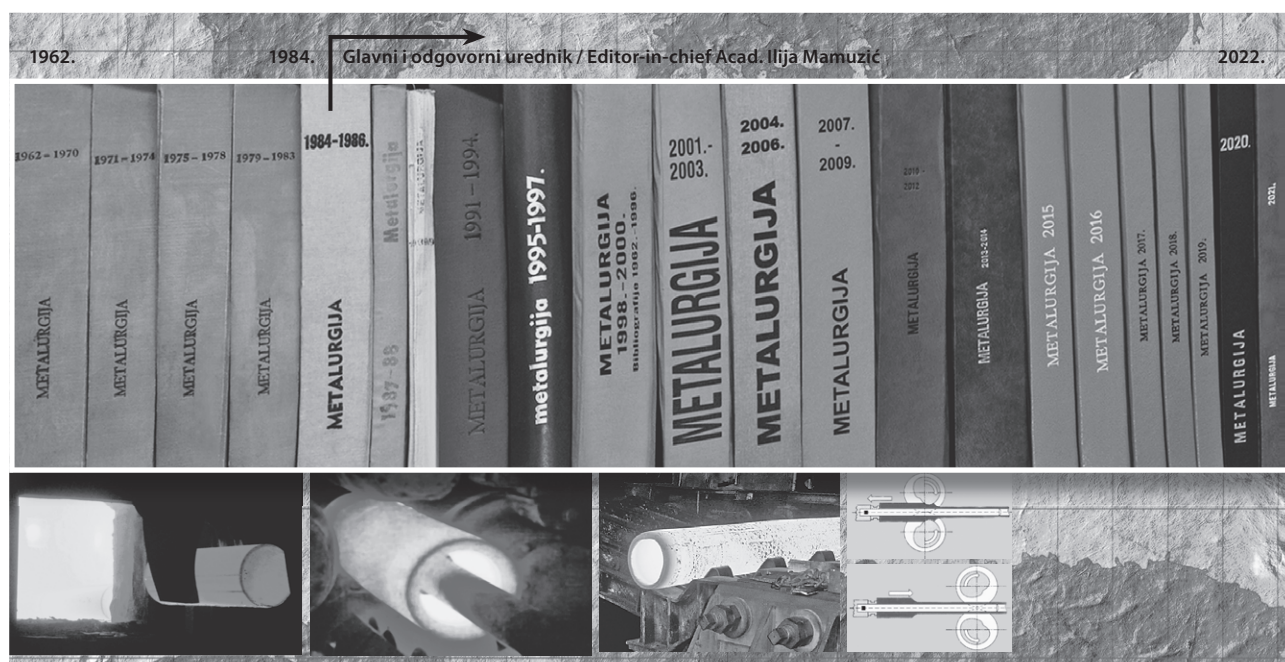
We apologize once more for any inconvenience caused by the cancelation of the Symposium.

**ORGANIZING COMMITTEE**

# BOOK OF ABSTRACTS / ZBORNİK SAŽETAKA

## *Obljetnice Hrvatske metalurgije* *Anniversaries of Croatian Metallurgy*

1952.-2022.	HRVATSKO METALURŠKO DRUŠTVO / CROATIAN METALLURGICAL SOCIETY	/ 70 god./y
6 000. god./y	METALURGIJA NA TLU HRVATSKE / METALLURGY ON THE TERRITORY OF CROATIA	/ 6 000 god./y
1960.-2020.	SVEUČILIŠNI STUDIJ METALURGIJE / UNIVERSITY STUDIES OF METALLURGY	/ 60 god./y
1962.-2022.	ČASOPIS METALURGIJA – Bibliografija / METALURGIJA JOURNAL – Bibliograph	/ 60 god./y



Željezara Sisak, 60 godina proizvodnje bešavnih cijevi (1952.-2012.)  
Steelworks Sisak, 60 years of the production of seamless tubes (1952-2012)