

7th INTERNATIONAL THERMAL SPRAYING AND HARDFACING CONFERENCE

ITSHC Wrocław, 11th to 12th of September 2025

CONFERENCE AGENDA

The Conference under the auspices of:
ETSA (European Thermal Spray Association)
Wrocław University of Science and Technology,
Faculty of Mechanical Engineering and SIMP association



Wrocław University
of Science and Technology



CONFERENCE ORGANIZERS

Department of Metal Forming, Welding and Metrology
Faculty of Mechanical Engineering Wrocław University of Science and Technology

SCOPE OF ITSHC CONFERENCE

The aim of the conference is to present the latest researches and developments in the field of thermal spraying, hardfacing and additive manufacturing.

The submitted presentations will focus on new feedstock materials, properties of coatings and weld deposits, novel deposition processes, advanced characterization methods as well as new industrial applications under different operating conditions. In addition, the problems related to training of specialists, quality and certification system at thermal spraying, hardfacing and additive manufacturing technologies will be discussed.

LOCATION

The conference will be held at the **Congress Center of the Wrocław University of Science and Technology (bldg. D20)**, located at 8 Janiszewskiego Street.

The congress center is closely located to a large public transport junction, *PLAC GRUNWALDZKI* or *RONDO REAGANA*.



SPONSORS



CERTECH Sp. z o. o.

Wilamowice, Poland
certech.pl

Gold Sponsor



Spes 3D
Print your own way

3D Center Sp. z o. o.

Spes3D Sp. z o. o.

Wrocław, Poland
3dcenterpolska.pl
spes3d.pl

Gold Sponsor

MEDICOAT

Medicoat AG

Mägenwil, Switzerland
medicoat.com

Bronze Sponsor



ITSHC 2025
11th-12th of September 2025
Wrocław

THURSDAY, 11th of SEPTEMBER – conference program

8 ³⁰	REGISTRATION AND REFRESHMENT BREAK (LOBBY)	
	ROOM A	
9 ³⁰	OPENING CEREMONY Paweł Sokołowski and Leszek Łatka	
10 ⁰⁰	EXHIBITORS AND SPONSORS <i>Short presentations of exhibitors and sponsors</i>	
10 ³⁰	PLENARY LECTURES Chairman: TBC	
	<i>Exploring the effect of surface pre-treatments and topographies of the AM parts</i> Giovanni Bolelli	
	<i>Advanced methods for characterization of cold sprayed materials</i> Jan Cizek	
11 ⁴⁰	REFRESHMENT BREAK - EXHIBITION AND POSTER SESSION (LOBBY)	
	ROOM A	ROOM B
	PLASMA SPRAYING Chairman: TBC	ADDITIVE MANUFACTURING Chairman: TBC
12 ¹⁰	<u>Keynote speaker</u> <i>Conductivity, viscosity, enthalpy: the relevance of nitrogen-based plasmas for effective feedstock treatment in thermal spraying</i> Georg Mauer et al.	<u>Keynote speaker</u> <i>Development of “3D print-thermal spray” systems for applications with dynamic and impact loading</i> Sarka Houdkova et al.
12 ³⁵	<i>Microstructure and electrical insulation properties of atmospheric plasma-sprayed alumina (Al₂O₃) and magnesium aluminate spinel (MgAl₂O₄) coatings</i> Serhii Tkachenko et al.	<i>Fatigue life of HVOF-coated additively manufactured parts</i> Maria Francesca Boniluari et al.



ITSHC 2025
11th-12th of September 2025
Wrocław

THURSDAY, 11th of SEPTEMBER – conference program

12 ⁵⁵	<p><i>Evolution of the structural and optical properties of water/argon-stabilized plasma sprayed Fe-TiO₂ coatings</i></p> <p>Key Simfroso et al.</p>	<p><i>Laser metal deposition for the additive manufacturing of tools used in hot forging, aluminum extrusion, and high-pressure die casting</i></p> <p>Paweł Widomski et al.</p>
13 ¹⁵	LUNCH BREAK - EXHIBITION AND POSTER SESSION (LOBBY)	
	ROOM A	ROOM B
	<p>HVOF SPRAYING</p> <p>Chairman: TBC</p>	<p>HARDFACING PROCESSES (1)</p> <p>Chairman: TBC</p>
14 ³⁰	<p><u><i>Keynote speaker</i></u></p> <p><i>Effects of a nitrogen atmosphere on Cr₃C₂-containing hardmetal coatings at high temperatures</i></p> <p>Lutz-Michael Berger et al.</p>	<p><u><i>Keynote speaker</i></u></p> <p><i>Microstructure and erosive wear behaviour of in situ NbC and (Nb, Ti)C-reinforced Inconel 625-based composite coatings produced by laser cladding</i></p> <p>Damian Janicki</p>
14 ⁵⁵	<p><i>Effect of HVOF spray parameters on the microstructure and mechanical characteristics of high-entropy alloy coatings</i></p> <p>Acacio Rincon et al.</p>	<p><i>Application of titanium diboride in plasma surfacing process of nickel matrix surface layers</i></p> <p>Mateusz Sowa</p>
15 ¹⁵	<p><i>Potentials of environmentally friendly NbC-Fe-based coatings for wear and corrosion protection</i></p> <p>Lukas Tegelkamp et al.</p>	<p><i>What are the differences between self-shielded flux cored hardfacing wires with similar weld metal chemical composition?</i></p> <p>Michał Szymura et al.</p>
16 ⁰⁰	PASSAGE TO THE MARINA	
16 ³⁰	TRIP ON THE ODRA RIVER AND DINNER	



ITSHC 2025
11th-12th of September 2025
Wrocław

FRIDAY, 12rd of SEPTEMBER– conference program

	ROOM A	ROOM B
	THERMAL SPRAY PROCESSES (1) Chairman: TBC	THERMAL SPRAY DIAGNOSTIC Chairman: TBC
9 ⁰⁰	<u>Keynote speaker</u> Microstructure, mechanical properties and wear resistance of Fe-based metallic glass coatings cold sprayed on different substrates Anna Góral et al.	<u>Keynote speaker</u> Spatial resolved insights into surfaces - New evaluation strategies for large-volume measurements with non-destructive and automated surface acoustic wave spectroscopy Stefan Makowski et al.
9 ²⁵	Advanced thermal spraying in monosilane atmospheres:towards oxide-free and cohesively bonded coatings Manuel Rodriguez Díaz et al.	Increasing Durability of the Outer Air Seal Coating in the High Pressure Turbine by using a NiCoCrAlY/NiAl Bond Coat Martin Nicolaus et al.
9 ⁴⁵	Low pressure cold spraying of H2O2-modified TiO2 coatings Anna Gibas et al.	Investigation of plasma-sprayed tungsten coatings under plasma exposure Gunnar Schmidtman et al.
10 ⁰⁵	Structure and properties of hybrid plasma sprayed TiO2-ZnO coatings Karolina Płatek et al.	Toward real-time trajectory prediction of powder and suspension feedstocks in plasma spraying Tomasz Kielczawa et al.
10 ²⁵	REFRESHMENT BREAK - EXHIBITION AND POSTER SESSION (LOBBY)	
	ROOM A	ROOM B
	THERMAL SPRAY PROCESSES (2) Chairman: TBC	DEVELOPMENTS IN MATERIALS Chairman: TBC
11 ⁰⁰	<u>Keynote speaker</u> Towards sustainable coatings: process optimization and performance evaluation of HVOF sprayed Fe-based BMG coatings Rahul Jude Alroy et al.	<u>Keynote speaker</u> Flowability of yttria-stabilized zirconia powder produced for atmospheric plasma spraying Ladislav Celko et al.
11 ²⁵	Functionalized thermally sprayed coatings for biomedical applications Martin Nicolaus et al.	Work hardening behavior of casted, sintered and sprayed high manganese steels Thomas Lindner et al.



ITSHC 2025
11th-12th of September 2025
Wrocław

FRIDAY, 12rd of SEPTEMBER– conference program

11 ⁴⁵	<i>Influence of manufacturing methods on selected Fe-based amorphous/nanocrystalline coatings</i> Inez Kredowska et al.	<i>Modification of Hadfield steel powder chemistry for thermal spraying and hardfacing</i> Aleksandra Malachowska et al.
12 ⁰⁵	<i>Cavitation erosion resistance of DMLS additive manufactured 17-4PH steel after heat treatment and shot peening process</i> Mirosław Szala et al.	<i>New perspectives in metal powder manufacturing: analysis of the ultrasonic atomization process of 316L Steel</i> Adam Sajbura et al.
12 ²⁵	REFRESHMENT BREAK - EXHIBITION AND POSTER SESSION (LOBBY)	
	ROOM A	ROOM B
	THERMAL SPRAY PROCESSES (3) Chairman: TBC	HARDFACING PROCESSES (2) Chairman: TBC
13 ⁰⁰	<i>Micro-structural and photoluminescent characteristics of solution precursor plasma sprayed Fe-TiO₂ coatings</i> Rolando T. Candidato Jr. et al.	<i>Laser surface polishing of CVD microcrystalline diamond coatings</i> Mariusz Frankiewicz et al.
13 ²⁰	<i>Photocatalytic properties of suspension plasma sprayed sub-stoichiometric TiO₂ coatings</i> Afrodyta Daskalakis et al.	<i>Cavitation erosion mechanisms of nickel-based overlays deposited via powder plasma transferred arc method</i> Mirosław Szala et al.
13 ⁴⁰	<i>Application of laser texturing as a method for substrate preparation in thermal spraying</i> Paweł Sokolowski et al.	<i>The comparison investigations of the WAAM technology in order to enhance durability and performance of the forging tools</i> Leszek Łatka et al.
14 ⁰⁰	CLOSING CEREMONY (ROOM A)	
14 ²⁰	LUNCH BREAK (LOBBY)	



ITSHC 2025
11th-12th of September 2025
Wrocław

POSTER PROGRAMME

POSTER SESSION: THURSDAY, 12th of SEPTEMBER

Posters are displayed for the whole conference duration. Best posters will be awarded at the conference dinner.

No.	POSTER TITLE
P1	<i>Mechanical and biological properties of hydroxyapatite-zirconium bilayer coatings deposited by microplasma spraying</i> S. Voinarovych, S. Maksimov, S. Kaliuzhnyi, O. Kyslytsia, D. Alontseva, L. Łatka
P2	<i>Evaluation of the influence of material configuration on the tribological wear of mechanical systems of cooperating elements in a scraper conveyor for cullet discharge transport</i> A. Czupryński, M. Muszyfaga-Staszuk, A. Woźniak
P3	<i>Influence of TiC addition on microstructure and mechanical properties of Inconel 625 laser cladding overlayers</i> E. Jonda, T. Poloczek, L. Łatka, M. Godzierz, A. Lont
P4	<i>Attempts to modify nickel-based welds using carbon nanotubes</i> J. Górka
P5	<i>Development of additive manufacturing of internal cooling channels using Cold Spray for optimal heat dissipation in injection molds</i> S. Stanco, V. Nemcova
P6	<i>Corrosion resistance of plasma-sprayed iron-based metallic glass coatings</i> A. Małachowska, M. Lachowicz, P. Sokołowski
P7	<i>Image-Based Microstructural Assessment of Plasma-Sprayed Coatings on Hadfield Steel</i> A. Małachowska, K. Morozik, M. Korzeniowski

HOW TO REACH CONFERENCE

For easy navigation for the ITSHC conference please see the map:



CONFERENCE CENTER – building D20, 8 Janiszewskiego Street, 50-372 Wrocław

PARKING – the parking places are provided for conference participants. Please, remember to print parking plate if you plan to use parking (available on the ITSHC website)

PLAC GRUNWALDZKI or RONDO REAGANA – the closest public transportation station (tram + bus), just next to the congress center. Tickets may be purchased directly inside the tram or bus

CABLE CAR POLINKA – free transportation for conference attendees staying at Hotel WODNIK or this part of the city. Free ride after showing your conference bag to the **POLINKA** guards

LAB TOUR – possibility to visit laboratories at Faculty of Mechanical Engineering. Please contact conference organizers if you would like to visit the laboratories. Possible slots: Wednesday afternoon and Friday afternoon. Laboratories located 10 minutes by walk from the congress center, in building B9, Łukasiewicza 7-9 street, 50-371 Wrocław

SCIENTIFIC COMMITTEE

Lech Pawłowski, University of Limoges, France
Chairman of Scientific Committee

Darya Alontseva, East Kazakhstan Technical University, Kazakhstan
Lutz-Michael Berger, Fraunhofer IKTS, Germany
Giovanni Bolelli, Università degli Studi di Modena e Reggio Emilia, Italy
Ladislav Celko, Brno University of Technology, Czech Republic
Tomasz Chmielewski, Warsaw University of Technology, Poland
Susan Conze, Fraunhofer Institute for Ceramic Technologies and Systems, Germany
Artur Czapryński, Silesian University of Technology, Poland
Alai+T+G10:Q48 Denoirjean, University of Limoges, France
Sergi Dosta, Universitat de Barcelona, Spain
Dariusz Fydrych, Gdańsk University of Technology, Poland
Dariusz Golański, Warsaw University of Technology, Poland
Simon Goutier, University of Limoges, France
Anna Góral, Polish Academy of Science, Poland
Šárka Houdková, Research and Testing Institute Plzen, Czech Republic
Tanvir Hussain, University of Nottingham, United Kingdom
Damian Janicki, Silesian University of Technology, Poland
Ewa Jonda, Silesian University of Technology, Poland
Shrikant Joshi, University West, Sweden
Heli Koivuluoto, Tampere University, Finland
Ondřej Kovářik, Czech Technical University, Czech Republic
Tomasz Kurzynowski, Wrocław University of Science and Technology, Poland
Thomas Lampke, University of Chemnitz, Germany
Christoph Leyens, Fraunhofer IWS, Germany
Leszek Łatka, Wrocław University of Science and Technology, Poland
Aleksandra Małachowska, Wrocław University of Science and Technology, Poland
Monika Michalska, VSB – Technical University of Ostrava, Czech Republic
Grzegorz Moskal, Silesian University of Technology, Poland
Radek Mušálek, Institute of Plasma Physics, Czech Republic
Hanna Myalska-Głowacka, Silesian University of Technology, Poland
Amirhossein Pakseresht, FunGlass Centre, Slovakia
Paweł Sokołowski, Wrocław University of Science and Technology, Poland
Mirosław Szala, Lublin University of Technology, Poland
Aleksandra Świerczyńska, Gdańsk University of Technology, Poland
Rolando T. Candidato Jr., Mindanao State University, Philippines
Filofteia-Laura Toma, Fraunhofer IWS, Germany
Robert Vaßen, Forschungszentrum Jülich, Germany
Sergii Voinarovych, Paton Electric Welding Institute NASU, Ukraine
Mariusz Walczak, Lublin University of Technology, Poland
Marcin Winnicki, Wrocław University of Science and Technology, Poland