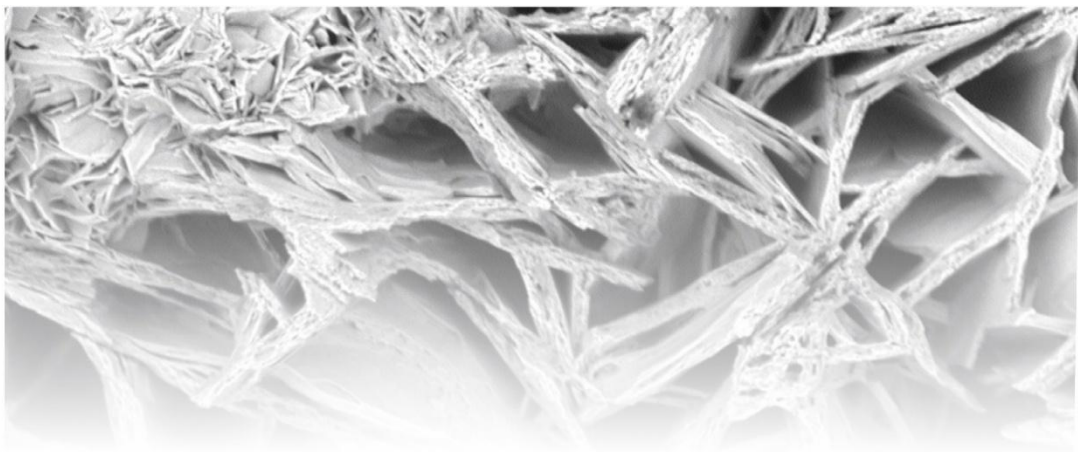




SOLIDIFICATION & CRYSTALLIZATION OF METALS

65. International
Scientific Conference
24-26.09.2025

Conference programme



POLISH ACADEMY OF SCIENCES

KATOWICE

PAN

POLAND

FOUNDRY ENGINEERING COMMITTEE
COMMITTEE OF MATERIALS ENGINEERING
AND METALLURGY

65th
International Scientific Conference

**Solidification and Crystallization
of Metals 2025**

P R O G R A M M E

Gliwice
24 - 26. 09. 2025

Organizers:

Association of Alumni of the Silesian University of Technology „Kóło Odlewników”
with the scientific and organizational support of
Department of Foundry Engineering, Faculty of Mechanical Engineering, Silesian University of Technology

Scientific Patronage:

Foundry Engineering Committee PAS Katowice
Committee of Materials Engineering and Metallurgy of PAS

Honorary Patronage:

Prof. dr hab. inż. Marek Pawełczyk – HM Rector of the Silesian University of Technology
Prof. dr hab. inż. Adam Grajcar – Chairman of the Discipline Council of Materials Engineering
Dr hab. inż. Marcin Adamiak, prof. PŚ – Dean of the Faculty of Mechanical Engineering

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dr inż. Agnieszka DULSKA
dr inż. Marcin KONDRACKI
dr inż. Natalia PRZYSZŁAK
dr inż. Jacek SUCHOŃ

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General Programme of 65th International Scientific Conference „Solidification and Crystallization of Metals 2025”

24.09.2025 (Wednesday) Hotel Diament Arsenal Palace in Chorzów

11 –	Conference Registration
12 ⁰⁰ – 14 ⁰⁰	Lunch
14 ⁰⁰	Opening Ceremony
14 ³⁰ – 16 ⁰⁰	Plenary Session
16 ⁰⁰ – 16 ³⁰	Coffee Break
16 ³⁰ – 18 ⁰⁰	Plenary Session
19 ⁰⁰ – 24 ⁰⁰	Banquet

25.09.2025 (Thursday) Hotel Diament Arsenal Palace in Chorzów

8 ⁰⁰ – 9 ⁰⁰	Breakfast
9 ⁰⁰ – 10 ³⁰	Lecture Session
10 ³⁰ – 11 ⁰⁰	Coffee Break
10 ³⁰ – 12 ³⁰	Poster Session
11 ⁰⁰ – 12 ³⁰	Lecture Session
12 ³⁰	Lunch
13 ⁴⁵ – 18 ⁰⁰	The Planetarium - Silesian Science Park.
19 ⁰⁰	Silesian Feast with the band “ <i>Jorgusie</i> ”

26.09.2025 (Friday) Hotel Diament Arsenal Palace in Chorzów

8 ⁰⁰ – 9 ⁰⁰	Breakfast
9 ³⁰ – 11 ³⁰	Lecture Session
11 ³⁰	Closing Ceremony
12 ⁰⁰	Lunch

Detailed Conference Programme

24.09.2025 (Wednesday)

14⁰⁰ Opening Ceremony

14³⁰ – 16⁰⁰

PLENARY SESSION

Chairman:

prof. Dariusz Kopyciński
prof. Jan Jezierski

14³⁰ **J.S. Zych, T. Snopkiewicz, K. Piotrowski, P. Bednarczyk:** Manufacturing of cores using SMS technology with a hybrid protective coating supported by forced air flow for massive large-sized slag ladles.

14⁵⁰ **A. Herman, Z. Kopanica, M. Jarkovsky:** Research on increasing the proportion of regenerate in a self-bonding moulding mixture based on water glass

15¹⁰ **Ü. Kutsal, M. Çolak, Y. Sağnak, S. Bardakçı, G. Ammas, G. Sarper:** Investigation of the effect of rotary degassing parameters on melt cleanliness in A356 aluminum alloy

15³⁰ Discussion

16⁰⁰ – 16³⁰ COFFEE BREAK

16³⁰ – 18⁰⁰

PLENARY SESSION

Chairman:

prof. Dana Bolibruchová
prof. Pawel Popielarski

16³⁰ **N. Alkan, Ü. Kutsal, M. Çolak:** Investigation of fluidity properties at varying Fe and Mn ratios in casting of A356 aluminum alloys

16⁴⁵ **İ. Sapmaz, M. Uludağ:** The Effect of Sr Modification on the Microstructure and Mechanical Properties in AlSi12(Fe) HPDC Alloy

17⁰⁰ **G. Tęcza:** Effect of freezing temperature on the volume fraction and hardness of retained austenite in cast GX70CrMnSiNiMo2 alloyed tool steel

17¹⁵ **G. Gumieny, T. Szymczak:** As-cast ausferritic cast iron

17³⁰ Discussion

19⁰⁰ – 24⁰⁰ BANQUET

25.09.2025 (Thursday)

9⁰⁰ – 10³⁰

LECTURE SESSION

Chairman:

prof. Magdalena Kawalec

prof. Tomasz Wróbel

9⁰⁰ **Hao Yue, Zhengwei Yang, Bo Lin, Yan Chen, Chao Zhou, Xiaohong Ji, Rong Li:**

Research on the Investment Casting Process of Irregular Lining Plates for Electrolyte Cleaning Machine (online)

9¹⁵ **Ü. Kutsal, M. Çolak, Y. Sağnak, S. Bardakçı, G. Ammas, G. Sarper:** Effect of Sc Addition on the Mechanical Properties and Thermodynamic Properties

9³⁰ **O. Choukri, E. Mohsine, S. Taibi:** Industrial recycling of used copper cables and wires: combination of cold and hot treatment for maximum recovery and minimum emissions (online)

9⁴⁵ **K. Mlynarek-Żak, M. Spilka:** Application of medium-entropy alloys for anticorrosive coatings

10⁰⁰ **K. Janerka, J. Jezierski, K. Rosanowski, K. Giza:** Evaluation of carburization efficiency by measuring the specific resistivity of coke and graphite carburizers used in foundry

10¹⁵ Discussion

10³⁰ – 11⁰⁰ COFFEE BREAK

11⁰⁰ – 12³⁰

LECTURE SESSION

Chairman:

prof. Anna Dolata

prof. Grzegorz Gumienny

11⁰⁰ **Y. Aftandilants, S. Gnyloskurenko, I. Kvasnytska, G. Chyzhyk, K. Kvasnytska, V. Noha:** Influence of structure on wear resistance of cast high-speed steel of M2 type (online)

11¹⁵ **M. Kawalec, S. Sobula, M. Górny, M. Fic:** The Influence of Manufacturing Technology (DMLS vs. Casting) on the Structure and Functional Properties of Metal Alloys

11³⁰ **B. Tokarski, J. Jezierski, P. Kurtyka, M. Janczak:** In situ carbides transformation in high chromium cast iron under industrial conditions

11⁴⁵ **E. Olejnik, P. Kurtyka, A. Czajka, K. Biegun, R. Chulist, W. Maziarz:** Effect of the secondary aluminum ingots on the distribution of tic nanoparticles and the mechanical and functional properties of in-situ cast A356-based composites

12⁰⁰ Discussion

12³⁰ **Lunch**

13⁴⁵ **Walk to the Planetarium – Silesian Science Park**

14³⁰ – 17³⁰ – **Participation in shows and exhibitions at the Planetarium**

18⁰⁰ **Return to the hotel**

19⁰⁰ – 23⁰⁰ – **Silesian Feast with the band “Jorgusie” – Hotel Diament Arsenal Palace**

Chairman: prof. Marcin Stawarz, dr Agnieszka Dulska

1. **D. Bolibruchová, M. Sýkorová, M. Matejka:** Influence of beryllium on the microstructure and properties of a cast aluminum alloy with low silicon content
2. **M. Matejka, D. Bolibruchová, M. Sýkorová:** A Study on the Selected Properties of Al-Si-Cu Alloy Containing Tungsten
3. **M. Sýkorová, D. Bolibruchová, M. Matejka:** Effect of Nb Addition on the Selected Properties of AlSi5Cu2Mg Aluminum Alloy
4. **J. Kamińska, K. Sanocki:** Production Technology of Spheroidal Cast Iron with Enhanced Strength and Thermal Shock Resistance Using In-Mold Nodularization
5. **P. Mikołajczak:** AlSiMg alloys microstructure determined by flow effect during slow solidification
6. **J. Kozana, A. Garbacz-Klempka, M. Piękoś:** Analysis of the impact of selected alloying additives and refining processes on the quality of tin bronze castings
7. **J. Kolczyk-Tylka:** The influence of casting design on knock-out properties from ceramic moulds made using an improved technology
8. **M. Angrecki, J. Jakubski, J. Kamińska:** Technological properties of ceramic moulds containing reclaimed furan resin sands as a substitute fresh ceramic material for subsequent layers of ceramic moulds.
9. **M. Grudzień-Rakoczy, K. Chrzan, W. Oleksy, R. Żuczek, L. Rakoczy, R. Cygan:** Microstructural characterization of GTAW-deposited clads on preheated Ni-based superalloys
10. **A. Dąbrowski, M. Maj:** Analysis and improvement of the model and casting of the cylinder of the S-38 engine
11. **N. Przyszlak, T. Wróbel:** Microstructural and Hardness Changes in High-Chromium X46Cr13 Steel under Various Heat Treatment Conditions
12. **G. Radzioch, D. Bartocha, M. Kondracki:** Machinability of Lead-Free and Low-Lead Casting Brasses. Cutting Forces and Surface Roughness
13. **P. Kurtyka, S. Sobula, A. Czajka, A. Dolata, M. Dyzia, W. Maziarz:** Processing aspects and characteristics of In-Situ A356/TiC composites
14. **P. Popielarski, A. Kręcik:** Using the Rheocasting technology to cast electric motor gearbox housing
15. **K. Jaśkowiec, K. Chrzan, M. Grudzień-Rakoczy, W. Oleksy, R. Żuczek, L. Rakoczy, R. Cygan:** Characterization of the microstructure and selected properties of C101 nickel-based superalloy manufactured by investment casting
16. **A. Garbacz-Klempka, L. Kowalski, J. Kubiak:** Bronze casting technology in the context of a hoard from Papowo Biskupie, Poland
17. **M. Piękoś, A. Garbacz-Klempka, J. Kozana:** Analysis of the aluminum improvement process using powdered additives introduced by barbotage
18. **R. Żuczek, P. Wieliczko, M. Małysza:** Integration of 3D scanning and digital twin verification in the casting shot blasting process
19. **D. Bartocha, J. Jezierski, M. Kondracki:** The Influence of the Purity and Microstructure of the AlSi7 Alloy on the Natural Frequency of Casting Vibration
20. **A. Dolata, M. Dyzia:** Castability of the AlSi alloy matrix composites with silicon carbide particles
21. **D. Witasiaś, A. Garbacz-Klempka, J. Kozana, M. Piękoś, M. Papaj, P. Papaj:** Optimization of mould technology in CuSn10 bronze green sand castings- influence of insulating sleeves, risers and chills on leak-tightness
22. **A. Garbacz-Klempka, K. Marlicka, M. Piękoś, J. Kozana, A. Fijolek, D. Walach, G. Kaczmarczyk:** The use of reverse engineering and metal science analysis in the research of historic foundry processes

26.09.2025 (Friday)

9³⁰ – 11³⁰ LECTURE SESSION

Chairman:

**prof. Maria Maj
prof. Jan Szajnar**

- 9³⁰ **L. Jamrozowicz:** The role of air movement over the mold in the drying process of protective coatings
- 9⁴⁵ **N. Kalwak, N. Przyszlak, T. Wróbel:** Application of the moulding sand with a mixed matrix in layered castings technology
- 10⁰⁰ **J. Trzoska, J. Jezierski, G. Kaczor, R. Przerwa:** Results of commissioning an automated molding-sand processing station at GZUT Odlewnia Sp. z o.o.
- 10¹⁵ **M. Kondracki, D. Bartocha, J. Jezierski:** Indirect Method of Quality Assessment for Aluminium Alloys Solidifying Under Low Pressure
- 10³⁰ **T. Wróbel, S. Sobula, G. Tęcza, D. Bartocha, J. Jezierski, K. Kostrzewa:** The influence of Ni on the hardness and impact resistance of manganese cast steel in applications for cast elements of railway infrastructure
- 10⁴⁵ **A. Dulska, N. Przyszlak:** Computational Analysis of Solidification in Layered Castings
- 11⁰⁰ Discussion

11³⁰ CLOSING CEREMONY

12⁰⁰ **Lunch**

Additional Information

- *Presentation slides and posters should be prepared in English.*
- *The recommended language of presentation is English.*
- *Maximum poster dimensions: width 645 mm, height 1000 mm.*