

CONFERENCE PROGRAMME



**V International Conference of Casting
and Materials Engineering ICCME 25
Krakow, Poland, October 27-28, 2025**



**FACULTY OF FOUNDRY
ENGINEERING
AGH UNIVERSITY**

Lightweight innovations for a better climate

V International Conference of Casting
and Materials Engineering ICCME 25
Krakow, Poland, October 27-28, 2025



27.10.2025 (Monday)

'STUDIO' CLUB, AGH University of Krakow CAMPUS (Budryka 4, Krakow)

08:30	09:30	REGISTRATION
09:30	10:00	OFFICIAL OPENING
PLENARY SESSION Main Hall		
Chairmen: G. Angella, R. Dańko		
10:00	10:30	S. Méndez (Azterlan, Spain) Application of hybrid models to the foundry manufacturing process
10:30	11:00	M. Vedani (Politecnico di Milano, Italy) Solidification in metal additive manufacturing: similarities and differences with welding and metal casting
11:00	11:30	Y.H. Yim (AnyCasting Software Co., Ltd., South Korea) Metamodeling Approach to Predict Microstructure and Mechanical Properties in Aluminum Alloy Casting and Heat Treatment Processes
11:30	12:00	W. Kowalczyk (Frech, Poland) High-pressure die casting in the face of global industry change. Opportunities and threats
12:00	13:30	LUNCH
13:30	14:30	DISCUSSION PANEL (Chairmen: K. Jalava, M. Górny) Lightweight Innovations Panellists: S. Mendez, R. Dańko, J. J. Sobczak, G. Angella, M. Łuszczak

October 27, 2025

SCIENTIFIC SESSION A | Main Hall

Chairmen: P. Jacquet, R. Cygan

14:30	14:45	T. Tokarski (AGH University of Krakow, Poland) Spheroidal graphite in ductile iron: morphology, growth, and distribution
14:45	15:00	N. Sobczak (Polish Academy of Sciences, Poland) Effect of calcium alloying on the wettability and interfacial reactions between liquid Mg and a Ti substrate under different atmospheric conditions
15:00	15:15	U. Gürol (Foseco, Türkiye) Alloy and Process Optimisation of High-Manganese Steels: Linking Microstructure to Industrial Performance of Track Shoe Castings
15:15	15:30	N. Roudbarian (Aachen University, Germany) Integrated Design Optimization for Thin-Walled Cast Automotive Components
15:30	15:45	K. Jalava (Aalto University, Finland) Experimental Comparison of Al-Si and Al-Cu Alloy Fluidity in Thin-Walled Sand Castings Supported by Numerical Simulations
15:45	16:00	G. Angella (CNR-ICMATE, Italy) Specimen geometry and tensile testing system effects on the ausferrite stability
16:00	16:30	COFFEE BREAK

SCIENTIFIC SESSION B & D | Conference Room (1 Floor)

Chairmen: M. Vedani, D. Myszk

14:30	14:45	Ł. Rakoczy (AGH University of Krakow, Poland) As-cast microstructure, strength and steam oxidation resistance of René 125 nickel-based superalloy fabricated via lost-wax casting
14:45	15:00	B. Cygan (Teksid Iron, Poland) ADI cast iron production at Teksid Iron Poland – opportunities and challenges
15:00	15:15	A. Świątkowski (AGH University of Krakow, Poland) Influence of growth velocity v and temperature gradient G on the interlamellar spacing λ of FeC eutectic
15:15	15:30	A. Kmita (AGH University of Krakow, Poland) Modern Materials and Additive Manufacturing (3D Printing) Technologies for Foundry Molding Sands – Toward Reducing Environmental Impact
15:30	15:45	J. Piątkowski (Silesian University of Technology, Poland) What has the main influence on the shrinkage porosity of castings from secondary Al-Si alloys?
15:45	16:00	M. Kawalec (AGH University of Krakow, Poland) Hybrid Crusher Hammers: Improved Durability and Efficiency Through High-Carbide Alloyed Iron Inserts Cast into a Manganese Steel Matrix
16:00	16:30	COFFEE BREAK

Chairmen: A. B. Vieira Moreira, K. Major-Gabryś

16:30	16:45	J. Marosz (AGH University of Krakow, Poland) Si-Mo Composite Reinforced with (Ti,Mo)C in Ultra-Thin-Walled Castings
16:45	17:00	K. Morgiel (AGH University of Krakow, Poland) Mechanism of SiMo DCI HT oxidation based on complementary LM/SEM/TEM and XRD methods
17:00	17:15	A. Fijolek (AGH University of Krakow, Poland) Archaeometallurgy using modern research techniques and reverse engineering. Results obtained and prospects for the future
17:15	17:30	P. Stręk (LedaVi.com, Poland) Determination of the heat transfer coefficient in the isothermal quenching process of ADI cast iron cooled with water mist
17:30	17:45	K. Chrzan (AGH University of Krakow, Poland) The influence of induction melting parameters on the structure of ingots made of high-entropy alloys from the AlCoCuFeNi family
17:45	18:00	D. Halejcio (AGH University of Krakow, Poland) The influence of furfuryl resin type - classical and designed for sand 3D printing, on cast iron castings microstructure and surface roughness
18:00	18:15	M. Bork (AGH University of Krakow, Poland) An insight into high-nickel austenitic ductile cast iron

SCIENTIFIC SESSION C & E | Pub (-1 Floor)

Chairmen: T. Tokarski, M. Kawalec

14:30	14:45	D. Halejcio (AGH University of Krakow, Poland) The effect of microwave curing on selected properties of molding compounds with inorganic binders intended for 3D printing of sand molds and cores
14:45	15:00	N. Anwar (Aalto University, Finland) Evaluation of Sodium Metasilicate Pentahydrate Powder as Foundry Sand Binder
15:00	15:15	A. Sepiał (AGH University of Krakow, Poland) Influence of strand width and layer height on porosity in FDM 3D printed parts
15:15	15:30	O. Asghar (University of Padova, Italy) Raw Material Criticalities And Furnace Selection Choices In Aluminum Casting: A Pathway To Sustainable Foundries
15:30	15:45	K. Major-Gabryś (AGH University of Krakow, Poland) The use of green molding materials in the production of advanced lightweighting castings
15:45	16:00	A. Szczyśny (AGH University of Krakow, Poland) VR, AR, and MR in casting and materials engineering - opportunities and possibilities
16:00	16:30	COFFEE BREAK

Chairmen: S. Mendez, B. Cygan

16:30	16:45	B. Milewski (AGH University of Krakow, Poland) Challenges facing the composite abrasives industry in the era of Energy consumption reduction
16:45	17:00	A. Burbelko (AGH University of Krakow, Poland) Modeling interaction of particles with crystallization front in in-situ nanocomposite using cellular automaton
17:00	17:15	K. Lemonnier (ENSAM, France) Differential Scanning Calorimetry of grey cast iron: Presence of iron nitrides after casting
17:15	17:30	P. Paczkowski (AGH University of Krakow, Poland) Optimizing Crystallization Control and Waste Heat Recovery in Foundries for Sustainable Electricity Generation
17:30	17:45	G. Szczurek (AGH University of Krakow, Poland) Evaluation of Carbide Eutectic in Castings of High-Chromium Cast Iron Grade EN-GJN-HV600 (XCr18)
17:45	18:00	K. Bracka-Kęsek (AGH University of Krakow, Poland) Coatings obtained in a zinc bath with Ti addition observed by TEM
18:00	18:15	Ł. Gondek (AGH University of Krakow, Poland) TiFe derivatives for cost-efficient hydrogen storage
19:00	24:00	BANQUET

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28.10.2025 (Tuesday)

AGH Faculty of Foundry Engineering (Reymonta 23, Krakow)

09:30	10:00	REGISTRATION
10:00	10:15	OFFICIAL OPENING
10:15	11:00	INVITED LECTURE A. Kang (AnyCasting Software Co., Ltd., South Korea) Desing and Review of Battery Pack Housing Parts for Electric Vehicles with Thin Sectioned Die Casting
STUDENTS SESSION A		
Chairmen: N. Mordyl, P. L. Żak		
11:00	11:15	P. Paszek (AGH University of Krakow, Poland) Assessment of the influence of die casting machine chamber filling parameters on the stability of HPDC quality Supervisor: M. Brzeziński
11:15	11:30	J. Jaworowski (AGH University of Krakow, Poland) Project of Manufacturing a High-Pressure Die-Casting of an Oil Sump from AISi9Cu3(Fe) Alloy Supervisor: Ł. Jamrozowicz
11:30	11:45	J. Juszczyk (AGH University of Krakow, Poland) Model of a robotic production line for the assembly of a selected gearbox assembly component Supervisor: M. Łucarz

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11:45	12:00	K. Adamiec (AGH University of Krakow, Poland) Design of a prototype lightweight brake caliper for motorbikes based on additive technology Supervisor: J. Augustyn-Nadzieja
12:00	12:15	M. Jaroszewski (AGH University of Krakow, Poland) The Influence of Electrochemical Cadmium Plating Technology on Hydrogen Embrittlement Phenomena in the Aerospace Industry Supervisor: G. Michta
12:15	12:45	COFFEE WITH NETCASTPL4.0 PROJECT
STUDENT SESSION B		
Chairmen: P. Paszek J. Jakubski		
12:45	13:00	J. Druciarek, K. Zaruczyński (AGH University of Krakow, Poland) Metallographic Studies of 3D-Printed Metal Alloys for Industrial Applications Supervisor: G. Michta
13:00	13:15	J. Lach (AGH University of Krakow, Poland) Advanced Optimization and Numerical Simulation of the High-Pressure Die Casting (HPDC) Process for the Automotive Industry Supervisor: P. L. Żak
13:15	13:30	M. Prażanowski (AGH University of Krakow, Poland) Implementation of rapid prototyping methods in process of manufacturing foundry wax models characterized by extremely thin walls Supervisor: P. L. Żak
13:30	13:45	A. Mišta, K. Machowska (AGH University of Krakow, Poland) Minimalizing the mass of a solar-powered racing boat, through the use of 3D printing, aluminum and composite materials Supervisor: K. Sornek

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13:45	14:00	M. Majcher (AGH University of Krakow, Poland) Development of technology for the casting of the pump housing from ductile iron GJS-400-15 Supervisor: Ł. Jamrozowicz
14:00	14:15	I. Herman (AGH University of Krakow, Poland) Designing the technology for making a casting using AnyCasting software Supervisor: J. Lelito
14:15	14:30	CLOSING OF THE CONFERENCE
15:00	19:00	STUDENTS SOCIAL MEETING FILUTEK Club, AGH University Campus, Rostafińskiego 10

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