**PROGRAMME** / PROGRAM

**65th IFC Portoroz 2025** / 65. IFC Portorož 2025

**Wednesday / Sreda, 17. 09. 2025**

**16.30 – 19.30 Registration of participants at the Conference reception desk** / Prijava udeležencev na recepciji konference

**17.30 Bus transfer from Hotel Slovenia to Piran** / Avtobusni prevoz od Hotela Slovenije do Pirana

**18.00 Reception in the garden of the Cultural Center Georgios – in the church of St. Jurij – With a greeting from the representative of the County of the Municipality of Piran** / Sprejem na vrtu Kulturnega centra Georgios pri cerkvi sv. Jurija s pozdravnim nagovorom predstavnika županstva Občine Piran

**Thursday / Četrtek, 18. 09. 2025**

**7.30 – further /** daljeRegistration of participants at the Conference reception desk

**Thursday/Četrtek, 18. 09. 2025 Hall/Hala**

**Plenary lectures** / Plenarna predavanja **Cristoforo Colombo**

**9.30 – 9.45** MIRJAM JAN–BLAŽIĆ,

President / Predsednica Slovenian Foundrymen Society

**The Opening Address/ Uvodni nagovor**

**9.45 – 10.15** J. J. GONZÁLEZ, The World Foundry Organization WFO (UK): **Current situation and cooperative challenges for foundry** /Trenutno stanje in kooperativni izzivi za livarstvo

**10.15 – 10.45** M. Schumacher, s. Tewes, German Foundry Association, BDG (D)**: Roadmap to Greenhouse Gas Neutrality for the German Foundry Industry – Four Decarbonisation Pathways by 2045** / Načrt za nevtralizacijo toplogrednih plinov za nemško livarsko industrijo – štiri poti do razogljičenja do leta 2045

**10.45 – 11.15** ⯈ P. MRVAR1, M. PETRIČ1, H. PALKOWSKI2, S. KASTELIC3, A. CARRADÓ4, 1Department of Materials and Metallurgy, Faculty of Natural Sciences and Engineering, University of Ljubljana (SI), 2Institute of Metallurgy, Clausthal University of Technology, Clausthal-Zellerfeld, (DE), 3TC Livarstvo d.o.o. (SI), 4Institut de Physique et de Chimie des Matériaux de Strasbourg, CNRS UMR, (F): **Gravity, centrifugal and HPDC casting of composed as-cast foam from biodegradable ZnMg1,5 alloy** / Gravitacijsko, centrifugalno in tlačno litje sestavljenih litih biorazgradljivih kovinskih pen iz zlitine ZnMg1,5

**11.15 – 11.45 Break / Odmor**

**11.45 – 12.15** ⯈R.DEIKE1, I.ADHIWIGUNA2, L.ZACHARROPOULS1; J.GELDRMANN1, R.WARNECKE3, 1University Duisburg-Essen (D), 2 Pt. Zenith Allmart Precisindo, (ID), 3 GKSGemeinschaftskraftwerk Schweinfurt GmbH (D): **The incinerator bottom ash (iba) is a future sustainable source for ferrous, non-ferrous, and precious metals used in the metallurgical industry**/ Pepel iz sežigalnic je trajnostni vir za železove, neželezne in plemenite kovine. ki se uporabljajo v metalurški industriji

**12.15 – 12.45** ⯈ J.X. ZHOU, X.W. QIAN, X.Y. JI, Y.J. YIN, W. LI, X. SHEN, Y.C. LI, State Key Lab of Material Processing and Die & Mould Technology, Huazhong University of Science and Technology (PRC): "1+N" Digital Foundry Innovation Platform and Its Applications / "1+N" Inovativna platforma digitalne livarne in njene aplikacija

**12.45 – 13.15** ⯈ P. HOFER-HAUSER1, M. PAMMER1, T.L.S. STOISSER², F. RÖPER³, R. GSCHWANDTNER³, 1Technical University of Leoben (AT), 2SHW AG (D), 3Austrian Foundry Research Institute (AT): **Rheocasting as a key technology for circular economy in the aluminium foundry** / Rheocastnig kot ključna tehnologija krožne ekonomije v livarnah aluminija

**13.15 – 13.30** F. HOFSTÄTTER, SAG New Technologies GmbH (AT): **Enhancing Lightweight Automotive Components: A Comparative Analysis of Rheocasting and High-Pressure Die Casting** / Izboljšanje lahkih avtomobilskih komponent: Primerjalna analiza rheocastinga in tlačnega litja

**13.30** **– 15.15 Lunch Break / Kosilo**

**15.15 – 15.45 ⯈** J. MEDVED1, M. VONČINA1, T. BALAŠKO1, J. BURJA2, K. GRABNAR3, 1 University of Ljubljana, Faculty of Natural Sciences and Engineering, Department for Materials and Metallurgy (SI), 2 Institute of Metals and Technology (SI), 3 Metal Tech Solutions d.o.o. (SI): **Wear resistance of hot-work tool steel with high thermal conductivity in molten aluminium** / Obrabna obstojnost orodnega jekla za delo v vročem z visoko toplotno prevodnostjo v talini aluminija

**15.45 – 16.15**  M. GAMISCH, Fill Gesellschaft m.b.H. (AT): **Challenges in the machining of large castings** / Izzivi pri mehanski obdelavi velikih ulitkov

**16.30 – 17.00** B. Kandus, M. Šifrer, T. Volgemut, SAVENA d. o. o. (SI) **Added value of energy management systems** / Dodana vrednost sistemov upravljanja z energijo

**Thursday Evening / Četrtkov večer, 18. 09. 2025**

**19.30 Foundrymen night on the coastline opposite Hotel Slovenija /** Noč livarjev na obali nasproti Hotela Slovenija

**Friday / Petek, 29. 09. 2025 Hall/Hala**

**SECTION / SEKCIJA A, Amerigo Vespucci**

**Cast Iron, Foundry Techniques and Technology /**

**Železove litine, livarske tehnike in tehnologije**

**9.00 – 9.20** ⯈ Ch. Kneissl1, W. Funk1, Dr. E. Kaschnitz1, Dr. T. Pabel1, Heinz Holzer1, H. Schroettner2,3, H. Haider4 **,** 1Austrian Foundry Research Institute (AT), 2Institute of Electron Microscopy and Nanoanalysis (AT), 3Graz Centre for Electron Microscopy (AT), 4OFI Technologie & Innovation GmbH (AT)**: 3D-MeKuH - Optimisation of Additive Manufacturing Characterisation of anisotropy in 3D printed materials** **/** 3D-MeKuH – Optimizacija aditivne proizvodnje s karakterizacijo anizotropije v 3D natisnjenih materialih

**9.20 – 9.40**  Y. YANG, X. DUAN, Hunan Central South Intelligent Equipment Co., Ltd (PRC): **A hybridization of embodied artificial intelligence and digital twin for casting** / Hibridizacija utelešene umetne inteligence in digitalnega dvojčka za litje

**9.40 – 10.00** ⯈D. MOLNÁR, H. HUDÁK, J. ERDÉLYI, University of Miskolc (HU): **Development of cast iron materials for automotive brake systems** / Razvoj sive litine za zavorne sisteme v avtomobilski industriji

**10.00 – 10.15** **Break / Odmor**

**10.15 – 10.35** A. TEKAVČIČ, J. POKLIČ, J. VRANC, Kovis Livarna d.o.o. (SI): **Development of the foundry sand recycling process in the manufacturing process of components for the railway industry** / Razvoj procesa reciklaže livarskega peska v procesu izdelave komponent za železniško industrijo

**10.35** **– 10.55**  C. MUELLER, Laempe Mössner Sinto GmbH (D): **Advantages of casting production with additively manufactured sand cores** / **molds** / Prednosti proizvodnje ulitkov s peščenimi jedri / formami izdelanimi z aditivno tehnologijo

**10.55 – 11.15** T. HOF, A. KIRCHNER, HEINRICH WAGNER SINTO MASCHINENFABRIK GMBH (D): **Increasing the efficiency of sand foundries** / Povečanje učinkovitosti peska v livarnah

**11.15 – 11.30 Break / Odmor**

**11.30 – 11.50** ⯈E. Koppensteiner, T. Petkov, Austrian Foundry Research Institute, (AT): **Reproduction of industrial melting processes on a laboratory scale for process optimization** / Reprodukcija industrijskih talilnih procesov v laboratorijskem merilu za optimizacijo procesov

**11.50 – 12.10** B. DAMJANOVIĆ, A. VELIČEVIČ, Kremen d.o.o. (SI): **Exploitation and economic viability of underutilized resources of quartz sand in european quarries** / Izkoriščanje in ekonomska upravičenost premalo izkoriščenih virov kremenčevega peska v evropskih kamnolomih

**12.10 – 12.30** A.ŠUC1, U. KLANČNIK1, B. KOŠEC1, M. AIGNER2, M. DROBNE1, 1 Valji d.o.o. (SI), 2 Eisenwerk Sulzau-Werfen (AT): **Development of a pinch roll with a working layer made of high alloyed cast iron** / Razvoj stiskalnega valja z delovno plastjo iz visoko legiranega litega železa

**12.30 – 12.45 Break/Odmor**

**12.45 – 13.05** ⯈ M.SLOVÁČEK, J. KUBÍČEK, Brno, University of technology (CZ): **Casting repairs by welding** / Popravila ulitkov z varjenjem

**13.05 – 13.25** J. BENO, J. PROCHAZKA, SAND TEAM, spol. s r.o. (CZ): **Practical experiences with inorganic no bake mixtures in iron foundry** / Praktične izkušnje z anorganskimi mešanicami brez pečenja v livarni železa

**13.25 – 13.45** E. OFFENBACHER, P&P Industries AG (AT): **Denox+ as multifunctional waste gas treatment** / Denox+ kot večnamensko čistilno sredstvo za odpadne pline

**13.50** **Conclusion of the Conference With Lunch / Zaključek konference s kosilom**

**Friday / Petek, 19. 09. 2025**

**SECTION / SEKCIJA B: Hall/Hala**

**Non-ferrous Alloys / Neželezove zlitine Amerigo Vespucci**

**9.00 – 9.20** ⯈M.PETRIČ1, S. KASTELIC1, L. KOŠMERL1, B. ŽUŽEK2, J. BRCE1, P. MRVAR1, 1Faculty of Natural Sciences and Engineering, University of Ljubljana (SI), 2Inštitut za materiale in tehnologije (SI): **Dimensional and mechanical properties of ceramic shells for investment casting** / Dimenzijske in mehanske lastnosti keramičnih školjk za precizijsko litje

**9.20 – 9.40**  ⯈J. LI, Montanuniversität Leoben (AT): **Recycling Al-based powders for re-additive manufacturing** / Recikliranje praškov na osnovi Al za ponovno aditivno proizvodnjo

**9.40 – 10.00** ⯈V. KRUTIŠ, R. ŠTĚPÁN, R.JELÍNEK, A.ZÁDĚRA, Brno University of Technology (CZ): **Analysis of parameters affecting fluidity for al thin-walled castings in the investment casting technology** / Analiza parametrov, ki vplivajo na livnost Al tankostenskih ulitkov pri precizijskem litju

**10.00 – 10.15**  **Break / Odmor**

**10.15 – 10.35** ⯈Y.Z. Chen1,2, F. Lin1, C. Li1,2, J. Wan1, J.Y. Wang2, Z.Q. Liu2, Y.Y. Wang2, 1State Key Lab of Solidification Processing, Northwestern Polytechnical University (PRC), 2Suzhou Yunjing Metal Technology Co., Ltd. (PRC): **Hot work steels for additive manufacture and additive manufacturing of high pressure die casting die inserts** / Jekla za delo v vročem za aditivno proizvodnjo in aditivno proizvodnjo vložkov za tlačno litje

**10.35 – 10.55** J. ARBEITER, N. NEMEC, A. DEZHURNOV, B. TOLAR, LTH Castings (SI): **Influential Factors on the Mechanical Properties of Aluminum High-Pressure Die Castings** / Vplivni faktorji na mehanske lastnosti aluminijevih tlačnih ulitkov

**10.55 – 11.15** ⯈r. Rudolf1,2, p. Majerič1,2, v. Lazić3, 1 University of Maribor, Faculty of Mechanical Engineering, (SI), 2 Zlatarna Celje d.o.o. (SI) 3Clinic for Prosthodontics, School of Dental Medicine, University of Belgrade (SRB): **State of the art and development of gold dental alloys** / Stanje tehnike in razvoj zlatih dentalnih zlitin

**11.15 – 11.30** **Break / Odmor**

**11.30 – 11.50** ⯈H. Z. FANG, X. K. YANG, L. Y. ZHOU, K. X. LI, J. S. LIANG, School of Materials Science and Engineering, Harbin Institute of Technology (PRC): **Lamellar orientation control and mechanical property optimization of TiAl alloy** / Nadzor orientacije lamel in optimizacija mehanskih lastnosti zlitine TiAl

**11.50 – 12.10** U. KOVAČEC1, F. ZUPANIČ2, T. BONČINA2, 1Impol d.o.o (SI), 2University of Maribor (SI): **Melt refining of wrought aluminium alloys with increased fractions of external scrap** / Rafinacija talne preoblikovalnih aluminijevih zlitin s povečanim deležem po-potrošniških surovin

**12.10 – 12.30** ⯈Z. ZOVKO BRODARAC1, F. KOZINA1, M. PAPEŠ2, S. LAZIĆ3, 1University of Zagreb Faculty of Metallurgy, Sisak (CRO), 2Ministry of Finance, Customs Administration, Customs Office Sisak, Sisak, (CRO), 3CIAL d.o.o. Sisak (CRO): **Solidification modeling and corrosion behavior of recycled aluminium DeOX alloy** / Modeliranje strjevanja in korozijske lastnosti reciklirane aluminijeve zlitine DeOX

**12.30 – 12.45 Break / Odmor**

**12.45 – 13.05** A. STONE, MAXImolding! Technology GmbH (D): **CCDC2.0: from chips to parts with MAXImolding reactor attachment to cold chamber die casting machine** / CCDC2.0: od granulata do izdelka z MAXImolding reaktorjem dodanim na hladno komorni tlačni stroj

**13.05 – 13.25** ⯈R. CHEN, S. SUN, Y. LI, J. HAO, X. XUE, H. FANG, School ofMaterials Science and Engineering, Harbin Institute of Technology (PRC): **Multiscale simulation design and preparation of ultra-high strength and toughness titanium alloy** / Večstopenjska simulacijska zasnova in priprava titanove zlitine ultra visoke trdnosti in žilavosti

**13.25 – 13.45** ⯈G. GYARMATI, J. ERDÉLYI, University of Miskolc (HU): **Ductility improvement of Al-5Mg-2Fe alloy by melt treatment with a custom flux mixture** / Izboljšanje duktilnosti zlitine Al-5Mg-2Fe z obdelavo taline s posebno mešanico talila

**13.50** **Conclusion of the Conference With Lunch / Zaključek konference s kosilom**

**Friday / Petek, 19. 09. 2025 Hall/Hala**

**SECTION C / SEKCIJA C: Fernand de Magellan**

**Young Lecturers and Researchers**

**9.00 – 9.20** M. BALANT1, R. RUDOLF 2,3,4, T. VUHERER2, 1Starkom (SI), 2University of Maribor (SI), 3Zlatarna Celje (SI), 4Pomurje Science and Innovation Centre (SI): **Characterization of Al-alloy EN AW-5454 intended for laser hybrid welding** / Karakterizacija Al-zlitine EN AW-5454 namenjene za lasersko hibridno varjenje

**9.20 – 9.40** L. HAJAS, D. MOLNÁR, G. GYARMATI, University of Miskolc (HU): **Development of a Zr-containing Grain Refining Flux and Its Effect on the Properties of an AlSi10Mg Casting Alloy** / Razvoj talila ki vsebuje Zr za modificiranje in njegov vpliv na lastnosti livarske zlitine AlSi10Mg

**9.40 – 10.00** X. X. YANG**,** W.H. Zhou, X.Y. Ji, M. J.Hou, P. Yu, X.M. Tu, Y.J. Yin, J.X. Zhou, State Key Lab of Material Processing and Die & Mould Technology, Huazhong University of Science and Technology (PRC): **Research on Full Process Scheduling of Casting Workshop Based on Improved Deep Reinforcement Learning Algorithm** / Raziskava razporeditve vseh delovnih procesov v livarni na podlagi izboljšanega in ojačenega globokega algoritma

**10.00 – 10.15 Break / Odmor**

**10.15 – 10.35** G. Iureva1, J. Pölzl1, T. Hösele1, M. Pammer1, P. Hofer-Hauser1, A. Haemmerle2, P. Prokop2, J. Li1, 1 Technical University of Leoben (AT), 2Neuman Aluminium GmbH (AT): **Laboratory-Scale Direct Chill Casting of Recycled 6082 Aluminium Alloy** /Laboratorijsko kontinuirno litje reciklirane aluminijeve zlitine 6082

**10.35 – 10.55** L. KRESNIK1, P. MAJERIČ1,2, R. RUDOLF1,2,3, 1Faculty of Mechanical Engineering, University of Maribor (SI), 2Zlatarna Celje d.o.o. (SI), 3Pomurje science and innovation centre (SI): **Study of high-frequency signal losses in printed circuits fabricated with gold nanoparticles** / Študija izgub visokofrekvečnih signalov v tiskanih vezjih pripravljenih z nanodelci zlata

**10.55 – 11.15** V. NYESTE, D. MOLNÁR, V. MERTINGER, University of Miskolc (HU): **Effect of parameter changes for local squeezing and mechanical properties** / Vpliv sprememb parametrov na lokalno stiskanje in mehanske lastnosti

**Poster Presentations / Plakatne predstavitve**

1. D. BENNY KARUNAKAR1, THOMAS MATHEW2, 1Indian Institute of Technology Roorkee (IND), 2COER University, Roorkee (IND): **Evaluation of 3D printed polymer patterns coated with nanofluids for the rapid investment casting process**

2. Y.X. WANG1,2, Y.C. LI3, Z.F. HE4, P.W. WAN5, J.X. ZHOU3, 1China Academy of Machinery Shenyang Research Institute of Foundry Co., Ltd. (PRC),2Foundry Institution of China Mechanical Engineering Society (PRC), 3State Key Laboratory of Materials Processing and Die & Mould Technology, Huazhong University of Science & Technology (PRC), 4Clariant Chemical Technology (Shanghai) Co., Ltd. (PRC), 5School of Mechanical and Electrical Engineering, Wuhan Institute of Technology (PRC): **Overview of research and application technology of molding materials presented at the 75th World Foundry Congress**

3. S. Kastelic1,2, A. Mahmutović2, M. Petrič1, P. Mrvar1, 1Univerza v Ljubljani, Naravoslovnotehniška fakulteta (SI), 2TC Livarstvo d.o.o. (SI): **Optimization of casting based on numerical simulation and the use of a tungsten core** / Optimizacija litja na podlagi numeričnega izračuna in uporabe volframovega jedra

4. BARAN SARAC1, ELHAM SHARIFIKOLOUEI2, YONGHUI ZHENG3, PETER HOFER-HAUSER1, 1Institute of Casting Research, Montanuniversität Leoben (AT), 2Center for Translational Research on Autoimmune and Allergic Diseases - CAAD, Department of Health Sciences, Università del Piemonte Orientale UPO (IT), 3 Key Laboratory of Polar Materials and Devices, Department of Electronics, East China Normal University (PRC):**Amorphous and nanocrystalline stainless steel microfibers: enhanced mechanical properties and corrosion resistance for advanced applications**

5. J. BOROWIECKA-JAMROZEK, Kielce University of Technology (PL): **The effect of addition of the natural zeolite on the microstructure and mechanical properties of sintered iron matrix composite**

6. T. DREVENŠEK1, N. VALENČIČ1, D. VUGA1, M. MAKAROVIČ1, B. PERKO1, N. BALANTIČ1, M. VONČINA1, T. BALAŠKO1, S. KORES2, 1Univerza v Ljubljani, Naravoslovnotehniška fakulteta, Oddelek za materiale in metalurgijo (SI), 2TALUM d.d. (SI): **Optimisation of heat treatment to achieve high mechanical properties of an AlSi10mgmn alloy product for e-mobility** / Optimizacija toplotne obdelave za dosego visokih mehanskih lastnosti izdelka iz zlitine AlSi10MgMn za e-mobilnost

**13.30** **Conclusion of the Conference With Lunch / Zaključek konference s kosilom**