

64th IFC Portoroz 2024

Portoroz, 18.-20. September, Program

THURSDAY, 19. SEPTEMBER 2024

Plenary lectures

Cristoforo Colombo Hall

- 9.30-9.45** **The Opening Address**
MSc. Eng. Mirjam Jan-Blažič, President of Slovenian Foundrymen Society
- 9.45-10.15** ▶ R. DEIKE, University DuisburgEssen (D): **What do we currently know about the future development of the foundry industry in Europe?**
- 10.15 -10.45** G. GEIER, D. HOWE, Siempelkamp Giesserei GmbH (D):
**New game changers to increase competitiveness
Practical examples of digitalization and automation in hand mould foundries to increase productivity and quality while reducing costs**
- 10.45-11.15** ▶ J. MEDVED, T. BALAŠKO, M. VONČINA, University of Ljubljana, Faculty of Natural Sciences and Engineering, Department of Materials and Metallurgy (SI): **The role of higher education in the training of professionals and the transfer of knowledge to industry**
- 11.15-11.45** **Break**
- 11.45-12.15** ▶ D.M. STEFANESCU, The Ohio State University, Columbus, OH and The University of Alabama, Tuscaloosa (USA): **Thermal analysis of casting alloys-techniques and applications**
- 12.15-12.45** ▶ K. WEISS, C. BAITIANG, RWP. Gesellschaft beratender Ingenieure für Berechnung und rechnergestützte Simulation m.b.H. (D): **One step ahead to achieve future competitiveness and sustainability with the aid of process data analytics for foundries**
- 12.45-13.15** C. MUELLER, Laempe Mössner Sinto GmbH (D): **The hybrid and digital core shop of the future**

▶ Invited Lecture

13.15–15.15

Lunch Break

15.15–15.45

H. BRAMANN, H. ROCKMANN, MAGMA Gießereitechnologie GmbH (D): **Virtual process industrialization of magnesium thixomolding**

15.45–16.15

▶ M. BERBIĆ, P. HOFERHAUSER, R. GSCHWANDTNER, Austrian Foundry Research Institut ÖGI (A): **New quantitative test methods for a realistic determination of the coating durability in die casting**

16.15–16.30

Break

16.30–17.00

▶ L. MAZZONI, PiQ2 (IT): **High pressure die casting expert system based optimization and dual phase simulation**

17.00–17.30

▶ A. NOFAL, CMRDI (EG): **Fifty years of cast iron research at (CMRDI)**

FRIDAY, 20. September 2024

AMERIGO VESPUCCI HALL

CAST IRON, FOUNDRY TECHNIQUES AND TECHNOLOGY

9.00–9.20

J. HOMAR, R. P. JUNG, C. STÖLTING, Resand Oy (FIN): **Thermo-mechanical sand reclamation**

9.20–9.40

J. PROCHAZKA, T. BAJER, J. BENO, SAND TEAM, spol. s r.o. (CZ): **Introduction of the new OMEGA Sinto agent and its portfolio**

9.40–10.00

A. TEKAVČIČ, J. POKLIČ, J. VRANC, Kovis Livarna d.o.o. (SI): **Green transformation and sustainability measures in cast iron foundries**

10.00–10.15

Break

10.15–10.35

R. OPACITY¹, K. WAKITA², S. MURATA², ¹Itochu Europe PLC (UK), ²Itochu Ceratech Corporation (JP): **Comparison of various ceramic sands, way to environmentally friendly and cost beneficial foundry solution**

10.35–10.55

M. PESCI¹, S. AL JASIM², ¹HA ITALIA S.p.A. (IT), ²KovisLivarna d.o.o. (SI): **A new shape of tele miniriser for an increased thermal efficiency**

▶ Invited Lecture

10.55–11.15 G. KLANČNIK¹, M. BOJINOVIĆ¹, A. RESNIK², L. KRAJNC¹,¹Pro Labor d.o.o., ²Omco Metals Slovenia d.o.o (SI) :**Advanced control over the gray cast iron properties concerning the quality of secondary material used during the melt preparation – a case study**

11.15–11.30 **Break**

11.30–11.50 D. HOLLAND, CALDERYS DEUTSCHLAND (D): **Environmentally friendly & sustainable solutions for induction furnaces**

11.50–12.10 L. HORN, R. DEIKE, Universität Duisburg Essen (D): **Intersections between CO₂ reducing operating points during the operation of blast furnaces and cupola furnaces, within the context of carbon capture and utilization (ccu): a steel making perspective**

12.10-12.30 F. MALIN, A. LUKAČ,TERMIT D.D. (SI): **Eco friendly anti-veining coating for cold box cores without additive**

12.30-12.45 **Break**

12.45–13.05 G. KARAGÜLMEZ, R. DEIKE, Universität Duisburg Essen (D): **Optimization of graphite precipitation in cast iron: Investigation of sulfide nucleation through sulfur and manganese enrichment**

13.05-13.25 I. ŠKRINJAR, Weiler Abrasives (SI): **Grinding tools in the foundry industry**

13.30 **Conclusion of the Conference With Lunch**

FRIDAY, 20. SEPTEMBER 2024

CRISTOFORO COLOMBO HALL NON-FERROUS ALLOYS

9.00–9.20 V. KRUTIŠ¹, V. KAŇA¹, A. ZÁDĚRA¹, V. BRYKSÍ², ¹ Institute of Manufacturing Technology, Brno University of Technology, ² Kovolis Hedvikov a.s. (CZ): **Determination of boundary conditions for the definition of numerical simulation of HPDC**

9.20–9.40 P. MRVAR, M. PETRIČ¹, A. MAHMUTOVIĆ², S. KASTELIC^{2,1} in M. ŽBONTAR¹, ¹University of Ljubljana, Faculty of Natural Sciences and Engineering, ² TC livarstvo (SI): **Determination of non-metallic inclusions in AlMg6Si2MnZr alloy**

9.40–10.00	F. ZUPANIČ ¹ , T. HAGA ² , T. BONČINA ¹ , ¹ University of Maribor, Faculty of Mechanical Engineering (SI), ² Osaka Institute of Technology, Department of Mechanical Engineering (JP): Microstructure of a microalloyed Al-Mn-Cu alloy, cast by rapid asymmetric dual-roll casting
10.00–10.15	Break
10.15–10.35	J. LI, Montanuniversität Leoben (AT): Al-Cu-Mg based composites produced by additive manufacturing
10.35–10.55	D. MOLNAR, G. GYARMATI, University of Miskolc (HU): Analysis of the quality of aluminum alloy ingots
10.55–11.15	D. LORBER ¹ , M. PLANINŠEK ¹ , V. TUBIN ¹ , J. FERČIČ ¹ , S. ŠIMENKO ¹ , P. MARINIČ ¹ , ¹ Talum d.d. (SI): Digitalization transformation of production processes
11.15–11.30	Break
11.30–11.50	R. RUDOLF ^{1,2} , P. MAJERIČ ^{1,2} , G. VASTAG ³ , V. LAZIČ ⁴ ¹ University of Maribor (SI), ² Zlatarna Celje d.o.o. (SI), ³ University of Novi Sad (RS), ⁴ University of Belgrade (RS): State of the art and development of gold dental alloys
11.50–12.10	K. DUH ¹ , J. POTOČNIK ¹ , A. MAHMUTOVIČ ² , S. KASTELIC ² , ¹ Talum Kidričevo d.d., ² TC Livarstvo d.o.o. (SI): Inlet optimisation of thin wall castings (TGDC) with sand core
12.10 - 12.30	M. FASSINA, ItalPresseGauss (IT): Sustainable aluminium die casting as a competitive strategy: three practical focus areas
12.30–12.45	Break
12.45 – 13.05	S. NIKOLAUS, Foundry Service GmbH (D): Battery-operated ladle drives and SLC-Ladle management
13.05 – 13.25	S. KASTELIC ^{1,2} , A. MAHMUTOVIČ ² , M. ŽBONTAR ¹ , M. PETRIČ ¹ , P. MRVAR ¹ , ¹ University of Ljubljana, Faculty of natural sciences and engineering (SI), ² TC Livarstvo d.o.o. (SI): Implementation of vacuum system in HPDC using numerical analysis of filling and solidification
13.30	Conclusion of the Conference With Lunch

FRIDAY, 20. SEPTEMBER 2024
FERNAND DE MAGELLAN HALL
YOUNG LECTURERS AND RESEARCHERS

- 9.00 – 9.20** G. IUREVA¹, A. HAEMMERLE², J. LI¹, ¹ Institute of Casting Research, Montanuniversität Leoben, ²Neuman Aluminium Fließpresswerk GmbH (A): **Characterizing microstructure variability in recycled 6082 aluminium alloy for sustainable manufacturing**
- 9.20 – 9.40** M. CAMPANELLA¹, A. PICCININNI¹, P. GUGLIELMI¹, A. CUSANNO¹, G.PALUMBO¹, L. MAZZONI², F.LEMBO³, ¹ Department of Mechanics, Mathematics and Management, Polytechnic Of Bari, ² PiQ2 Castle, ³ Master Italy s.r.l (IT): **Numerical investigation of the cooling system of a High Pressure Die Casting mould adopting water-less release agents**
- 9.40 – 10.00** O. ASGHAR ¹, F. BONOLLO ¹, M. DA SILVA ², ¹ Department of Engineering and Management, University of Padova (IT), ² Eurecat, Centre Tecnològic de Catalunya, Metallic and Ceramic Materials Unit, Av. Universitat Autònoma (ES): **Fluidity of aluminium foundry alloys for thin wall castings; designing of operating methodology**
- 10.00–10.15** **Break**
- 10.15 – 10.35** D.R. GRUSZKA, R. DAŃKO, M. SKRZYŃSKI, A. KMITA, AGH University of Krakow (PL): **Research on the influence of layer orientation on the strength properties of additively manufactured moulds and cores in Binder Jetting technology**
- 10.35 – 10.55** L. HAJAS, D. MOLNÁR, University of Miskolc (HU): **From investment to sand casting technology – case study**
- 10.55 - 11.15** J. MRVAR¹, A. MAHMUTOVIĆ², S. KASTELIC¹, M. PETRIČ¹, ¹University of Ljubljana, ²TC LIVARSTVO (SI): **Comprehensive mastery of investment casting using permanent inserts**

FRIDAY, 20. SEPTEMBER 2024

POSTER PRESENTATIONS

1. VASKOVÁ, P. DELIMANOVÁ, Technical University of Košice (SK): **Foundry sand as the main factor in the final quality of the casting**

2. Ł. SZYMAŃSKI¹, E. OLEJNIK², J. SOB CZAK¹, M. SZALA³, P. KURTYKA², T. TOKARSKI⁴, A. JANAS¹, ¹AGH University of Krakow, Faculty of Foundry Engineering, ²Innerco sp. z o.o., Cracow, ³Lublin University of Technology, Faculty of Mechanical Engineering, ⁴AGH University of Krakow, Academic Centre of Materials and Nanotechnology (PL): **Reactive casting coatings for obtaining in situ composite layers reinforced by titanium carbide**

3. J. BOROWIECKA-JAMROZEK, Kielce University of Technology (PL): **Processing and properties of porous AcAlSi11 Silumin Matrix composites by casting**

4. J. KASIŃSKA, Kielce University of Technology (PL): **Nondestructive method for assessing the degree of microstructure degradation of metals and alloys**

5. M. VONČINA ⁽¹⁾, T. BALAŠKO ⁽¹⁾, S. KORES ⁽²⁾, T. PREMUŽIČ IN J. MEDVED ⁽¹⁾, ⁽¹⁾ University of Ljubljana, Faculty of Natural Sciences and Engineering, Department of Materials and Metallurgy, ⁽²⁾ Talum, Aluminium factory d.d. (SI):

Knowledge transfer from university to industry-optimization of billets production from highquality aluminum alloy EN AW-6082

6. M. PETRIČ^{1,4}, J. SMOLE², L. GRAHEK³, N. NEMEČEK⁴, D. MUCK¹, M. BLEČIĆ KAVUR⁵, B. ŽUŽEK⁶, B. ŠETINA BATIC⁶, P. FAJFAR¹, P. MRVAR¹, ¹ University of Ljubljana, Faculty of Natural Sciences and Engineering, ² University of Ljubljana, Academy of Fine Arts and Design, ³ ZRC SAZU, Institute of Archaeology, ⁴ National Museum of Slovenia, ⁵ University of Primorska, Faculty of Humanities, ⁶ Institute of Metals and Technology (SI): **Production of cast replica of archaeological find – Negova helmet**

13.30

Conclusion of the Conference With Lunch