

PROGRAMME / PROGRAM

64th IFC Portoroz 2024 / 64. IFC Portorož 2024

Wednesday / Sreda, 18. 09. 2024

- 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, 19. 09. 2024

7.30 – further / dalje Registration of participants at the Conference reception desk

Thursday/Četrtek, 19. 09. 2024

Plenary lectures / Plenarna predavanja

Hall/Hala

Cristoforo Colombo

- 9.30-9.45 MIRJAM JAN-BLAŽIĆ,
President / Predsednica Slovenian Foundrymen Society
The Opening Address/ Uvodni nagovor
- 9.45–10.15 ► R. DEIKE, University Duisburg Essen (D): **What do we currently**
know about the future development of the foundry industry in
europa? / Kaj danes vemo o bodočem razvoju na področju livarstva v
Evropi?
- 10.15–10.45 G.GEIER, D. HOWE, Siempelkamp Giesserei GmbH (DE): **New game**
changers to increase competitiveness. Practical examples of
digitalization and automation in hand mould foundries to increase
productivity and quality while reducing costs / Nova pravila igre za
povečanje konkurenčnosti: Praktični primeri digitalizacije in
avtomatizacije v livarnah z ročnim formanjem za povečanje
produktivnosti in kvalitete in zmanjšanju stroškov

► Invited Lecture / Vabljen predavanje

10.45–11.15 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 nonmetallic inclusions in AlMg6Si2MnZr alloy/** Določanje nekovinskih vključkov v zlitini AlMg6Si2MnZr

11.15–11.45 **Break / Odmor**

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 /**Termična analiza livarskih zlitin – tehnike in aplikacije

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 /** Korak naprej za doseganju konkurenčnosti in trajnosti s pomočjo analitične obdelave podatkov v livarnah

12.45–13.15 ► 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/** Poslanstvo visokošolskega izobraževanja pri usposabljanju strokovnjakov in prenosu znanja v industrijo

13.15–15.15 **Lunch Break / Kosilo**

15.15–15.45 C. MUELLER, Laempe Mössner Sinto GmbH (D): **The hybrid and digital core shop of the future /** Hibridne in digitalne jedrarne prihodnosti

15.45–16.15 H. BRAMANN, H. ROCKMANN, MAGMA Gießereitechnologie GmbH (D): **Virtual process industrialization of magnesium thixomolding /** Virtualni proces industrializacije litja magnezija s thixomolding postopkom

16.15–16.30 **Break / Odmor**

► Invited Lecture / Vabljen predavatelj

16.30–17.00 ▶ M. BERBIĆ, P. HOFER-HAUSER, R. GSCHWANDTNER, Austrian Foundry Research Institut ÖGI (A): **New quantitative test methods for a realistic determination of the coating durability in die casting /** Nove količinske testne metode za realno določitev obstojnosti premazov pri kokilnem litju

17.00–17.30 ▶ A. NOFAL, CMRDI (EG): **Fifty years of cast iron research at CMRDI /** Petdeset let raziskav sivih litin na CMRDI

Thursday Evening / Četrtek večer, 19. 09. 2024

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

Friday / Petek, 20. 09. 2024

Hall/Hala

SECTION / SEKCIJA A:

Amerigo Vespucci

Cast Iron, Foundry Techniques and Technology /

Železove litine, livarske tehnike in tehnologije

9.00–9.20 J. HOMAR, R. P. JUNG, C. STÖLTING, Resand Oy (FIN): **Thermomechanical sand reclamation /** Termomahanska regeneracija peska

9.20–9.40 J. PROHAZKA, T. BAJER, J. BENO, SAND TEAM, spol. s r.o. (CZ): **Introduction of the new Omega Sinto agent and its portfolio /** Predstavitev novega Omega Sinto zastopnika in njegovega portfelja

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 /** Zeleni prehod in trajnostni vidiki v livarnah železovih litin

10.00–10.15 Break / Odmor

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 costbeneficial foundry solution/** Primerjava različnih keramičnih peskov, pot do okolju prijaznih in cenovno ugodnih livarskih rešitev

▶ Invited Lecture / Vabljen predavanje

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** / Nova oblika mini napajalnikov za povečanje toplotnega izkoristka

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** / Napreden nadzor pri uporabi različnih sekundarnih materialov pri pripravi taline sive litine za doseg ciljanih končnih karakteristik - študija

11.15–11.30

Break / Odmor

11.30–11.50 D. HOLLAND, CALDERYS DEUTSCHLAND (D): **Environmentally friendly & sustainable solutions for induction furnaces** / Okolju prijazne in trajnostne rešitve za indukcijske peči

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** / Presečišče med delovnimi točkami, ki zmanjšujejo CO₂ pri obratovanju plavžev in kupolnih peči v kontekstu zajemanja in uporabe ogljika (ccu): perspektiva proizvodnje jekla

12.10-12.30 F. MALIN, A. LUKAČ, TERMIT D.D. (SI): **Ecofriendly antiveining coating for cold box cores without additive**/ Okolju prijazen premaz z višjim učinkom proti pokanju cold box jeder

12.30-12.45

Break/Odmor

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** / Optimizacija strjevanja grafita v sivi litini: raziskava sulfidne nukleacije z obogatitvijo z žveplom in manganom

13.05-13.25 I. ŠKRINJAR, Weiler Abrasives (SI): **Grinding tools in the foundry industry**/ Brusna orodja v livarski industriji

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

Friday / Petek, 20. 09. 2024

Hall/Hala

SECTION / SEKCIJA B:

Cristoforo Colombo

Non-ferrous Alloys / Neželezne zlitine

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/** Določitev robnih pogojev za definiranje numeričnega izračuna tlačnega litja

9.20–9.40 ► L. MAZZONI, PiQ2 (IT): **High pressure die casting expert system based optimization and dual phase simulation /** Optimizacija tlačnega litja na osnovi ekspertnega sistema in dvofazne simulacije

9.40–10.00 F. ZUPANIČ⁽¹⁾, T. HAGA⁽²⁾, T. BONČINA, ⁽¹⁾ University of Maribor, Faculty of Mechanical Engineering (SI), ⁽²⁾ Osaka Institute of Technology, Department of Mechanical Engineering (JP): **Microstructure of a microalloyed AlMnCu alloy, cast by rapid asymmetric dualroll casting/** Mikrostruktura mikrolegirane zlitine AlMnCu, ulite s postopkom hitrega asimetričnega dvovaljnega litja

10.00–10.15 Break / Odmor

10.15–10.35 J. LI, Montanuniversität Leoben (AT): **AlCuMg based composites produced by additive manufacturing /** Kompoziti na bazi AlCuMg izdelani s tehnikami aditivne proizvodnje

10.35–10.55 D. MOLNAR, G. GYARMATI, University of Miskolc (HU): **Analysis of the quality of aluminum alloy ingots /** Analiza kakovosti ingotov iz aluminijevih zlitin

10.55–11.15 D. LORBER¹, M. PLANINŠEK¹, V. TUBIN¹, J. FERČIČ¹, S. ŠIMENKO¹, P. MARINIČ¹, ¹Talum d.d. (SI): **Digitalization transformation of production processes/** Digitalna transformacija proizvodnih procesov

11.15–11.30 Break / Odmor

11.30–11.50 R. RUDOLF^{1,2}, P. MAJERIČ^{1,2}, G. VASTAG³, V. LAZIĆ⁴ ¹University of Maribor (SI), ²Zlatarna Celje d.o.o. (SI), ³University of Novi Sad (RS), ⁴University of Belgrade (RS): **State of the art and development of gold dental alloys/** Stanje tehnike in razvoj zlatih dentalnih zlitin

► Invited Lecture / Vabljen predavanje

11.50–12.10 K. DUH¹, J. POTOČNIK¹, A. MAHMUTOVIČ², S. KASTELIC^{2,1}Talum Kidričevo d.d., ²TC Livarstvo d.o.o. (SI): **Inlet optimisation of thin wall castings (TGDC) with sand core/** Optimizacija ulivnega sistema tankostenskih ulitkov (TGDC) s peščenim jedrom

12.10 - 12.30 M. FASSINA, ItalPresseGauss (IT): **Sustainable aluminium die casting as a competitive strategy: three practical focus areas /** Trajnostno visoko tlačno litje aluminija kot konkurenčna strategija: fokus treh praktičnih področij

12.30–12.45 **Break / Odmor**

12.45 – 13.05 S. NIKOLAUS, Foundry Service GmbH (D): **Batteryoperated ladle drives and SLC Ladle management /** Baterijsko gnani pogoni ponvic in SLC upravljanje ponvic

13.05 – 13.25 S. KASTELIC^{1,2}, A. MAHMUTOVIČ², M. ŽBONTAR¹, M. PETRIČ¹, P. MRVAR¹, ¹University of Ljubljana, Faculty of natural sciences and engineering (SI), ²TC Livarstvo d.o.o. (SI): **Implementation of vacuum system in HPDC using numerical analysis of filling and solidification/** Implementacija vakuuma pri tlačnem litju na podlagi numerične analiza litja in strjevanja

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

Friday / Petek, 20. 09. 2024

Hall/Hala

SECTION C / SEKCIJA C:

Fernand de Magellan

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/**Karakterizacija spreminjanja mikrostrukture v reciklirani 6082 aluminijevi zlitini za trajnostno proizvodnjo

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 highpressure die casting mould adopting waterless release agents/**Numerična analiza hladilnega sistema orodja za tlačno litje z implementacijo brezvodnega ločilnega sredstva

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**/Livnost livarskih aluminijevih zlitin za tankostenske ulitke; dizajniranje in operativne metode

10.00–10.15

Break / Odmor

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** / Raziskava o vplivu orientacije plasti na trdnostne lastnosti aditivno izdelanih form in jeder s tehnologijo brizganja veziva

10.35 – 10.55

L. HAJAS, D. MOLNÁR, University of Miskolc (HU): **From investment to sand casting technology – case study** / Od precizijskega litja do litja v pesek – študija primera

Poster Presentations / Plakatne predstavitve

1. VASKOVÁ, P. DELIMANOVÁ, Technical University of Košice (SK): **Foundry sand as the main factor in the final quality of the casting** / Livarski pesek kot glavni factor pri končni kvaliteti ulitka

2. Ł. SZYMAŃSKI¹, E. OLEJNIK², J. SOBCZAK¹, 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** / Reaktivni livarski premazi za doseganje in situ kompozitnih plasti ojačenih s titanovim karbidom

3. J. BOROWIECKA JAMROZEK, Kielce University of Technology (PL): **Processing and properties of porous AcAlSi11 Silumin Matrix composites by casting** / Procesiranje in lastnosti poroznega kompozita z AcAlSi11 siluminsko osnovo

4. J. KASIŃSKA, Kielce University of Technology (PL): **Nondestructive method for assessing the degree of microstructure degradation of metals and alloys** / Neporušna metoda za oceno stopnje degradacije mikrostrukture pri kovinah in zlitinah

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 AW6082/Prenosa znanja iz univerze v industrijo optimiranje proizvodnje drogov iz aluminijeve zlitine EN AW6082 visoke kakovosti**

6. M. PETRIČ^{1,4}, J. SMOLE², L. GRAHEK³, N. NEMEČEK⁴, D. MUCK¹, M. BLEČIĆ KAVUR⁵, B. ŽUŽEK⁶, B. ŠETINA BATIČ⁶, 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/ Izdelava lite replike arheološke najdbe – Negovske čelade**

7. J. MRVAR¹, A. MAHMUTOVIĆ², S. KASTELIC¹, M. PETRIČ¹, ¹ University of Ljubljana, ² TC LIVARSTVO (SI): **Comprehensive mastery of investment casting using permanent inserts/ Celovito obvladovanje precizijskega litja z uporabo trajnih vložkov**

8. Z. ZOVKO BRODARAC¹, F. KOZINA¹, J. BURJA^{2,3}, B. ŠETINA BATIČ³, D. STANIĆ⁴, M. FOLTA⁵ ¹ University of Zagreb Faculty of Metallurgy, Sisak (HR), ² University of Ljubljana Faculty of Natural Sciences and Engineering, Ljubljana (SI), ³ Institute of Metals and Technology, Ljubljana (SI), ⁴ Istrian University of Applied Sciences, Pula (HR), ⁵ Škoda Auto Vysoká Škola o.p.s., Mladá Boleslav (CZ): **Influence of heat treatment on microstructure of recycled AISi9Cu3(Fe) alloy/ Vpliv toplotne obdelave na mikrostrukturo reciklirane zlitine AISi9Cu3(Fe)**

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