

PROGRAMME

60th IFC Portoroz 2020

Wednesday, 16.09.2020

- 16:30 - 19:30 Registration of participants at the Conference reception desk
- 17:30 Bus transfer from Hotel Slovenija to Piran
- 18:00 Reception at the Georgios Cultural Centre garden – at the St. George's Church with a Welcome address by Mayor of Municipality of Piran, Mr. Denio Zadković

Thursday, 17.09. 2020

Hall: Cristoforo Colombo

- 7:30 - 9:00 Registration of participants at the Conference reception desk
- 9:00 - 9:30 MIRJAM JAN-BLAŽIČ,
President, *Slovenian Foundrymen Society*
The Opening Address

Thursday, 17.09.2020

PLENARY LECTURES, Hall: Cristoforo Colombo

- 9:30 - 10:00 K. WEIß, *RWP GmbH (D)*: **Foundry technology - from history to future** /
Livarstvo od zgodovine do prihodnosti
- 10:00 - 10:30 *A. KRIŽMAN^{1,3}, P. MRVAR^{2,3}, M. JAN-BLAŽIČ³, M. DEBELAK³, ¹*University of Maribor (SI)*, ²*University of Ljubljana (SI)*, ³*Slovenian Foundrymen Society (SI)*:
Slovenian Foundry: from tradition to the future based on knowledge, creativity and innovation / Slovensko livarstvo: iz tradicije v prihodnost zasnovano na znanju, ustvarjalnosti in inovativnosti
- 10:30 - 11:00 *P. SCHUMACHER^{1,2}, T. PABEL², C. KNEISSEL², T. PETKOV²,
¹*Montanuniversität Leoben (A)*, ²*Austrian Foundry Research Institute (A)*:
Nanoparticles reinforced metal matrix in lightweight metal alloy components / Kovinska matica v lahkih zlitinah utrjena z nanodelci
- 11:00 - 11:30 Break
- 11:30 - 12:00 F. KLEIN¹, N. SÜDLAND¹, A. BAßMANN², R. ROSENSTOCK², ¹*Aalener Gesellschaft für Leichtbauteile mbH (D)*, ²*SP Süddeutsche Prüfanlagen GmbH (D)*: **Universal testing machine twist-control for measuring mechanical properties of metallic materials** / Univerzalne mehanske lastnosti kovinskih materialov

- 12:00 - 12:30** *J. C. STURM, *MAGMA GmbH (D)*: „**The Virtual Core**“ - **Simulation and optimization of a complex material from production to application during casting** / “Virtualno jedro” - simulacija in optimizacija kompleksnega materiala od proizvodnje do aplikacije med litjem
- 12:30 - 13:00** M. COLDITZ, *Pour-tech AB (SE)*: **Al-operator in foundries - once a vision, now reality** / operater aluminija v livarnah – nekoč vizija, danes realnost
- 13:00 - 15:00** **Lunch break**
- 15:00 - 15:30** *R. RUDOLF^{1,2}, P. MAJERIC^{1,2}, Ž. JELEN¹, A. KRIŽMAN¹, B. ALBREHT², ¹*University of Maribor (SI)*, ²*Zlatarna Celje d.o.o. (SI)*: **Transfer of nanotechnology to the industrial level - as an example of good practice in Zlatarna celje d.o.o. on the case of gold nanoparticles** / Prenos nanotehnologije na industrijski nivo- kot primer dobre prakse v Zlatarni Celje d.o.o. SI, na primeru zlatih nanodelcev
- 15:30 - 16:00** A. STONE, *Jacobsen Real-Time X-Ray Machinery Inc. (CAN)*: **MAXImolding!™ – Semi-solid magnesium injection molding machine for mega volume production** / MAXImolding!™ – livarski stroj za litje magnezijevih ulitkov v testastem stanju za velikoserijsko proizvodnjo
- 16:00 - 16:15** **Break**
- 16:15 - 16:45** M. MORETTO, A. NARDELLO, *MAZZON (IT)*: **Furan resins – a continuous evolution** / Furanske smole – neprekinjen razvoj
- 16:45 - 17:15** *M. LIEPE, R. BÄHR, *Otto von Guericke University Magdeburg (D)*: **Numerical investigations on centrifugal casting of two-layered ferrous composites** / Numerična preiskava centrifugalno ulitega dvoplastnega železnega kompozita

Thursday evening, 17.09.2020

- 19:30** **Foundrymen’s night on the coastline**

Friday, 18.09.2020

Section A, Hall: Roald Amundsen / Robert Scott
Cast iron and casting technology

- 9:00 - 9:20** M. BRAIT¹, E. KOPPENSTEINER¹, G. SCHINDELBACHER¹, P. SCHUMACHER^{1,2}, ¹*Austrian Foundry Research Institute - ÖGI (A)*, ²*University of Leoben (A)*: **Investigations on the specific influence of the local properties of ductile cast iron by means of 3D printed cores** / Preiskava določenih vplivov 3D natisnjenih jeder na lokalnih lastnosti sive litine s kroglastim grafitom
- 9:20 - 9:40** J. PRISTAVEC¹, A. BRANISELJ², I. TRATAR², A. ČATIĆ², ¹*EXOTERM-IT d.o.o. (SI)*, ²*LIVAR d.d. (SI)*: **Analysis and optimization of the sand core manufacturing process using numerical simulation and statistical**

tools / Analiza in optimizacija procesa izdelave peščenega jedra s pomočjo numerične simulacije in statističnih orodij

- 9:40 - 10:00** *B. BAUER¹, I. MIHALIĆ POKOPEC¹, M. PETRIČ², P. MRVAR², ¹University of Zagreb (HR), ²University of Ljubljana (SI): **Influence of higher silicon content on the properties of ductile cast iron** / Vpliv povišane vsebnosti silicija na lastnosti sive litine s kroglastim grafitom
- 10:00 - 10:15** **Break**
- 10:15 - 10:35** S. RAMRATTAN¹, L. WELLS¹, R. TUTTLE², J. MEDVED³, ¹Western Michigan University (US), ²Saginaw Valley State University (US), ³University of Ljubljana (SI): **Refractory Coated Surface Characterization for Steel using Disc-Shaped Chemically Bonded Sand Specimens** / Karakterizacija površine ognjevdružno premazanih in kemično vezanih vzorcev peščenih mešanic v obliki diska pri uporabi za jeklo litino
- 10:35 - 10:55** M. STEINBUCH, *Voxeljet AG (D)*: **Inorganic 3D sand printing - The smart foundry of the future** / Anorganska peščena mešanica za 3D tisk – pametna livarna prihodnosti
- 10:55 - 11:15** *Z. ZOVKO BRODARAC¹, A. MAHMUTOVIĆ², S. ZELKO³, L. ZELJKO¹, ¹University of Zagreb (HR), ²TC Livarstvo d.o.o. (SI), ³Plamen Ltd (HR): **Numerical simulation in optimization of thin-walled EN-GJL-200 casting** / Uporaba numeričnih simulacij pri optimizaciji tankostenih ulitkov iz zlitine EN-GJL-200
- 11:15 - 11:30** **Break**
- 11:30 - 11:50** L. BORKOWSKI, J. ANDREJEWSKI, *OTTO JUNKER GmbH (D)*: **Medium-frequency-coreless-induction-furnaces - „concept of technological advancement, demonstrated on base of the foundry śrem in poland”** / Srednjefrekvenčna brezjedrna indukcijska peč – koncept tehnološkega napredka prikazan v livarni Srem SA na Poljskem
- 11:50 - 12:10** J. HAGENAUER, *HAGI GmbH (A)*: **3D printing - the perfect complement in the foundry industry** / 3D tisk – popolno dopolnilo v livarski industriji
- 12:10 - 12:30** P.PASHKOV¹, J.JOVANOVIĆ², ¹Nordinkraft AG (D), ²Instro d.o.o. (SI): **Industrial automatic ultrasonic examination of high temperature metal materials** / Industrijska avtomatska preiskava visokotemperaturnih kovinskih materialov
- 12:30 - 12:45** **Break**
- 12:45 - 13:05** R. KUNJU^{1*}, M. SOLINA², K. AFSARIDIS³, ¹Altair (US), ²Altair (E), ³Altair (GR): **Simulation driven design for castings with effective control of manufacturing constraints** / Simulacijsko podprt razvoj ulitkov z učinkovitim preverjanjem proizvodnih omejitev

13:05 - 13:25 E. HUDRAP¹, T. RAVLAN¹, G. LOJEN², P. MAJERIČ², R. RUDOLF², ¹SIJ Ravne Systems d.o.o (SI), ²University of Maribor (SI): **Presenting the development results of advanced tool steel for the most demanding applications in industry** / Predstavitev rezultatov razvoja naprednega orodnega jekla za najzahtevnejše aplikacije v industriji

13:25 - 13:45 M. ŽAJDELA, T. PERESSUTTI, *Termit d.d. (SI)*: **Shell core production** / Izdelava jeder po Croning postopku

14:00 **Conclusion of the Conference with lunch**

Friday, 18.09.2020

Section B, Hall: Cristoforo Colombo

Non-ferrous alloys

9:00 - 9:20 C. GAWERT, R. BÄHR, *Otto-von-Guericke-University Magdeburg (D)*: **Thin-walled high percentage particle reinforced amc: processing opportunities by HPDC** / Tankosteni kompozit z aluminijevo osnovo (AMC) z visokim deležem utrjevalnih delcev: proizvodne možnosti z uporabo tlačnega litja

9:20 - 9:40 K. TURK, *LTH Castings d.o.o. (SI)*: **Laser processing of HPDC aluminium parts with the aim of increasing surface adhesion** / Lasersko procesiranje visokotlačnih aluminjskih ulitkov z namenom povišanja adhezivnosti površine

9:40 - 10:00 M. BERBIĆ¹, P. HOFER-HAUSER¹, R. GSCHWANDTNER¹, M. OGNIANOV², S. LEUDERS³, S. GLATZ⁴, C. LOCHBICHLER⁵, M. MANGELBERGER⁵, ¹Österreichisches Gießerei-Institut (A), ²VA Böhler (A), ³VA Additive Manufacturing Center Düsseldorf (D), ⁴VA eifeler Vacotec (D), *VA High Performance Metals (A)*: **Thermomechanical and thermochemical endurance of hot work tool steels and PVD-coatings for high pressure die casting** / termomehanska in termokemična vzdržnost jekel za delo v vročem in PVD prevlek pri tlačnem litju

10:00-10:15 **Break**

10:15 - 10:35 V. KOLDA, *Mecas ESI (CZ)*: **Latest trends in simulation of HPDC technology** / Najnovejši trendi pri računalniški simulaciji tlačnega litja

10:35 - 10:55 N. MARČIČ¹, S. KASTELIC^{2,3}, A. MAHMUTOVIČ², A. MIKLOŽIČ¹, P. MRVAR³, ¹MLM d. d. (SI), ²TC Livarstvo d.o.o. (SI), ¹University of Ljubljana (SI): **Cooling optimization HPDC casted part using numerical calculation** / Optimizacija hlajenja tlačno ulitega dela z uporabo numeričnega izračuna

10:55 - 11:15 M. POZZI¹, B. BOHL², ¹Zeiss IQS Italy (IT), ²Zeiss SSC Austria (A): **Fully automated inline computer tomography in the aluminum industry – how to get more complete data in less time** / Popolnoma avtomatizirana na linijo integrirana računalniška tomografija v aluminijevi industriji – pridobite točne podatke o izdelkih v zelo kratkem času

- 11:15 - 11:30** **Break**
- 11:30 - 11:50** *M. PETRIČ, B. ZEKA, P. MRVAR, B. LESKOVAR, B. MARKOLI, *University of Ljubljana (SI)*: **Development of AlSi7Mg alloy with additions of Li** / Razvoj zlitine AlSi7Mg z dodatkom litija
- 11:50 - 12:10** J. TRČEK, J. ŠTUCIN, *Hidria d.o.o. (SI)*: **Tempering channel optimization manufactured with slm process** / Optimizacija temperiranih kanalov izdelanih s postopkom SLM
- 12:10 - 12:30** D. FRESE, *Krüss GmbH (D)*: **Contact angle and surface tension – methods to determine cleanliness in casting applications** / Metode kota omočenja in površinske napetosti za določanje čistosti pri litju
- 12:30 - 12:45** **Break**
- 12:45 - 13:05** M. KAMBIČ¹, F. CECCHETTO², P. GRUBELNIK¹, ¹*Olma d.o.o. (SI)*, ²*MotulTech-Baraldi (I)*: **Some aspects and challenges of lubricating the foundry plunger with oil** / Vidiki in izzivi mazanja bata z oljem
- 13:05 - 13:25** L. KRAJNC¹, M. BOJINOVIČ¹, M. PETRIČ², ¹*Pro Labor d.o.o. (SI)*, ²*University of Ljubljana (SI)*: **A technological approach to digitalization of foundries** / Tehnološki pristop k digitalizaciji livarn
- 14:00** **Conclusion of the Conference with lunch**

Poster presentations

1. M. MANAPURAM, *North eastern regional institute of science and technology (IN)*: **World casting production: past, present and future** / Svetovna livarska proizvodnja: preteklost, sedanost in prihodnost: pregled
2. S. KASTELIC^{1,2}, M. PETRIČ¹, P. MRVAR¹, ¹*University of Ljubljana*, ²*TC Livarstvo d.o.o. (SI)*: **Using thermal analysis of aluminium alloys for melt control** / Uporaba termične analize aluminijevih zlitin za kontrolo taline
3. M. VONČINA¹, I. PAULIN², A. KRAČUN³, P. CVAHTE³, A. NAGODE¹, J. MEDVED¹, ¹*University of Ljubljana (SI)*, ²*Institut of Metals and Technology (SI)*, ³*Impol Group (SI)*: **Modification of the cast structure of en aw 2011 alloy with homogenization** / Modifikacija lite strukture zlitine EN AW 2011 z homogenizacijo
4. M. ŽBONTAR, P. MRVAR, M. PETRIČ, *University of Ljubljana (SI)*: **The influence of cooling rate on mechanical properties of AlSi9Cu3** / Vpliv ohlajevalne hitrosti na mehanske lastnosti AlSi9Cu3
5. G. HVALA, M. VONČINA, *University of Ljubljana (SI)*: **Influence of material quality from AlSi12 and AlSi10Mg alloy on solidification, microstructure and mechanical properties** / Vpliv kvalitete zlitine AlSi12 in AlSi10Mg na strjevanje, mikrostrukturo in mehanske lastnosti

6. J. ŠMALC, M. VONČINA, M. PETRIČ, *University of Ljubljana (SI)*: **Influence of returns and scrap parts on quality of ALSI9CU3 casting** / Vpliv količine krožne litine na kakovost ulitka iz zlitine als9cu3
7. J. BURJA, B. ŽUŽEK, B. ŠETINA BATIČ, *Institute for metals and technology (SI)*: **Sigma phase precipitation during isothermal annealing of SAF 2205 duplex stainless steel** / Izločanje sigma faze med izotermnim žarjenjem dupleks nerjavnega jekla SAF 2205
8. B. ŽUŽEK, J. BURJA, B. ŠETINA BATIČ, *Institute for metals and technology (SI)*: **Failure of a cast nickel alloy blade** / Porušitev ulite lopatice iz nikljeve zlitine

*invited lecture / vabljeno predavanje