YOUNG RESEARCHERS’ SEMINAR
24th September
S3.2 – Conference Room
14.30 – 16.30

Oral Session

GUEST LECTURE
Kimura Foundry Co., Ltd. Overview
Kazutoshi Kimura - President of Kimura Foundry CO., Ltd, JAPAN

YOUNG RESEARCHERS’ SESSION – oral presentations

*45 - A Six Sigma Framework For Eliminating Defects In Sand Casting Foundries
C. Sithole, Engineering Metallurgy, University of Johannesburg, South Africa

278 - Influence of tellurium addition to spheroidal graphite cast iron on the number of graphite particles
R. Saito, Department of Chemistry and materials engineering, Graduate School of Kansai University, Japan

48 - Influence of solution hardening on microstructure and mechanical properties of Al-2.5Mg-0.7Li alloy
F. Kozina, Department for process metallurgy, University of Zagreb Faculty of Metallurgy, Croatia

93 - Comparative study of waste foundry sand reclamation techniques
M. Khan, Chemical Engineering, Indian Institute of Technology Bombay, India

360 – The examination of the modification effect of strontium in foundry alloys
M. Tokár, Foundry Institute, University of Miskolc, Hungary

325 - Effect of thermal exposure on high temperature mechanical properties of secondary alsi7cu3mg alloys
A. De Mori, Department of Management and Engineering, University of Padova, Italy

25th September
S3.2 – Conference Room
10.00 – 13.30

Oral Session
GUEST LECTURE

The state of art and foresight of world casting production. The role of the Faculty of Foundry Engineering AGH-UST in educating engineers for casting industry

Rafał Dańko - Dean of Faculty of Foundry Engineering, University of Science and Technology, POLAND

YOUNG RESEARCHERS’ SESSION – oral presentations

207 - The influence of remelting on the properties of alsi9cu3 alloy with higher iron content
M. Matejka, Department of Technological Engineering, University of Zilina, Slovakia

136 - Development of mathematical relationships for calculating of material-dependent-flowability of green moulding sand
D. Abdulamer, IMKF. TU- Bergakademie Freiberg, Germany

282 - Multi-scale topologically optimized components made by casting and additive manufacturing
K. Jalava, Department of Mechanical Engineering, Aalto University, Finland

428 - Effect of predeformation and semisolid isothermal treatment time on the globular grains in MRI230 alloy during SIMA process
M. Roberto Bellé, Metallurgy Department - School of Engineering, Federal University of Rio Grande do Sul, Brazil

201 - Numerical modelling of SHSB metal matrix composite solidification
A. Wojtyla, Faculty of Foundry Engineering, AGH University of Science and Technology, Poland

77 - New possibilities in the thermal analysis of moulding materials
Judit Svidró, Department of Materials and Manufacturing, Jönköping University School of Engineering, Sweden

Award ceremony for the Best Young Researcher Paper and presentation of the winning paper

Poster Session

12.00 – 13.00

15 – Technical Capabilities for low-temperature waste heat recovery in foundries
T. Ludwig, Technical University Freiberg, Foundry Department, Germany

24 – Steeldesign and activated infiltration of metal-matrix composites for wearing parts
P. Raehmer, Foundry Institute TU Bergakademie Freiberg, Germany

27 – Oxidation resistant aluminum alloyed simo cast iron for high temperature application
N. Scheidhauer, Technical University Bergakademie Freiberg, Foundry Department, , Germany

32 – Design options to increase the service life of cast accessories for thermal and chemical treatment furnaces
A. Bajwoluk, West Pomeranian University of Technology. Szczecin, Faculty of Mechanical Engineering and Mechatronics, Poland

**33 – Suppressing the basket deformation process during heat treatment**

A. Bajwoluk, West Pomeranian University of Technology. Szczecin, Faculty of Mechanical Engineering and Mechatronics, Poland

**35 – Modeling of microstructure in hypoeutectic high chromium cast iron**

D. Siekaniec, Faculty of Foundry Engineering, AGH University of Science and Technology, Poland

**37 – Possibility on estimation of fatigue limit using x-ray ct apparatus in spheroidal graphite cast iron**

K. Tanaka, Graduate school of Engineering, Tokyo City University, Graduate school of Engineering, Japan

**50 – Modification of non-metallic inclusions in steel by application of dexodizing agents with alkaline metals (calcium and barium)**

J. Cerny, COMTES FHT, Czech Republic

**53 – A novel measurement method to study the thermal aspects of moulding mixture decomposition**

J. Svidró, Jönköping University School of Engineering, Materials and Manufacturing, Sweden

**56 – Development of casting genome for automotive piston casting: a study**

R. Ozah, Mechanical Engineering, North Eastern Regional Institute of Science and Technology, India

**63 – Investigation of the impact of roughness on adhesion forces and filtration efficiency in a water-based model system with ceramic foam filters**

D. Hoppach, Insitute of Mechanical Process Engineering and Mineral Processing, TU Freiberg, Germany

**130 – Spaghetti filters – a novel approach for steel melt filtration based on alginate gel-casting**

T. Wetzig, Institute of Ceramic, Glass and Construction Materials, TU Bergakademie Freiberg, Germany

**145 – Thermal reclamation of foundry sands using repurposed sand dryer equipment**

T. Sappinen, Aalto University, School of Engineering, Finland

**147 – Spinel forming Systems (Mg-/Fe-/Mn-Al-O) as Functional Coating Materials on Carbon-Bonded Filters for Steel Melt Filtration**

B. Bock, Institute of Ceramic, Glass and Construction Materials, TU Bergakademie Freiberg, Germany

**157 – Exchangeable carbon-bonded alumina foam filter systems for the continuous casting of steel – development and testing**

T. Wetzig, Institute of Ceramics, Glass and Construction Materials, TU Bergakademie Freiberg, Germany

**160 – Development of new heat-resistant steel to avoid the detrimental z-phase precipitation at high temperatures**
W. Pasini, Metallurgy Department - School of Engineering, Federal University of Rio Grande do Sul, Brazil

165 – *Adaptative product manufacturing technique for foundry industry using iot technology an industry 4.0 initiative*

Y. Pandya, AGH University of Science and Technology, Faculty of Foundry Engineering, Poland

169 – *Simulation of sand filling process and analysis of flow behavior with different binder ratio*

L. Tong, Huazhong University of Science and Technology, State Key Laboratory of Materials Processing and Die &Mould Technology, China

170 – *The deviation from eutectic composition in boundary layer for eutectic growth: a phase-field study*

Z. Tu, Huazhong University of Science and Technology, State Key Laboratory of Materials Processing and Die &Mould Technology, China

173 – *Effect of cooling rate on constituent particle formation in high-speed twin-roll cast al-mn based alloy strips*

R. Song, Department of Metallurgy and Ceramics Science, Tokyo Institute of Technology, Japan

176 – *Optimal gating system design of steel casting by fruit fly optimization algorithm based on casting simulation technology*

T. Wang, State Key Laboratory of Materials Processing and Die &Mould Technology, Huazhong University of Science and Technology, China

190 – *Suppressing of ultra-high temperature wetting between molten Si and SiC BY using h-BN spray coatings*

W. Polkowski, Foundry Research Institute, Poland

196 – *Indicator of the efficient protection against the humidity WSO, as a new parameter characterising protective coatings*

N. Kaźnica, AGH University of Science and Technology, Faculty of Foundry Engineering, Poland

198 – *Application of 3d printing to produce an investment casting model of hip-joint endoprosthesis*

M. Skorupska, AGH University of Science and Technology, Faculty of Foundry Engineering, Poland

200 – *Bayesian Inference Based Optimization of Process Parameters for Chemically Bonded Molding System*

H. Khandelwal, MPM Infosoft Pvt Ltd, India

212 – *Coupled methods of thermal analysis in the study of materials used in the foundry industry*

A. Roczniał, AGH University of Science and Technology, Faculty of Foundry Engineering, Poland

215 – *Study of damping properties of composite materials on a metallic matrix*

Magdalena Poreba, AGH University of Science and Technology, Faculty of Foundry Engineering, Poland

216 – *Tribological properties of composite materials on the metallic matrix*

B. Gospodarczyk, AGH University of Science and Technology, Faculty of Foundry Engineering, Poland
217 – Gating system design optimization for investment casted part
M. Bruna, University of Žilina, Department of technological engineering, Slovakia

219 – Dynamic measurement and fem analysis of restraint force from mold on gray cast iron castings and contraction of castings during cooling in green sand mold
M. Kaneko, Waseda University, Modern mechanical engineering, Japan

239 – Development of a method for measuring the ejector forces in the die casting process
S. Krischke, High-Pressure Die Casting, TU Braunschweig, Institute of Joining and Welding, Germany

250 – Deformations in chemically bonded moulding sands
A. Grabarczyk, AGH University of Science and Technology, Faculty of Foundry Engineering, Poland

254 – Austempering in zamak bath: influence of austempering time on the properties of ductile cast iron
W. M. Pasini, Federal University of Rio Grande do Sul, Metallurgy Department - School of Engineering, Brazil

260 – Teaching-and-playback approach based on pouring flow rate in tilting-ladle-type pouring machine
Taito Yajima, University of Yamanashi, Department of Mechanical Engineering, Japan

266 – Optimization of the runner shape considering of the molten metal flow of product in die casting
T. Okuno, Mie University, Department of Mechanical Engineering, Faculty of Engineering, Japan

267 – Influence of AlP in solidification sequence of Al-10%Si-0.3%Mg
Y. Zhao, University of Toyama, Graduate School of Science and Engineering for Education, Japan

268 – Effect of AlP in Solidification sequence of Al-6%Mg-3%Si
A. Osugi, University of Toyama, Graduate School of Science and Engineering for Research, Japan

269 – Influence of P content in eutectic crystallization of Al-10%Si-0.8%Mg
H. Kazuta, University of Toyama, Graduate School of Science and Engineering for Education, Japan

286 – Influence of Ti and RE on primary crystallization and wear resistance of chromium cast iron
M. Dojka, Silesian University of Technology, Department of Foundry Engineering, Poland

294 - Product design and manufacturing in foundry industry using augmented virtual reality technology
Y. Pandya, AGH University of Science and Technology, Department of Foundry Engineering, Poland

298 – Corrosion resistance of Ti30Nb alloy in hanks solution
J. Ryba, AGH University of Science and Technology, Faculty of Foundry Engineering, Poland

299 – Magnesium alloys for biomedical applications of implants
A. Fijolek, AGH University of Science and Technology, Faculty of Foundry Engineering, Poland
300 – Modeling of the kinetics of carbonitrides precipitation process in hsla steels using cellular automata method

P. Marynowski, AGH University of Science and Technology in Krakow, Poland

301 – Grain refinement of Al-2%Cu alloy using by vibrating mold

Y. Yoshitake, Support Center of Education and Research, National Institute of Technology, Kurume College, Japan

317 – Hot tearing tendency and tensile property change of Ni and Cu added A356 casting alloys

K. Yildirim, Giesserei Institut RWTH Aachen, Germany

320 – Influence of manufacturing process parameters on the stability of layers printed from ceramic powders using additive technology

A. Kania, AGH University of Science and Technology, Faculty of Foundry Engineering, Poland

330 – Increasing the lifetime of die casting molds made of the hot work tool steel H13 BY MEANS OF A LOCAL SURFACE HEAT TREATMENT WITH THE ELECTRON-BEAM

T. Schuchardt, High Pressure Die Casting, Institute of Joining and Welding, TU Braunschweig, Germany

332 – Implementation of 3d printing in dentistry to improve the production of dental prosthetics restoration

D. Dulian, AGH University of Science and Technology, Faculty of Foundry Engineering, Poland

335 – Numerical simulation of the impact of casting wall thickness and initial mould temperature on the ductile cast iron microstructure

G. Witek, AGH University of Science and Technology, Faculty of Foundry Engineering, Poland

337 – Foundry engineering and art. Casting of the bronze statuette inspired by salvador dali

B. Chachurska, AGH University of Science and Technology, Faculty of Foundry Engineering, Poland

343 – The use of experimental and computer aided methods in reconstruction of casting process of metal artifacts from the bronze age

D. AGH University of Science and Technology, Gruszka, Faculty of Foundry Engineering, Poland

362 – Manganese in Compacted Graphite Iron

B. Kurowska, Łódź University of Technology, Department of Materials Engineering and Production Systems, Poland

381 – Influence of evaluated temperature of intercritical treatment on mechanical properties of austempered ductile iron

P. Nawrocki, Warsaw Univeristy of Technology, Production Engineering, Poland

383 – Microstrutural and mechanical characterization of high-aluminium zinc alloy modified with 2.0% TiB2

M. Roberto Belle, Metallurgy Department - Federal University of Rio Grande do Sul, School of Engineering, Brazil
390 - Effect of Al, Cr and Mo addition on mechanical properties of Nb-Si based alloys
T. Uemura, Kindai University, Science and Engineering, Japan

395 – Analysis of the temperature distribution in the sample during the hot distortion parameter testing
E. Wildhirt, AGH University of Science and Technology, Department of Moulding Materials, Mould Technology and Cast Non-Ferrous Metals, Poland

406 – Quality index - a way of illustrating diversified properties of a heat-treated Al-Zn-Mg-Cu aluminum alloys depending on homogenization parameters
Z. Kwak, AGH University of Science and Technology, Faculty of Foundry Engineering, Poland

409 – Non-destructive testing methods in the analysis of metal artefacts
A. Sosnowska, AGH University of Science and Technology, Faculty of Management, Poland

419 – Influence of modifications and casting parameters in centrifugal casting on mechanical properties of silicon bronzes
D. Witasiak, AGH University of Science and Technology, Faculty of Foundry Engineering, Poland

424 – Vision of the digitalized foundry - with cyber-physical systems to fully automatic cutting process for casting
M. Fueglister, Institute of Automation, University of Applied Science and Arts Northwestern, School of Engineering, Institute of Automation, Switzerland

443 – Wettability, reactivity and interfaces in Gd/Y2O3 system
P. Turalska, Foundry Research Institute, Poland

446 – High-temperature interaction of molten high chromium cast iron with zro2-al2o3 ceramic
Kolev M., Institute of Metal Science, Equipment and Technologies with Hydroaerodynamics Centre, Bulgaria

447 – Analysis and evaluation of the effect of manganese content on the properties of aluminum alloy EN AC 46000
M. Pasternak, AGH University of Science and Technology, Faculty of Foundry Engineering, Poland

449 – Analysis of the influence of the degree of wear of the pressing piston in cold chamber pressure machines on the quality of aluminium castings
G. Piwowarczyk, AGH University of Science and Technology, Poland

458 - The effect of boron content on wetting kinetics in Si-B alloy/h-BN system
W. Polkowski, Foundry Research Institute, Poland

*132 – Microsegregation in low – alloy cast steels: characterization and homogenization
A. Yaktiti, Labomap, France
185 - Casting EMPS (ERP\MES\PDM\SCADA) integrated system architecture and its application in aeronautic titanium alloy foundry enterprise

X. Ji, School of Materials Science and Engineering, Huazhong University of Science & Technology, China

248 - Application of six sigma technique as a tool for operations management in SA foundries

C. Sithole, Engineering Metallurgy, University of Johannesburg, South Africa

290 – Rate of metal additive for filler of the liquid ceramic mold in the manufacturing of single crystal nickel-based superalloys

K. Gancarczyk, Rzeszow University of Technology, Department of Materials Science, Poland

293 – An extensive study of consumable electrode rotation influence on AISI 420 steels in electroslag remelting process

D. Sergeev, South Ural State University, Equipment And Technologies Of Production Of Materials, Russian Federation

302 – Effect of predeformation and semisolid isothermal treatment time on the globular grains in MRI230 alloy during SIMA process

C. Fraga, Federal University of Rio Grande do Sul, Metallurgical Departament, Brazil

310 – Settling effect of Ti on melt quality and mechanical properties in 356 cast alloy

O. Gursoy, Istanbul University, Metallurgical and Materials Engineering, Turkey

312 – Production of Modifier for Al-Si Alloys

I. Hizli, Istanbul University, Metallurgy And Material Engineering, Turkey

319 – Efficiency of Ti addition in a356 alloy under different holding time

M. Gurtaran, Bursa Technical University, Material Science And Engineering, Turkey

336 – Effect of quenching mediums on mechanical properties of Al-Cu alloy

M. Gurtaran, Bursa Technical University, Material Science And Engineering, Turkey

* POSTERS MARKED IN YELLOW HAVE TO BE STILL CONFIRMED