

## **The 3rd Carl R. Loper Conference on Processing of Metallic Materials through Casting and Solidification – Accepted abstracts**

### **Keynotes:**

- 1. The foundry processes. From Art to Science**  
R. Suárez, G. Zarrabeitia, J. Nieves, A. Zabala  
AZTERLAN, Basque Research and Technology Alliance (BRTA), Durango, Bizkaia, Spain  
J. Fesch, F. Vilela  
AAPICO, Maia, Águeda, Portugal
- 2. Powertrain Trends: The Outlook for Cast Iron**  
Dr Steve Dawson, SinterCast, UK
- 3. Time-resolved X-ray imaging and diffractometry of ferrite-austenite transformation following ferrite solidification in steels**  
Hideyuki Yasuda, Taka Narumi, Ryoji Katsube, Masahiro Ohsaki, Yanxin Wang  
Department of Materials Science and Engineering, Kyoto University, Yoshida-honmachi, Sakyo, Kyoto, Japan
- 4. Graphite Nucleation on Silicate Phases**  
Torbjørn Skaland, Elkem Silicon Products, Norway
- 5. The Fracture of Metal Castings**  
John Campbell, CampbelTech, UK

### **Presentations:**

- 1. Slightly Irregular Spheroidal Graphite (Type-V, ISO) - Typical Graphite Morphology for High-Si Ductile Cast Irons**  
I. Riposan, D. E. Anca, S. Stan, I. Stan, E. Stefan, M. Chisamera  
National University of Science and Technology Politehnica Bucharest, Materials Science and Engineering Faculty, Bucharest, Romania
- 2. Cast Structures and Their Susceptibility to Failure**  
R. Ruxanda  
Copeland, Sidney, OH
- 3. Process Optimization for Shrinkage Elimination on Ductile Iron Castings**  
A. Yu, Ward Manufacturing LLC, Proterial America, Ltd., Blossburg, PA  
M. Whaley, Grede Foundry, Reedsburg, WI
- 4. Applying Geometric Modeling for Predictive Die Casting Solidification**  
Z. Yang & C. Monroe  
University of Alabama, Tuscaloosa, AL
- 5. Simulation of Casting Solidification by Means of Solidification Modulus**  
A.V. Catalina<sup>1</sup>, Z. Yang<sup>2</sup>, and C. Monroe<sup>2</sup>  
<sup>1</sup>Flow Science, Inc., Santa Fe, NM  
<sup>2</sup>University of Alabama, Tuscaloosa, AL
- 6. Microstructure and Wear Behavior of the Ti-alloyed Gray Irons**  
K. Worakhut and S. Boonmee  
School of Metallurgical Engineering, Suranaree University of Technology, Thailand
- 7. Multiscale simulation of directed energy deposition (DED) for duplex stainless steel**  
S. Gouttebroze, V. Fachinotti, X. Ren  
SINTEF Industry, Oslo, Norway
- 8. Modelling of Ferro-Silicon-Magnesium dissolution in iron melt**  
S. Gouttebroze, A. Marthinsen  
SINTEF Industry, Oslo, Norway
- 9. A Nature of Heterogeneous Nucleation in Iron Alloys from the First Principles**  
Simon N. Lekakh<sup>1</sup>, Doru Stefanescu<sup>2</sup>  
<sup>1</sup> Missouri University of Science and Technology,  
<sup>2</sup> Ohio State University

- 10. Thermal analysis – yesterday and today**  
A. Udroi, Metallurgical Quality Assistant, Italy  
D. M. Stefanescu, Univ. of Alabama and Ohio State Univ.
- 11. Effect of centrifugal casting parameters on microstructure of stainless steel tube**  
B. Bauer, K. Jurković  
University of Zagreb, Faculty of mechanical engineering and naval architecture, Zagreb, Croatia  
S. Kastelic, P. Mrvar  
University of Ljubljana, Faculty of natural sciences and engineering, Ljubljana, Slovenia
- 12. Characterization of cast Co-Cr-Mo alloys for medical devices**  
J.C. Mirza-Rosca  
Mechanical Engineering Department, Las Palmas de Gran Canaria University, Spain  
Materials Engineering and Welding Department, Transilvania University of Brasov, Romania  
S. Brito-Garcia  
Mechanical Engineering Department, Las Palmas de Gran Canaria University, Spain
- 13. Effect of Niobium Content and the Inoculation on the Microstructure and the Thermal Analysis of a Hypoeutectic Cast Iron**  
D. E. Facundo-Flores, L. F. de Santiago-Mendez, M. Castro-Román, M. Herrera-Trejo  
Cinvestav Saltillo, Saltillo, Coah. Mexico
- 14. Assessment of Section Sensitivity of 4.2%wt. Si Ductile Iron Based on Tensile Flow Behavior Analysis**  
Giuliano Angella<sup>1</sup> and Franco Zanardi<sup>2</sup>  
<sup>1</sup> Research Institute CNR-ICMATE, Milano, Italy  
<sup>2</sup> Zanardi Fonderia SpA, Minerbe, Italy
- 15. Effect of Fe on microstructure and fluidity of A356 alloy**  
M. Durmus, Institute of Science, Necmettin Erbakan University, Konya, Türkiye  
D. Dispinar, Vesuvius - Foseco R&D Center, NonFerrous, Enschede, Netherlands  
M. Gavali, Department of Mechanical Engineering, Necmettin Erbakan University, Konya, Türkiye  
M. Colak, Electronics and Automation Department, Bayburt University, Bayburt, Türkiye
- 16. Structural Refinement of Austempered Ductile Iron (ADI)**  
Adel Nofal, CMRDI, Cairo-Egypt
- 17. The Use of Thermal Analysis for Generation of Fraction Solid Evolution in Al-Si alloys**  
E.S. Kweon, D.H. Roh, AnyCasting Software Co., Ltd., Seoul, Republic of Korea  
D.M. Stefanescu, The University of Alabama and Ohio State University
- 18. Influence of carbon content and solidification time on microstructure, thermal conductivity and UTS of lamellar graphite iron**  
Vasilios Fournalakidis, Björn Domeij, Attila Diószegi  
Jönköping University, School of Engineering, Department of Materials and Manufacturing, Jönköping, Sweden
- 19. Preventing graphite degeneration with fluorine-free feeders**  
M. Pesci, HA Italia, Vicenza, IT
- 20. Effect of the Ni content on structure and magnetic properties of austenitic ductile iron castings**  
M. Bork<sup>1</sup>, R. Chulist<sup>2</sup>, M. Górny<sup>1</sup>  
<sup>1</sup> AGH University of Krakow, Faculty of Foundry Engineering, Krakow, Poland  
<sup>2</sup> Institute of Metallurgy and Materials Science, Polish Academy of Sciences, Krakow, Poland
- 21. Austempered Ductile Iron Castings Reinforced with TiC Particles Obtained by SHSB Reaction**  
J. Marosz<sup>1</sup>, M. Górny<sup>1</sup>, M. Kawalec<sup>1</sup>, R. Chulist<sup>2</sup>, G. Angella<sup>3</sup>  
<sup>1</sup> AGH University of Krakow, Faculty of Foundry Engineering, Krakow, Poland  
<sup>2</sup> Institute of Metallurgy and Materials Science, Krakow, Poland  
<sup>3</sup> Research Institute CNR-ICMATE, DSCTM, Milano, Italy.
- 22. Laboratory production and characterisation of composed foam casts made of biodegradable Zn alloy and NaCl salt**  
P. Mrvar<sup>1</sup>, M. Petrič<sup>1</sup>, S. Kastelic<sup>2</sup>, Heinz Palkowski<sup>3</sup>  
<sup>1</sup> University of Ljubljana, Faculty of Natural Sciences and Engineering, Department of Materials and Metallurgy, Ljubljana, Slovenia

<sup>2</sup> TC-Livarstvo, Ljubljana, Slovenia

<sup>3</sup> TU Clausthal, Clausthal-Zellerfeld, Germany

**23. Comparative study of the metallurgical quality, microstructure and mechanical properties of primary and secondary AlSi7Mg(Fe)aluminium alloys**

A. Baquedano, R. Suarez, I. Lizarralde, E. Barbarias, S. Orden

AZTERLAN, Basque Research and Technology Alliance (BRTA), Durango, Bizkaia, Spain

**24. Preliminary Study of High Alloyed Cast Irons with High Entropy Design Concept**

H. Tian, KSB GIW, USA