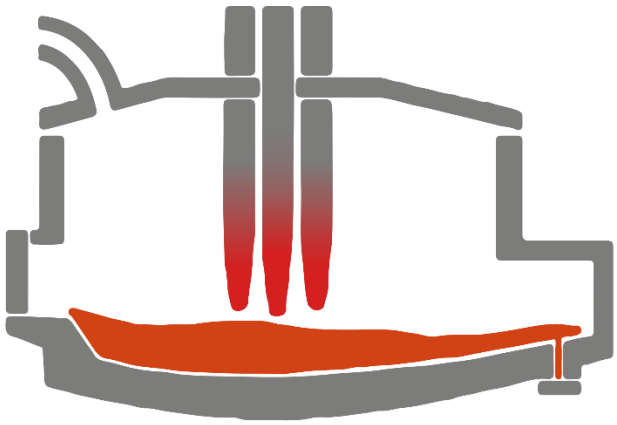
Programme

EASES 2025

6th European Academic Symposium on EAF Steelmaking



11 – 13 June 2025

Ljubljana, Slovenia

Greetings from the chairs

It is our great pleasure to welcome you to the 6th European Academic Symposium on EAF Steelmaking – EASES 2025. This symposium is proudly organized by the Laboratory of Control Systems and Cybernetics at the Faculty of Electrical Engineering, University of Ljubljana, and the Department for Industrial Furnaces and Heat Engineering at RWTH Aachen University.

As the steel industry continues to evolve, facing the global energy and environmental challenges, the role of the EAFs has never been more crucial. This symposium provides a unique opportunity for students, researchers, as well as industry professionals to exchange ideas, share their research, and promote collaborations aimed at enhancing the performance, efficiency, and sustainability of the EAF steelmaking.

Our program brings together experts in different fields of engineering, and different parts of the globe, not only Europe — all converging on the shared goal of driving forward the capabilities of EAF technology. Through a series of technical sessions, and interactive discussions, participants will explore the latest developments and future directions in this dynamic field.

We are pleased to host this event in Ljubljana, a city known for its charm, green spaces, and vibrant cultural life. As the capital of Slovenia and home to its largest university, Ljubljana has a strong identity as a student and academic city. With a lively atmosphere, it offers a welcoming environment for innovation, and an exchange of ideas. We encourage you to take time to explore its historic old town, riverside cafés, and the unique blend of tradition and modernity that define it. We extend our sincere thanks to all speakers, and attendees who make this symposium an excellent place for knowledge exchange.

We look forward to insightful conversations, new collaborations, and continued progress in the field of EAF steelmaking.

Welcome to Ljubljana, and to the EASES 2025.

Asst. Prof. Vito Logar

Co-chair

Dr.-Ing. Thomas Echterhof

Co-Chair

Locations

Conference venue

Faculty of electrical engineering, University of Ljubljana (Lecture room P2)

Tržaška 25

Ljubljana, Slovenia

Get-together (Wednesday, 11 June at 18:00)

Solist Urban Lounge

Kongresni trg 10

Ljubljana, Slovenia

Dinner (Thursday, 12 June at 17:45)

Dinner will be held at Gostilna na gradu (Ljubljana castle). We will use the funicular to get there**. The meeting point is at:**

Krekov trg

Ljubljana, Slovenia

Programme

Wednesday, 11 June 2025

18:00	**Get together** Solist Urban Lounge, Kongresni trg 10, Ljubljana, Slovenia

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Thursday, 12 June 2025

8:00	Registration open
9:00	**Welcome to EASES 2025** *Vito Logar*
	Session on EAF modelling, simulation and efficiency 1 *Session chair: Zushu Li*
9:20	**Sensitivity Analysis of State Space Models for Scrap Composition Estimation in EAF and BOF** *Yiqing Zhou, Karsten Naert, Dirk Nuyens*
9:40	**Application of an artificial neural network to estimate the off-gas generation within an EAF under modified operating conditions** *Alexander Reinicke, Lilly Schulte, Thomas Echterhof*
10:00	**An Integrated CFD Modeling Approach Towards an Entire EAF Operation Process** *Chenn Zhou, Orlando Ugarte, Tyamo Okosun, Shiyu Wang, Sathvika Kottapalli, Joe Maiolo, Hamzah Alshawarghi*
10:20	**Foam-Arc Interaction in Electric arc Furnace: Insights into Flow, Stability, and Thermal Behaviour** *Mohamad Al Nasser, Ebrahim Karimi Sibaki, Menghuai Wu, Anton Ishmurzin, Gernot Hackl, Nikolaus Voller, Christian Redl, Harald Holzgruber, Kharicha Abdellah*
10:40	Coffee break
	Session on EAF modelling, simulation and efficiency 2 *Session chair: Eetu-Pekka Heikkinen*
11:00	**From Air to Hydrogen: 3D Models of Electric Arcs in Sustainable Steelmaking** *Mohamad Al Nasser, Ebrahim Karimi Sibaki, Menghuai Wu, Anton Ishmurzin, Gernot Hackl, Nikolaus Voller, Christian Redl, Harald Holzgruber, Kharicha Abdellah*

11:20	**Dissolved Oxygen Estimation in an Electric Arc Furnace Using a Soft Sensor Approach and Prediction Intervals** *Aljaž Blažič, Igor Škrjanc, Vito Logar*
11:40	**Use of hydrogen as energy source in EAF** *Pascal Kwaschny, Marianne Magnelöv, Erik Sandberg*
12:00	Lunch
	Session on Slag and byproducts engineering, processing and valorization *Session chair: Davide Mombelli*
13:00	**Upcycling pathway for Electric Arc Furnace slag: utilization as reinforcing fillers for polymers** *Giulia Bragaggia, Carlo Boaretti, Luca Patriarca, Timur Nikitin, Alessandra Primavera, Giuseppe Giacomini, Silvia Gross*
13:20	**Iron Recovery from Waelz Slag through Biogenic Carbothermic Reduction** *Gianluca Dall'Osto, Davide Mombelli, Sara Scolari, Carlo Mapelli*
13:40	**Quantitative phase analysis in carbon steel EAF slag for the determination of phase-controlled leaching mechanism** *Davide Mombelli, Sara Scolari, Gianluca Dall'Osto, Carlo Mapelli*
14:00	**Reduction and Smelting of Magnetic Fraction Obtained by Magnetic-Gravimetric-Separation of Electric Arc Furnace Dust** *Davide Mombelli, Sara Scolari, Gianluca Dall'Osto, Jasna Kastivnik, Dragan Radulović, Gašper Tavčar, Carlo Mapelli*
14:20	**Smelting of various steel-plant dusts to evaluate recovery of zinc and iron via the Enviroplas process** *Sello Tsebe, Sanda Moloane, Habib Zughbi, Deside Chibwe, Peter Austin, Dursman Mchabe, Mukhethwa Netshia, Derek Hayman, Elias Matinde*
14:40	Coffee break
	Session on EAF modelling, simulation and efficiency 3 *Session chair: Igor Škrjanc*
15:00	**A Data-Driven Approach to Scrap Charging Optimization in Electric Arc Furnaces** *Siddharth Nachankar, Sourjya Naskar, Thomas Echterhof, Mikko Jokinen, Christian Wuppermann*

15:20 **Improvement of EAF process management with new concepts of modelling monitoring and control of the process in order to improve process efficiency, source consumption and environmental impact**
Piero Frittella, Lorenzo Angelini, Massimiliano Bersani, Christian Senes, Cosmo di Cecca, Vincenzo Duro, Gioele Badina, Gabriele Mazzi, Giuseppe Miglietta, Salvatore Conte

15:40 **Optimizing Electric Arc in Electric Arc Furnace: An Arc Quality Index Based on Cassie-Mayr Modeling**
Aljaž Blažič, Igor Škrjanc, Vito Logar

17:45 Dinner at Gostilna na gradu
Including the award presentation

Meeting point: Krekov trg 17:45

Friday, 13 June 2025

9:00	**Opening of day 2** *Thomas Echterhof*
	Session on Fossil-free raw materials *Session chair: Thomas Echterhof*
9:10	**Kinetic Modeling of Hematite Reduction by Hydrogen Plasma Smelting Reduction in laboratory scale** *Areej Javed, Ilpo Mäkelä, Henri Pauna, Henna-Riikka Putaala, Ubaid Manzoor, Dennis Klapproth, Isnaldi R. Souza Filho, Ville-Valtteri Visuri*
9:30	**Mass and energy based modelling of EAF steelmaking scenarios using scrap and hydrogen reduced DRI as raw materials** *Eetu-Pekka Heikkinen, Petri Sulasalmi, Ville-Valtteri Visuri, Seppo Ollila, Jarmo Lilja*
9:50	**Optimization Based Experimental Design of Metal-Slag Experiments in Hydrogen Plasma Smelting Reduction Process** *Tero Vuolio, Ville-Valtteri Visuri, Michael Zarl, Iivari Lappeteläinen*
10:10	**A Novel Approach for Modeling the Thermal Properties of H-DRI during Melting in an Electric Arc Furnace** *Ankur Agnihotri, Petri Sulasalmi, Ville-Valtteri Visuri*
10:30	Coffee break
	Session on Process control and sensors *Session chair: Vito Logar*
10:50	**Implementation of an At-Line Slag Analyzer – Advantages and Challenges** *Alexander Schlemminger*
11:10	**Interval Model Predictive Control of Bath Temperature in an Electric Arc Furnace** *Aljaž Blažič, Igor Škrjanc, Vito Logar*
	Session on CO_2 emission reduction and environmental impact 1 *Session chair: Vito Logar*
11:30	**Scope 3 emissions in secondary steelmaking: relevance and impact on CFP** *Luca Testini, Alessandro Misul, Vincenzo Morreale, Philippe Brocard, Livia Persico, Davide Mombelli, G Dotelli*

11:50	**Scope 3 emissions in secondary steelmaking: relevance and impact on organization carbon footprint** *Luca Testini, Alessandro Misul, Vincenzo Morreale, Philippe Brocard, Livia Persico, Davide Mombelli, G Dotelli*
12:10	**Using a Novel Scaled Injector to Evaluate Biocarbon for Slag Foaming in EAF Steelmaking** *Christopher DiGiovanni, Tiago Fernandes Lins, Michael Strelbisky, Majid Zamani, Allan Runstedtler, Colin Scott*
12:30	Lunch
	Session on CO_2 emission reduction and environmental impact 2 *Session chair: Gianluca Dall'Osto*
13:30	**Decarbonization and New Energy-Efficient Technologies for EAF Steelmaking** *Hamzah Alshawarghi, Joachim von Schéele*
13:50	**Results from the Experimental Campaigns with the H_2 Oxyfuel Burner for Electric Arc Furnaces** *Eros Luciano Faraci, Irene Luzzo, Jacopo Greguoldo, Fabio Vecchiet, Giulio Rinaldi, Fabiano Ferrari, Federico Nastro, Daniele Gaspardo, Lilly Schulte*
14:10	**Numerical Investigation of Hydrogen Blending on the Impinging Flame Structure in Non-Premixed CH_4/H_2/Air combustion for Scrap Metal Heating** *Gopal Pandey, Geoffrey Brooks, Jamal Naser, Daniel Liang*
14:30	End of symposium

Contact

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