

# ESTEP Annual Event 2025

## Programme

28-30 October 2025

How decarbonisation, digitalisation and circular solutions  
forge the sustainable European steel future

### WEDNESDAY 29 - DAY 1

08:30 - 09:00

#### Registration

09:00 - 09:30

#### Opening and welcome

Marco Ometto, *Conference Chairman, Danieli Automation*

Klaus Peters, *Secretary General, ESTEP*

Angelo Montanari & Roberto Pinton, *Rector & past-Rector, University of Udine*

Alessandro Brussi, *President, Danieli Group*

Guido Nassimbeni, *Vice President, Friuli Foundation*

Cosmo Di Cecca, *Vice President, AIM – Associazione Italiana di Metallurgia*

### DIGITALISATION

Valentina Colla, *Session chairwoman, Scuola Superiore Sant'Anna Pisa*

09:30 - 09:50

#### A multidisciplinary discussion on the future of steelmaking in the Triveneto region by 2050: the think tank experience

Alex Lanzutti, *University of Udine*

09:50 - 10:10

#### Artificial intelligence governance, economics, and manufacturing: an overview

Costanzo Pietrosanti, *Danieli Automation*

10:10 - 10:30

#### Digitalization: The universal environmental data model - the PRISMA project

Eric Chiquito, *Luleå University of Technology*

10:30 - 10:50

#### ALCHIMIA: Federated and continual learning for sustainable and competitive steelmaking

David Blazquez, *CELSA*

10:50 - 11:10

#### Forging the future. The evolution of automation in steel manufacturing (1974 to present)

James Kellams, *Metallus*

11:10 - 11:30

#### Coffee break

### How decarbonisation, digitalisation and circular solutions forge the sustainable European steel future

#### DIGITALISATION, UPSKILLING & SOCIAL INNOVATION

Luca Piedimonte, *Session chairman, ORI Martin*

- 11:30 - 11:50 **Ladle furnace optimization through artificial intelligence-based methodologies: a case study of the ALCHIMIA project**  
Stefano Pede, *Scuola Superiore Sant'Anna Pisa*
- 11:50 - 12:10 **Driving quality innovation in steelmaking through digital solutions**  
Luca Cestari, *Danieli Automation*
- 12:10 - 12:30 **Enhancing steelmaking operations through advanced computer vision and machine learning within the iSteel-expert project**  
Giovanni Bavestrelli, *Tenova*
- 12:30 - 12:50 **Skills4Energy intensive industries: Game changer profiles and urgent skills demands for the steel industry**  
Antonius Schröder, *TU Dortmund*
- 12:50 - 13:10 **The RACE programme: Bridging students and industry to foster innovation and reframe perceptions of steel**  
**DI-TRODE: An AI-Powered approach to securing the future of electrodes in the steel industry**  
Fabio Ferri, *EIT Raw Materials*  
Philemon Adeyemi, Ahmed Alduwayb, Julia Kulpa & Leonidas Spandagos, *RACE programme*
- 13:10 - 14:30 **Lunch break**

#### INDUSTRIAL SYMBIOSIS AND SECTOR COUPLING

Enrico Malfa, *Session chairman, Tenova*

- 14:30 - 14:50 **Automated copper identification in ferrous scrap using advanced machine learning for sustainable steel production**  
Alice Petrucciani, *Scuola Superiore Sant'Anna Pisa*
- 14:50 - 15:10 **SLAG2BUILD: State of the art in dry granulation of ladle furnace slag**  
Edoardo D'Amanzo, *RINA-CSM*
- 15:10 - 15:30 **Insights from current steel and slag production for next-generation processes**  
Agnieszka Morillon, *FEhS*  
Marta Guzzon, *Tenova*
- 15:30 - 15:50 **MemKoWI & sector coupling with Power4Steel: New findings with pilot-scale CO<sub>2</sub>- and H<sub>2</sub>-separation by membrane technology from industrial gases from steel-, cement- and biomass-plants.**  
Torsten Brinkmann, *Hereon*  
Susanne Bethlehem-Seidel, *Dillinger*
- 15:50 - 16:10 **Intelligent water management in steelmaking: Automation for process efficiency and sustainability**  
Marcellino Fornasier, *Danieli & C Officine Meccaniche*  
Enrico Stefanel, *Danieli Automation*
- 16:10 - 16:30 **Coffee break**

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#### ENERGY EFFICIENCY

	Alexander Thekale, <i>Session chairman, Primetals Technologies</i>
16:30 - 16:50	<b>Flex4Fact: Unlocking energy flexibility for a competitive and sustainable European steel industry</b> Irene García, <i>CELSA</i>
16:50 - 17:10	<b>From scrap to strip: Sustainable steel manufacturing with electrified direct casting and rolling</b> Riccardo Conte, <i>Danieli &amp; C Officine Meccaniche</i>
17:10 - 17:30	<b>Decarbonizing steelmaking downstream processes with breakthrough heating technologies enabling efficient renewable energy consumption: the E-ECO Downstream overall concept</b> Valentina Colla, <i>Scuola Superiore Sant'Anna Pisa</i>
17:30 - 17:50	<b>Applications of computational fluid dynamics simulations to hydrogen combustion in industrial-scale heating processes of the steel industry</b> Johannes Losacker, <i>RWTH Aachen</i>
20:00	<b>Dinner - Casa della Contadinanza</b> Address restaurant in the Udine Castle : Piazzale del Castello, 33100 Udine

#### THURSDAY 30 - DAY 2

08:30 - 08:45	<b>Registration</b>
08:45 - 08:50	<b>Opening and welcome</b> Marco Ometto, <i>Conference Chairman, Danieli Automation</i> Klaus Peters, <i>Secretary General, ESTEP</i>
08:50 - 09:10	<b>Opening lecture - European Commission</b> Sebastiano Fumero, <i>Head of Unit, European Commission (REA)</i> Cyril Robin-Champigneul, <i>Deputy Head of Unit, European Commission (DG RTD)</i>

#### DECARBONISATION SESSION 1

	Ismael Matino, <i>Session chairman, Scuola Superiore Sant'Anna Pisa</i>
09:10 - 09:30	<b>High-temperature electrolysis for decarbonisation of the steel sector: the SYRIUS project, a real-scale demonstration</b> Stefano Campanari, <i>Politecnico di Milano</i>
09:30 - 09:50	<b>Update on Hy4Smelt - Hydrogen-based direct reduction and smelting of ultra-fine iron ores to green hot metal</b> Thomas Bürgler, <i>K1-MET</i> Christoph Prietl, <i>Primetals Technologies</i>
09:50 - 10:10	<b>CUSTARD - carbon capture and use at a steel plant with an advanced solution to reach decarbonisation</b> Giuseppe Giacomini, <i>Acciaierie Bertoli Safau</i>
10:10 - 10:30	<b>Sustainable steel production : the role of carbon capture and utilization in a steelmaking plant</b> Selena Tiburzio, <i>Danieli Research Center</i>

### How decarbonisation, digitalisation and circular solutions forge the sustainable European steel future

10:30 - 10:50

**Coffee break**

#### DECARBONISATION SESSION 2

Thomas Echterhof, *Session chairman, RWTH Aachen*

10:50 - 11:10

**Operation of a 1 TPD mobile CO<sub>2</sub> capture unit based on cryogenic desublimation in heavy industry plants in Belgium**

Jean Borlée, *CRM Group*

11:10 - 11:30

**Advancing decarbonization in ironmaking: progress and future directions of the electrically assisted syngas smelter (EASyMelt)**

Maryam Baniasadi, *SMS Group*

11:30 - 11:50

**Demonstration of decarbonization approaches in EAF: current achievements and ongoing activities of GreenHeatEAF project**

Ismael Matino, *Scuola Superiore Sant'Anna Pisa*

11:50 - 12:10

**Hybrid technologies for sustainable steel reheating : HyTecHeat project**

Filippo Cirilli, *RINA-CSM*

12:10 - 12:30

**LIFE project H2Reuse: Highly efficient and sustainable decarbonisation of bright annealing process by recovery and reuse of H<sub>2</sub>**

Mauro Leali, *DMV Italia*

12:30 - 13:50

**Lunch break**

#### DECARBONISATION SESSION 3

Patrick Lafontaine, *Session chairman, ESTEP*

13:50 - 14:10

**Evaluation of hydrogen permeability and embrittlement in critical components for H<sub>2</sub> supply systems**

Eduardo Tabares, *Tekniker*

14:10 - 14:30

**Techno-economic assessment of H<sub>2</sub>-DRI and NG-DRI-CCS - processes for low-emission iron production**

Sara Guazzi, *Politecnico di Milano*

14:30 - 14:50

**EU-project H2loop: Decarbonizing the EU steel industry through innovative carbon dioxide separation and hydrogen production from metallurgical gases**

Uwe Pahl, *Rouge H2 Engineering AG*

14:50 - 15:10

**Hydra project: status of activities and first operational results**

Filippo Cirilli, *RINA-CSM*

15:10 - 15:30

**Flexible DRI operation with high-temperature electrolysis for cost-effective iron decarbonization**

Marco Ficili, *Politecnico di Milano*

15:30 - 15:40

**Closing**

Marco Ometto, *Conference Chairman, Danieli Automation*

Klaus Peters, *Secretary General, ESTEP*

15:40

**End of conference - Farewell coffee**