

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, <i>Conference Chairman, Danieli Automation</i> Klaus Peters, <i>Secretary General, ESTEP</i> Angelo Montanari & Roberto Pinton, <i>Rector & past-Rector, University of Udine</i> Alessandro Brussi, <i>President, Danieli Group</i> Guido Nassimbeni, <i>Vice President, Friuli Foundation</i> Cosmo Di Cecca, <i>Vice President, AIM – Associazione Italiana di Metallurgia</i>
DIGITALISATION	
	Valentina Colla, <i>Session chairwoman, Scuola Superiore Sant'Anna Pisa</i>
09:30 - 09:50	A multidisciplinary discussion on the future of steelmaking in the Triveneto region by 2050: the think tank experience Alex Lanzutti, <i>University of Udine</i>
09:50 - 10:10	Artificial intelligence governance, economics, and manufacturing: an overview Costanzo Pietrosanti, <i>Danieli Automation</i>
10:10 - 10:30	Digitalization: The universal environmental data model - the PRISMA project Eric Chiquito, <i>Luleå University of Technology</i>
10:30 - 10:50	ALCHIMIA: Federated and continual learning for sustainable and competitive steelmaking David Blazquez, <i>CELSA</i>
10:50 - 11:10	Forging the future. The evolution of automation in steel manufacturing (1974 to present) James Kellams, <i>Metallus</i>
11:10 - 11:30	Coffee break

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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
Laurence Lamm, *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*
- 15:30 - 15:50 **MemKoWI & sector coupling with Power4Steel: New findings with pilot-scale CO₂- and H₂-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 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	Flex4Fact: Unlocking energy flexibility for a competitive and sustainable European steel industry Irene García, <i>CELSA</i>
16:50 - 17:10	From scrap to strip: Sustainable steel manufacturing with electrified direct casting and rolling Riccardo Conte, <i>Danieli & C Officine Meccaniche</i>
17:10 - 17:30	Decarbonizing steelmaking downstream processes with breakthrough heating technologies enabling efficient renewable energy consumption: the E-ECO Downstream overall concept Valentina Colla, <i>Scuola Superiore Sant'Anna Pisa</i>
17:30 - 17:50	Applications of computational fluid dynamics simulations to hydrogen combustion in industrial-scale heating processes of the steel industry Johannes Losacker, <i>RWTH Aachen</i>
19:30	Dinner - Casa della Contadinanza Address restaurant in the Udine Castle : Piazzale del Castello, 33100 Udine

THURSDAY 30 - DAY 2

08:30 - 08:45	Registration
08:45 - 08:50	Opening and welcome Marco Ometto, <i>Conference Chairman, Danieli Automation</i> Klaus Peters, <i>Secretary General, ESTEP</i>
08:50 - 09:10	Opening lecture - European Commission Sebastiano Fumero, <i>European Commission (REA)</i> tbc, <i>European Commission (HaDEA)</i>

DECARBONISATION SESSION 1

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

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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 CO₂ 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 IFRF 2025: 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 H₂

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 H₂ supply systems

Eduardo Tabares, *Tekniker*

14:10 - 14:30

Techno-economic assessment of H₂-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