ESTEP
European Steel Technology Platform

ESTEP Focus Group
Smart Factory

AI for Steel
ESTEP Workshop

Overview, recent developments and future trends

Conference venue

Live Congress
Hauptplatz 1
8700 Leoben (Austria)

DAY 1
15th April 2026

8:25 – Registration

9:00 – Welcome and Opening
Klaus Peters & Valentina Colla – ESTEP

9:15 – Introduction to AI in the Steel Industry
Alexander Thekale – Primetals

9:35 – 11:00 SESSION 1: Strategy, Policy & Enablers ***Chair – Valentina Colla***

9:35 – KEYNOTE: Materials Commons: Driving Digital Innovation in Materials Science within Europe – Spotlight on the Steel Use Case
Lukas Morand – Fraunhofer

10:00 – RIVER: A Human-Centred Agile Framework for Industrial AI and Digital Twin Deployment in Steel Production
Alan Menk – Capitole Consulting

10:20 – ALPmat: A Platform for Collaborative AI-driven Steel Research
Natalia Bedoya – Materials Center Leoben

10:40 – Building Trust, Transparency, and Technology Ownership for AI Deployment in Safety- and Asset-Critical Industries
Yale Zhang – Hatch

11:00 – 11:25 COFFEE BREAK

11:25 – 12:25 SESSION 2: Industrial AI Applications & Case Studies ***Chair – Jari Ruuska***

11:25 – Data-Driven Framework for Industrial Noise Monitoring and Mitigation
Marco Vannucci – Scuola Superiore Sant'Anna

11:45 – From Predictive Monitoring to Prescriptive AI: Driving Reliability, Efficiency and Throughput in Steel Manufacturing
Sean Maley – Infinite Uptime

12:05 – Forecasting Green Hydrogen Price and Solar Energy Production with Deep Reservoir Computing
Ismael Matino – Scuola Superiore Sant'Anna

12:25 – 13:45 LUNCH

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13:45 – 16:10 SESSION 3: Digital Twins & Process Modelling — *Chair – Christine Gruber*

13:45 – KEYNOTE: Modern machine learning for industrial processes
Tobias Kronlachner – Emmi AI

14:10 – Digital Twins for a Greener Steel Value Chain: Preliminary Results from the DiGreeS Project
Thomas Sobottka – Fraunhofer

14:30 – Bridging the gap between lab and plant in case of an HVOF coating process using interpretable Machine Learning
Maria Thumfart – K1-MET

14:50 – A Hybrid Machine Learning Approach for Supervisory Optimization of Temperature Setpoints and Heating Zone Flow Rates in Continuous Annealing Furnaces
Vikas Goel –Tvarit

15:10 – AI enhanced Digital Twin for reheating furnaces
Giovanni Bavestrelli – Tenova

15:30 – AI-Enabled Hybrid Digital Twins for Integrated Cost and Carbon Optimization Across the Steel Value Chain
Yale Zhang – Hatch

15:50 – Integrating Process Data and Real-Time Modeling for Digital Twin Development of an RH Degasser
Xiaomeng Zhang – K1-MET

16:10 – 16:30 COFFEE BREAK

16:30 –17:50 SESSION 4: AI for Quality Control — *Chair – Alexander Thekale*

16:30 – Surface quality control for steel long products via digital twins, new sensors and AI
Christoph Nölle – BFI

16:50 – An Open Dataset for Surface Defect Detection on Steel Coils: Advancing AI Research in Industrial Quality Inspection
Marco Vannucci – Scuola Superiore Sant'Anna

17:10 – How to control steel surface quality by means of applied AI
Jens Brandenburger – BFI

17:30 – Intelligent Control Algorithm for Enhanced Product Quality and Process Efficiency in Heat Treatment of Metal Products
Stephan Strommer – Austrian Institute of Technology

17:50 – Closure of Day 1
Klaus Peters – ESTEP

19:15 – Event Dinner at LCS, Dominikanerhof

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DAY 2
16th April 2026

8:15 – Registration

8:45 – Welcome Day 2
Klaus Peters – ESTEP

8:50 – 9:50 SESSION 5: Human Centered, Safe & Skilled Workplaces ***Chair – Colin Goffin***

8:50 – Trusted AI for Workforce Training: A Curated Tutor Framework for the Steel Sector
Jorge Muract – Worldsteel

9:10 – Quo Vadis, Steelmaking and Metallurgy University Courses and LLMs?
Fabio Miani – Udine University

9:30 – AI-Driven Digital Assistants as Key Enablers of Autonomous Plant Operation in the Steel Industry
Henrik Erb – Primetals

09:50 – 10:15 COFFEE BREAK

10:15 – 12:00 SESSION 6: Process Optimization ***Chair – Peter Raninger***

10:15 – Hybrid AI Models for Predicting Electric Arc Furnace Slag Chemistry and Optimizing Slag Conditioning
Bernd Kleimt – BFI

10:35 – Investigating Feature Importance in the Prediction of Tensile Strength via Explainable AI
Manfred Mücke – Materials Center Leoben

10:55 – Generative AI plus Discrete Event Simulation in the Steel Sector: First Steps Towards a Hybrid Modelling Approach
Aitor Goti – Deusto

11:15 – Domain-Knowledge-Informed Bayesian Optimization for Designing Steels and Manufacturing Processes
Bernd Schuscha – Materials Center Leoben

11:35 – Monocular Depth Estimation for Industrial Insight: Depth Estimation of Hot Heel in Electric Arc Furnaces
Amit Sharma – RWTH Aachen University

11:55 – Concluding Remarks & End of Conference
Klaus Peters – ESTEP

12:00 – 13:15 LUNCH

13:15 – 17:00 Optional plant tour: voestalpine Donawitz

MCL · K1 MET metallurgical competence center · PRIMETALS TECHNOLOGIES · voestalpine ONE STEP AHEAD.