

Announcement and Call for Abstract

The Focus Group “Low Carbon and Energy Efficiency” of ESTEP is pleased to announce the



FOR GREEN STEEL

2nd INTERNATIONAL CONFERENCE

Hosted by



**Hydrogen route for a green
steel making process and
applications**

Overview, state of the art,
recent developments
and future trends

tenova



November 29 – December 1, 2022

Key dates

29th of November: Full day visit of Air Liquide Normandie plant (start at 7.30-9.00)

30th of November: Conference + Dinner

1st of December: Conference + Farewell Greetings

Conference Venue (more info in the Conference website)

The conference will take place **in person** at **Innovation Campus Paris Air Liquide**, close to Versailles, France

Deadlines

Deadline for abstract submission

October 22, 2022

Abstract selection and sharing of presentation template and info

October 28, 2022

Registration

October 24 – November 18, 2022

Paper submission for publication (optional)

January 31, 2023

Background

Steelmaking decarbonization can provide significant contributions to reach the Green Deal ambitions, and the exploitation of new energy sources is now more necessary than ever considering the current geopolitical situation. In this background, Hydrogen can have a fundamental role: both existing and innovative routes can take advantage from its application. H₂-based steelmaking can become a fundamental route in the future as well as the replacement of fossil carbon energy can be achieved, among others, by H₂-based heating. Moreover, Hydrogen can be important to allow the valorisation of CO₂ rich-gases coming from the steelmaking production. However, suitable low-carbon Hydrogen production routes, infrastructures, markets and norms are needed for allowing this transition and for maximizing the benefits belonging to a wide and multipurpose usage of Hydrogen in steelmaking sector.

The aims

The H₂ for Green Steel Second International Conference is dedicated to key players in the transition towards a green steel production based on the use of hydrogen (such as steel manufacturers, hydrogen producers, solutions providers, academic, research institutes, policy makers).

The aims of the conference are the following :

- Providing an overview of state-of-the-art, best available technologies, economic, social and legislation aspects of H₂ use in the steel industry.
- Highlighting existing issues to be addressed for the acceleration of hydrogen application in the steel sector.
- Giving elements based on shared experiences to solve existing issues and to identify key aspects to be addressed in future R&D&I projects.

Duration, venue and facility visit

The conference will have a two days duration (30th NOV and 1st DEC) and will take place in person at the Innovation Campus Paris Air Liquide, close to Versailles, France. The day before the conference (29th NOV) will be dedicated to the visit of Air Liquide Normandie plant

Scientific Committee

- Ismael Matino (Scuola Superiore Sant'Anna)
- Valentina Colla (Scuola Superiore Sant'Anna)
- Jan van der Stel (Tata Steel)
- Filippo Cirilli (RINA-CSM)
- Thomas Echterhof (RWTH Aachen University)
- Jean Borlee (CRM)
- Bernhard Hiebl (Primetals)
- Enrico Malfa (Tenova)
- Mike Grant (Air Liquide)

Organising Committee

- Ismael Matino (Scuola Superiore Sant'Anna)
- Valentina Colla (Scuola Superiore Sant'Anna)
- Philippe Blostein (Air Liquide)
- Anna Maria Pubill Melsio (Air Liquide)
- Filippo Cirilli (RINA-CSM)
- Sara Secomandi (Tenova)
- Delphine Snaet (ESTEP)

Confirmed Key-Note Speakers

- Jean-Pierre Birat (IF Steelman)
- Anna Domenech Abella (Celsa)
- Mike Grant (Air Liquide)
- Joachim von Scheele (Linde)

Topics

1. **Low-carbon Hydrogen production and supply chain:** state of the art and innovative technologies for producing low carbon H₂ (e.g. green, blue, aqua). Contributions on all the steps of the supply chain are expected, including but not limited to production, storage, transportation and associated economic and environmental assessments.
2. **Hydrogen-based steelmaking and related up/down streams processes issues:** cutting- and leading-edge developments of hydrogen metallurgy and related technologies (both existing or innovative and alternative ones). Contributions on these topics are expected together with others finalized to the discussion of the issues derived from H₂ introduction in up and down streams processes, to the proposal of solutions that can improve Hydrogen utilization with respect to other fossil fuels and to highlighting the benefits linked with H₂ usage in the sustainable development of steel industry.
3. **Hydrogen heating technologies (EAF, ladle, reheating/annealing furnaces):** already available solutions and ongoing research and developments to implement H₂ heating technologies in the steelworks. Contributions covering but not limited to the use of H₂ in the EAF, ladle preheating or reheating and annealing furnaces are welcome. Contributions are also expected to discuss possible issues derived from H₂ introduction in the EAF and downstream processes and to propose solutions that can improve H₂ utilization substituting other fossil fuels in heating applications.
4. **Hydrogen utilization in CO₂ conversion processes (CCUS): hydrogen role as enabler for carbon capture utilization and storage.** Contributions are expected on H₂ usage for promoting CO₂ conversion processes to obtain valuable products (e.g. methane, methanol): enrichment technologies, syntheses processes involving as feedstock H₂ enriched off-gases/syngas, most suitable production technologies to be coupled with CCUs processes, H₂ use effect on the sustainability of CO₂ conversion, issues related to this usage and applications in steel industries are only some of the themes that can be addressed.
5. **Norm and standards relevant for Hydrogen application in steelworks:** definition of new norms and standards to regulate and provide a guidance/compliance for an efficient H₂ exploitation. Contributions related to proposal of norms and standards to be introduced are expected, also considering the experience of other industrial sectors.
6. **Hydrogen safety, availability (including storage and distribution) and market, related legislation and social impact:** safety issues, H₂ usage legislation, availability of natural resources to produce H₂, creation of ad-hoc market and infrastructures for facilitating its spread in potential H₂ intensive industries, impacts on the society are themes whose contribution is expected.

The Conference is also open to other industrial sectors (e.g. aluminum, cement, etc.) active in Hydrogen implementation to share their experience.

Conference Website

<https://www.estep.eu/events/2ndestep-hydrogen-conference/>

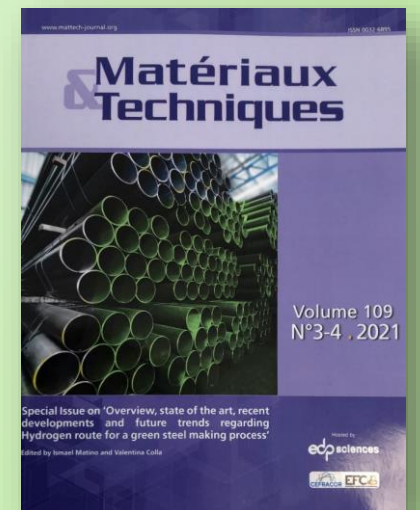
Both the webpage and the flyer will be regularly updated with further information

Abstract submission

Authors wishing to present a contribution are asked to prepare maximum a two-page abstract including figures and references. Please submit the abstract to the ESTEP Secretariat by e-mail: D.Snaet@estep.eu. In addition, please indicate the topic and the intention (or not) to submit a paper for the dedicated special issue.

Dedicated special issue

As for the previous version of the conference (<https://www.mattech-journal.org/articles/mattech/abs/2021/03/contents/contents.html>), a dedicated special issue of *Matériaux & Techniques* (EDP Sciences, indexed in SCOPUS, CrossRef, ESCI WoS and others) will be published on “*The role of Hydrogen for a sustainable steelmaking process*”. Authors intended to publish their work are invited to indicate their wish during the abstract submission. Details on paper submission (Call for paper) are provided in the *Matériaux & Techniques* website (<https://www.mattech-journal.org/>). The submitted paper will be peer-reviewed and published in the special issue.



Sponsorship opportunities

Sponsorship is always welcome. Members of ESTEP interested in sponsoring the event (cost 1,000 €) are invited to contact the ESTEP Secretariat via e-mail: D.Snaet@estep.eu.

Participation Fee and Registration

For organization and safety reasons, only first 100 registered people will be admitted to the Conference. The registration can be done through a dedicated section of Conference Website from October 24 to November 18, 2022.

Free for Speakers - Registration is required

250 € Standard fee (Speakers participation is free)

80 € for Students - Limited number of students selected evaluating a short motivation email - half a page - to be produced by the students and sent to Mrs. Delphine Snaet, D.Snaet@estep.eu during their registration; the student status (i.e. bachelor, master and PhD) must be certified. On demand, a certificate of attendance will be released to the students.

Visit to Air Liquide Normandie plant : additional optional fee, limited capacity, details available soon

Fee is used by ESTEP for Conference/Visit organization
as well as generation and provision of the abstract booklet and related publications

Information and contact

For information, contact the ESTEP Secretariat, Mrs. Delphine Snaet - D.Snaet@estep.eu

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