Call for

ABSTRACT

The Focus Group **"Low Carbon and Energy Efficiency"** of **ESTEP** is pleased to announce the

H2GREENSTEEL WEB-WORKSHOP

Hydrogen route for a green steel making process

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

7th, 21th, 28th MAY – 11th JUNE 2021

DEADLINES

- Submission of abstracts — March 31, 2021
- Sponsor request — March 31, 2021
- Information of abstract acceptance — April 15, 2021
- Opening online registration — April 16, 2021
- It is also possible to submit articles, which will be peer reviewed to be published in a special issue of the Journal Matériaux et Techniques (EDP Sciences, indexed in SCOPUS, CrossRef, ESCI WoS and others), which will be dedicated to the Workshop
  Deadline for paper submission — July 31, 2021

H2GREENSTEEL WEB-WORKSHOP

Background

Carbon neutrality of steel sector is the main topic of the Clean Steel Partnership fully in line with the European Green Deal. Carbon Direct Avoidance is one fundamental CO_2 mitigation pathway. Steel production based on Hydrogen is one of the key factors to improve the green footprint of steel industry; it is strictly linked to low carbon H_2 production, norm and standardisation. The synergic use of low carbon H_2 instead other fossil fuels in both routes, Blast Furnace (BF) - Basic Oxygen Furnace (BOF), and Direct Reduction (DR) - EAF, and the complementary role of these routes can significantly contribute to the decrease of the GHG overall emissions.

The Aims

The four-sessions workshop is dedicated to key players of 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 workshop are included in the following three points

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

Scientific Committee

- Ismael Matino (Scuola Superiore Sant'Anna)
- Valentina Colla (Scuola Superiore Sant'Anna)
- Fabrice Del Corso (Air Liquide)
- Filippo Cirilli (RINA-CSM)
- Marta Guzzon (Tenova)
- Johannes Schenk (Montanuniversität Leoben and K1-MET)
- Hanspeter Ofner (Primetals)
- Jan van der Stel (Tata Steel)

Organizing Committee

- Ismael Matino (Scuola Superiore Sant'Anna)
- Filippo Cirilli (RINA-CSM)
- Delphine Snaet (ESTEP)

Participation fee

- Free for speaker in the related session
- 50 € per person for 1 session
- 150 € per person for all 4 sessions

Student fee (all 4 sessions)

- 60 € per student (only for first 30 registered students – further students can participate to the workshop paying the standard fee - the student status, i.e. bachelor, master and PhD, must be certified); a certificate of attendance will be released to all the students.

Company fees (all 4 sessions)

- 250 € for 2 persons
- 300 € for 3 persons
- 350 € for >3 persons (max 25)

Fee is used by ESTEP for workshop organization as well as generation and provision of the proceedings and related publications.

Sponsorship Opportunities

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

Topics

1. *Low carbon Hydrogen production and supply chain*

The topic is focused on the "low carbon" Hydrogen production and supply chain technologies. It includes state of the art comprising both high TRLs (8 – 9) and low TRLs (3 – 7) technologies. Contributes on all stages of the supply chain are expected including but not limited to:

- production including and not limited to Partial oxidation and Steam Methane reforming with CCS and/or biomass, water electrolysis with "low-carbon" electricity, extraction from off-gases;
- storage under gaseous, liquid forms but also by intermediate molecules synthesis like ammonia or methanol;
- underground storages in caverns;
- transportation by road, railways, boat, pipelines, including mix use of natural gas pipelines;
- associated economic and environmental assessments for each technology can also be included when TRL are high enough.

2. *Hydrogen metallurgy and related up/down streams processes issues*

The topic mainly concerns cutting and leading edge developments of hydrogen metallurgy and related technologies (both existing or innovative and alternative ones) as well as of further possible uses of Hydrogen in the steelworks. In addition, contributions are also expected to discuss the issues derived from Hydrogen introduction in up and down streams processes and to propose solutions that can improve Hydrogen utilization with respect to other fossil fuels.

3. *Norm and Standards relevant for Hydrogen application in steelworks*

The spread use of Hydrogen in steel shops dictates the definition of new norms and standards to regulate and provide a guidance/compliance for a functional Hydrogen exploitation. Therefore, proposal of norms and standards to be introduced as well as sharing of experience considering other industries are expected as contributions.

4. *Hydrogen safety, availability and market, and related legislation and social impact*

The increasing exploitation of Hydrogen in steelmaking industry poses it in a competitive position with respect to other Hydrogen users (e.g. industries or the transport sector). Furthermore, safety issues and lack of Hydrogen related legislation can hamper its use, despite of the possible benefits in terms of environmental and social effects. Contributions are thus expected on the availability of natural resources to produce Hydrogen as well as on the creation of a dedicated market for Hydrogen-intensive industries, on the requirements in terms of safety and policy and on the impact that an extensive use of Hydrogen in steel sector can create in the society.

Abstract Submission

Authors wishing to present a contribution are asked to prepare about 1,000 characters abstract. Figures and references can be included (max abstract length 2 pages). 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.

Information and Contacts

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