- Renewable energies
- Hydrogen

Hydrogen

Our networks

IFPEN plays an active role in **several French and European networks**, including Clean Hydrogen Alliance, Hydrogen Europe, France Hydrogène (AFHYPAC) and Evolen, and participates in numerous partnership projects and initiatives.

IFPEN also contributes to efforts aimed at overcoming scientific challenges relating to the deployment of decarbonized hydrogen within the framework of different collaborative projects with **ANDRA (French National Agency for Radioactive Waste Management), the French Corrosion Institute and INRIA for the design of methods and tools for the development of the hydrogen sector**. In partnership with the French

Corrosion Institute, IFPEN launched a Membership Research Consortium (MRC), the purpose of which is to assemble industrial partners in order to gain a better understanding of the behavior of materials in the presence of hydrogen.

In the field of mobility and on a regional level, IFPEN plays an active role in actions led by the **Axelera** competitiveness clusters, via networking operations, and the **CARA** cluster, in the Auvergne-Rhône-Alpes region, via the setting up of partnership initiatives for the use of hydrogen in transport. It is also a member of the think tank dedicated to hydrogen engines. Finally, IFPEN works in partnership with the Bourgogne Franche Comté region.

MOSHY PROJECT

The aim of the MoSHy project is to develop an **electrocatalyst for green hydrogen production** combining experimentation and numerical molecular modeling methods. It was selected by the Auvergne - Rhône - Alpes region within the context of the 2018 Pack Ambition Recherche call for projects, and brings together, alongside IFPEN, the CNRS and ENS Lyon, project leader.

"*H_2 production via the electrolysis of water is still hampered by a number of technical and economic challenges that must be overcome in order to make it efficient on an industrial scale. For the MoSHy project, we are working on a methodology to select and define economical and efficient electrocatalysts, using a combination of experimentation and molecular modeling.*

Our research teams are contributing their expertise in two areas:

- *the development of sulfur-based catalysts (MoS2), widely used in the field of hydrotreatment,*
- *electrochemistry, thermodynamics and molecular modeling.*

Our partners in the project bring their expertise in:

- *molecular modeling for electrochemistry (LC-ENSL),*

- *the characterization of materials and stability tests (the Grenoble LEPMI, CNRS).*

The success of the consortium will demonstrate the capacity of the local fabric to produce innovative solutions to industrial problems."

Audrey Bonduelle, project manager, IFPEN

HYDROGEN4EU

IFPEN took part in the Hydrogen4EU project aimed at evaluating the contribution of hydrogen in the European decarbonized energy system.

A scientific study based on modeling the potential of hydrogen in the decarbonization of the European energy system was conducted by IFPEN, SINTEF and Deloitte. It examined two policy scenarios tracing the route to be followed to ensure hydrogen contributes to the EU's net zero emissions objective by 2050, on the basis of existing European objectives and using transparent modeling frameworks. These results are designed to inform industrial players and policy makers with a view to fully exploiting the potential of low-carbon and renewable energies.

>>Read the Hydrogen4EU study

LONGRUN

IFPEN is a stakeholder in the LongRun project within the framework of the European Horizon 2020 program, evaluating the hydrogen engine technological solution for long-distance heavy duty trucks.

>> To find put more about LongRun and IFPEN's partnerships in the field of sustainable mobility.

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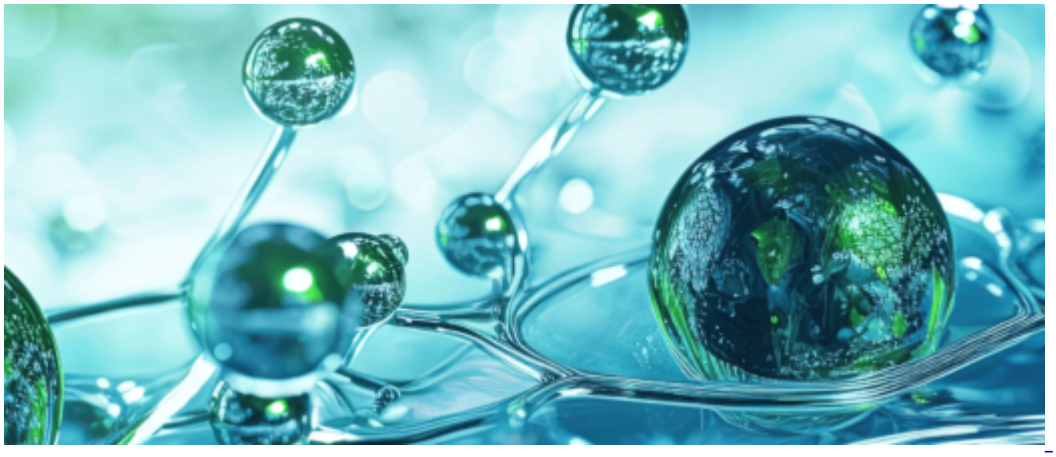

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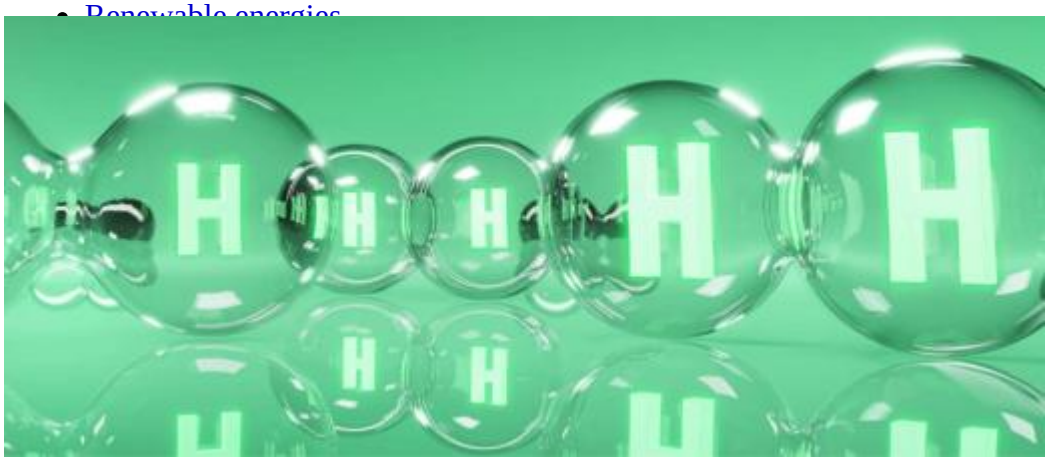

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