As the 21st century is facing the global warming crisis, decarbonization of the energy sector has become a necessity. This objective can be achieved by substituting fossil energies with renewable energies. However, this energy transition requires the development of efficient technologies to produce, store and convert energy, in order to compensate for the intermittent nature of renewable energies and to assure balance between production and consumption of green energy. Hydrogen is an energy vector that can fulfill this task.

Collaborative research on hydrogen exists between France and Japan. Both countries have shown strong common interests as well as complementary expertise on hydrogen research, as illustrated in the two French-Japanese workshops organized in 2012 and 2016.

Therefore, encouraged by the French Embassy in Tokyo, a France-Japan Hydrogen workshop on the “Management of renewable energies through hydrogen for stationary applications” was planned to be held in October 2020 in Tokyo.

Due to the current global situation, this workshop has been postponed to 2021. The present online meeting intends to go ahead with the delineation of the main topics of cooperation and to move forward on how to promote and to support the bilateral collaboration.

This meeting is jointly organized by the Embassy of France in Japan, CNRS, and CEA, with the participation of experts and representative from these institutions as well as from the Japanese Ministry of Economy, Trade and Industry (METI), the French Ministry for Higher Education, Research and Innovation (MESRI), AIST and several Japanese academics (Yokohama National University, Tokyo University of Technology, Yamanashi University, Tohoku University and Tokyo University).

Program

Workshop opening

Chairs: Abdelilah SLAOUI (CNRS), Florence LEFEBVRE-JOUD (CEA)

09:00 – Welcome remarks by Dr. Jean-Christophe AUFRAY, Counselor for Science and Technology, Embassy of France in Japan

09:00 – 09:10 Dr. Frederic RAVEL, Scientific Director, Department of Energy, Sustainability, Chemistry and Process, Ministry for Higher Education, Research and Innovation

09:10 – 09:20 Mr. Masaomi KOYAMA, Director of International Affairs Office, Energy Efficiency and Renewable Energy Department, Ministry of Economy, Trade and Industry

1. Hydrogen production from renewable energies via electrolysis

Chairs: Prof. Hiroyuki UCHIDA, Dr. Michel LATROCHE

09:25 – 09:35 Prof. Christophe COUTANCEAU, Poitiers University - CNRS
Clean hydrogen production from electroreforming of oxygenated organic compounds
09:35 – 09:45 Prof. Shigenori MITSUSHIMA, Yokohama National University
Advancement of Alkaline and Polymer Electrolyte Electrolysis

09:45 – 09:55 Dr. Julie MOUGIN, CEA - Liten
Solid Oxide Electrolysis: Overview of the technology and current challenges

09:55 – 10:05 Prof. Teruhisa HORITA, AIST
Status of Research, Development, and Commercialization of SOFC/SOEC Technology in Japan

10:05 – 10:15 Questions and discussions

2. Materials for hydrogen storage, reservoir design and their integration
   Chairs: Prof. Tatsuoki KONO, Pierre SERRE COMBE

10:15 – 10:25 Dr. Fermin CUEVAS, CNRS - ICMPE
Solid-state hydrogen storage materials for stationary applications: from fundamentals to practice

10:25 – 10:35 Dr. Kouji SAKAKI, EPRI - AIST
Fundamental research on hydrogen storage materials and material development for stationary energy storage application

10:35 – 10:45 Dr. Vincent FAUCHEUX, CEA - Liten
LOHC development for H2 storage

10:45 – 10:55 Prof. Teruoki TAGO, Tokyo University of Technology
Formic acid Dehydrogenation over Carbon supported Pt-based Metal Alloy Catalyst Prepared from Ion-Exchange Resin

10:55 – 11:05 Questions and discussions

3. Hydrogen conversion in fuel cells and system integration
   Chairs: Prof. Teruhisa HORITA, Dr. Laurent ANTONI

11:05 – 11:15 Prof. Daniel HISSEL, Franche-Comté University - CNRS
Combined hydrogen-based cold and power co-generation

11:15 – 11:25 Prof. Tatsuoki KONO, Tohoku University and Tokyo University
Hydrogen energy system by using renewable energies

11:25 – 11:35 Dr. Sylvie ESCRIBANO, CEA - Liten
Durability of MEAs for stationary PEMFCs

11:35 – 11:45 Prof. Hiroyuki UCHIDA, Yamanashi University
Pt-Alloy Electrocatalysts with High Activity and High Durability for PEFCs

11:45 – 11:55 Questions and discussions

4. Round Table
   Chairs: Abdelilah SLAOUI (CNRS), Florence LEFEBVRE-JOUD (CEA)

11:55 – 12:30 Discussion on joint research projects and organization of next workshop