
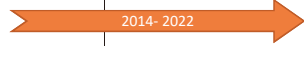







| Country | Institute | Category | Related programs (with short summary) | Target / Goal Outcome | Lead person / Organization | Partnership (if any) | Related information |
|---------|-----------|--|---|---|--|--|---------------------|
| Brazil | UFSCar | Production | Investigation of water electrolysis and photoelectrolysis. Development of new functional materials for water splitting. Study of the fundamental aspects of water splitting reaction using finite element methods Current  | Optimize H2 yield. Changing operational conditions to improve the efficiency | Prof. Dr Ernesto C. Pereira | | |
| | | | Hydrogen and Synthesis gas production by reforming reactions. Current  | Development of heterogeneous catalysts for methane and ethanol reforming reactions, like Steam reforming, CO2 reforming, Partial oxidation and combinations of these reactions. | Prof. José Mansur Assaf | Prof. Elisabete Moreira Assaf (IQSC-USP) | |
| | | Transportation /Storage | Design of High Entropy Alloys for Hydrogen Storage Applications / Determination of specific compositions of multicomponent high entropy alloys (HEA) with optimized hydrogen storage properties. Current  | Development of HEA for hydrogen storage with high gravimetric and volumetric capacities when compared to conventional metal hydrides, with mild conditions (temperature and pressure) for hydrogen absorption and desorption. | Prof. Guilherme Zepon/UFSCar | (Domestic) Brazilian Synchrotron Light Laboratory; (International) Université du Québec à Trois-Rivières, UQTR, Canada; Max-Planck-Institut für Kohlenforschung, Germany. | |
| | | | High Entropy Alloys for Energy Storage Based on Hydrogen / Applied and basic research on the electrochemistry and H2-sorption properties of multicomponent alloys aimed at hydrogen storage applications. Current  | Development of new Mg- and Ti-containing HEA for hydrogen storage applications, with hydrogen incorporation by electrochemical or gas-solid methods. | Prof. Walter Botta/UFSCar | (Domestic) Federal University of São Paulo, UNIFESP; University of São Paulo, USP; (International) Université Grenoble Alpes, UGA, France; Université Paris-Est Créteil Val-de-Marne, Paris XII, France | |
| | | Utilization | Mg- and Ti-based Alloys with Controlled Microstructure, Texture and Surface Area for Hydrogen Storage / Comparative evaluation of the effects of different processing routes on structural characteristics and hydrogen storage properties of selected Mg- and Ti-based alloys. Current  | Critical evaluation of processing routes based on (1) severe plastic deformation and (2) high-energy ball milling applied for Mg- and Ti-based alloys for hydrogen storage. | Prof. Daniel Rodrigo Leiva/UFSCar | (Domestic) State University of Campinas, UNICAMP; Nuclear Research Institute, IPEN; University of São Paulo, USP; State University of Rio de Janeiro, UERJ; (International) Université du Québec à Trois-Rivières, UQTR, Canada; Burapha University at Chanthaburi, Thailand; Centro Atómico Bariloche, CAB, Argentina; Universidad Nacional de La Plata, UNLP, Argentina. | |
| | | | Processing and Characterization of Amorphous, Metastable and Nanostructured Alloys / Development of nanostructured Mg-based nanocomposites with enhanced H2-absorption/desorption properties for hydrogen storage. Current  | Fundamental and technological aspects related to MgH2, Mg2FeH6, Mg2CoH5 and TiFeH nanostructured hydrogen storage materials produced by advanced processing techniques. | Prof. Claudio Shyinti Kiminami/UFSCar | (Domestic) State University of Campinas, UNICAMP; Nuclear Research Institute, IPEN; University of São Paulo, USP; State University of Rio de Janeiro, UERJ; (International) Université du Québec à Trois-Rivières, UQTR, Canada; Burapha University at Chanthaburi, Thailand; Centro Atómico Bariloche, CAB, Argentina; Universidad Nacional de La Plata, UNLP, Argentina. | |
| | | Hydrogen purification - PROX Current  | Development of catalysts for removal of CO from hydrogen streams - study of preferential oxidation reaction of CO (PROX-CO). | Prof. José Mansur Assaf | Prof. Elisabete Moreira Assaf (IQSC-USP) | | |