








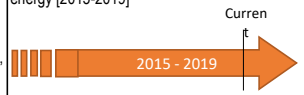
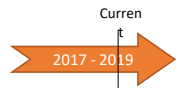



Country	Institute	Category	Related programs (with short summary)	Target / Goal Outcome	Lead person / Organization	Partnership (if any)	Related information
			<p>&lt;Example&gt; ●●●● Project Describe the summary of the project. [period of the project]</p> <p>Current</p> 	<p>Describe the target and/or goals of the project. Note the numerical purpose (if possible).</p> <p>e.g. Cost reduction of ■■ to ● kWh/yen in 2020</p>	Dr. ***** ●●	<p>(Domestic) ●● Research Institute, ▲▲ University, etc. (International) ●● (Desired collaboration) ●● field test, ▲▲ modeling, ■■ standard, etc.</p>	<a href="https://www.●●●">https://www.●●●</a>
Brazil	UFSCar	Production	<p>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</p> <p>Current</p> 	Optimize H2 yield. Changing operational conditions to improve the efficiency	Prof. Dr Ernesto C. Pereira		
			<p>Hydrogen and Synthesis gas production by reforming reactions.</p> <p>Current</p> 	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)	
		<p>Design of High Entropy Alloys for Hydrogen Storage Applications / Determination of specific compositions of multicomponent high entropy alloys (HEA) with optimized hydrogen storage properties.</p> 	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 Zepou/UFSCar	(Domestic) Brazilian Synchrotron Light Laboratory; (International) Université du Québec à Trois-Rivières, UQTR, Canada; Max-Planck-Institut für Kohlenforschung, Germany, Kyushu University, Japan.		
		<p>High Entropy Alloys for Energy Storage Based on Hydrogen / Applied and basic research on the electrochemistry and H-sorption properties of multicomponent alloys aiminh hydrogen storage applications.</p> <p>Current</p> 	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 ; Burapha University, Thailand, Kyushu University, Japan		
		<p>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.</p> <p>Current</p> 	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; Kyushu		
		<p>Processing and Characterization of Amorphous, Metastable and Nanostructured Alloys / Development of nanostructured Mg-based nanocomposites with enhanced H-absorption/desorption properties for hydrogen storage.</p> <p>Current</p> 	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.		
		Utilization	<p>Hydrogen purification - PROX</p> <p>Current</p> 	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)	

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Japan	AIST	Artificial Photosynthesis, Solar Chemicals, Solar Fuels	<p>International Joint Research Program for Innovative Energy Technology / Production of useful chemicals using solar energy [2015-2019]</p> 	Proposal and demonstration of cost effective artificial photosynthesis technologies using solar energy	Dr. Kazuhiro Sayama / RCPV, AIST	(Domestic) Universities, Private companies (US) Brookhaven National Laboratory	
		Methanation	<p>Development of Technology for Next Generation Thermal Power Generation Project / Development of Fundamental Technology for Next Generation Thermal Power Generation Project/Developing of CO2 Utilization Technology Project [2017-2019]</p> 	Extraction of technical issues and providing possible solutions for realizing a 400 Nm <sup>3</sup> /h methanation plant	Dr. Kinya Sakanishi / FREA, AIST	(Domestic) NEDO, INPEX Corporation, Hitachi Zosen Corporation, Nagoya Univ.	
		Power to X					

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