POSTDOC RESEARCHER IN MODELLING AND NUMERICAL ANALYSIS FOR NON-CONVENTIONAL

Company Description

CIC energiGUNE is a research center specialized in energy, electrochemical storage (batteries and supercapacitors), thermal energy solutions and hydrogen, a member of the Basque Research and Technology Alliance- BRTA, and a strategic initiative of the Basque Government. CIC energiGUNE was created in 2011 to generate excellent knowledge and at the same time useful for the Basque business network, being a reference in knowledge transfer. CIC energiGUNE has a dynamic research team of more than 100 researchers and is extremely well equipped with a wide range of up-to-date facilities that are fully available for all its researchers. Also, the European Commission has recently awarded CIC energiGUNE with the ´HR Excellence in Research´ which reflects its commitment to achieving fair and transparent recruitment and appraisal procedures and certifies the existence of a stimulating and favorable work environment for researchers in the institution. For more details on CIC energiGUNE's research activities please visit our website at http://www.cicenergigune.com

Information

Deadline: 2022-04-30
Category: Business
Province: Araba / Álava
Country: Basque Country
City: Vitoria-Gasteiz

Company

CIC energiGUNE

Main functions, requisites & benefits

Main functions

JOB DESCRIPTION: CIC energiGUNE is seeking for one experienced postdoc in modelling and numerical analysis to work in a challenging and novel project focused on green H2 production by thermo-chemical water splitting activated through non-conventional heating (microwave and magnetic). The project requires a multidisciplinary approach combining chemical, physical and engineering disciplines in order to reach successfully the objectives set, one above the others the efficient production of Green Hydrogen under mild conditions (low temperature) and preferentially using industrial wastes as primary feedstock (contribution to environmental protection and circular economy). The main pillars of the project are listed below: In deep development and characterization of tailor-made reactive materials with maximized performance for thermal water splitting under non-conventional heating. Evaluation of materials performance (vs. thermal water splitting) in terms of hydrogen production efficiency, reversibility and cyclability when subjected to non-conventional activation techniques. Fundamental understanding and evaluation of the key parameters affecting the efficiency of the process with the final aim to control it. Optimization and op-scaling the technology through modelling and numerical analysis. All in all, this is a very ambitious project since thermo-chemical water splitting under non-conventional heating is still at a very initial stage. Therefore, the selected postdoc must show the commitment, dedication and passion in facing these exciting and new challenges. The candidates will have the chance to work in a multidisciplinary environment composed by Chemists, Physicists and Engineers having the possibility to extend their knowledge approaching the research under different points of view. Job function: Setting numerical models for the simulation of thermochemical water splitting under non-conventional heating (e.g., microwaves, magnetic induction) at different scales (e.g., particle/grain scale, packed-bed scale). Empirical validation of proposed models Contribution to reactive material improvement through numerical analysis at the grain/particle scale. Determining optimal material packing and operation conditions through numerical analysis at a lab-reactor scale. To understand and correlate the materials performance with the material characteristics/packing and the operation conditions To propose optimized up-scaled design for the studied technology. To collaborate actively with other team members To generate new ideas within the frame of the topic

Requisites

CANDIDATE PROFILE: PhD in Applied Mathematics, Engineering or related fields Experience in modelling and numerical analysis of heat, mass and momentum transfer in porous reactive media, preferably under the effect of magnetic and electromagnetic fields. Expert knowledge of CFD simulation software. A team player who can collaborate with other groups, technological centres, and industries. Excellent verbal and written communication skills in English.

Benefits

WHAT WE OFFER: We are offering a 36 months contract and advantageous professional development opportunities and a rewarding