THE UNIVERSITY OF BRITISH COLUMBIA

PhD position on Solar Fuels
at the Laboratory for Solar Energy & Fuels, UBC Okanagan

Description of the work place

The Laboratory for Solar Energy & Fuels (LSEF, link) located in the Faculty of Applied Science's School of Engineering UBC's Okanagan campus, is actively seeking a highly motivated Ph.D. student to do a research project in the field of heterogeneous photoelectrocatalysis.

The Faculty of Applied Science's School of Engineering has assembled world-class faculty and developed an innovative engineering curriculum to offer undergraduate and graduate engineering degrees in Electrical, Civil, Mechanical, and Manufacturing specializations. The campus is situated in one of the most scenic and appealing regions in Canada and offers faculty and students an intimate learning environment and exciting opportunities for interdisciplinary and region-centered research.

Subject description

The photoelectrochemical (PEC) water splitting and carbondixoide (CO_2) reduction reaction (CO2RR) have received growing attention as a potential solution to the intermittency of solar photovoltaics (PV) and store the energy in the form of chemical energy (hydrogen, H_2) and to convert CO_2 into useful chemicals. The successful candidate will work on PEC water splitting and/or CO2RR with the main goal of generating a robust, scalable, and competitive solution of solar energy technologies. The project will focus on materials development, rigorous characterization, cell development, and prototyping.

This work is part of collaborative projects between UBC Okanagan, UBC Vancouver, and National Research Council (NRC) Canada, and Helmholtz Zentrum Berlin (HZB), Germany.

Work duties

The successful candidate will be expected to perform semiconductor photoabsorber and catalyst development and synthesis utilizing solution-processed methods, qualitative and quantitative analysis of photo(electro)catalyst activity (CV, LSV, CA, EIS, GC, etc.), materials characterization (XRD, SEM, ICP-MS, etc.), cooperate with project partners at NRC and abroad, and disseminate results at conferences and in high impact journals.

Requirements

Applicants should have completed a bachelor and/or master degree in a related engineering discipline or are in near completion with a confirmed defense date. Research experience in the field of electrocatalysis or photoelectrocatalysis is highly expected but not compulsory. Research experience in the fields of semiconductor synthesis, thin film, solar cell, and analytical chemistry would be an asset. Excellent English speaking and writing proficiency, the ability to work in a team, as well as independently lead a research project are expected.

How to apply

Applicants should provide curriculum vitae, academic transcripts, list of relevant publications (if any), list of three referees, and motivation letter to LSEF.hiring@ubc.ca.

The anticipated start date for this position is as early as September 1, 2023. The annual salary is $25,000 plus benefits. Additional funding may be obtained through TA appointments and scholarships.

Equity and diversity are essential to academic excellence. An open and diverse community fosters the inclusion of voices that have been underrepresented or discouraged. We encourage applications from members of groups that have been marginalized on any grounds enumerated under the B.C. Human Rights Code, including sex, sexual orientation, gender identity or expression, racialization, disability, political belief, religion, marital or family status, age, and/or status as a First Nation, Metis, Inuit, or Indigenous person.