UNIVERSITÉ DE SHERBROOKE

Outdoor characterisation platform for Photovoltaics modules

Record number : OPR-553

Overview

RESEARCH DIRECTOR

Maxime Darnon, Professeur associé - Department of Electrical and Computer Engineering

Information

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ADMINISTRATIVE UNIT(S)

Faculty of Engineering
Department of Civil and Building Engineering
Department of Electrical and Computer Engineering
Department of Mechanical Engineering
Interdisciplinary Institute for Technological Innovation

LEVEL(S)

Postdoctoral Fellowship

LOCATION(S)

3IT - Institut interdisciplinaire d'innovation technologique

Project Description

Université de Sherbrooke has positioned itself as the leader in sustainable development in Canada for several years, and has since 2019 the largest solar park dedicated to research partnerships in North America. The 3IT, Interdisciplinary Institute fir Technological Innovation, has expertise in many cutting-edge fields, including photovoltaic technologies. The 3IT hosts an international CNRS laboratory, the Nanotechnologies and Nanosystems Laboratory (LN2), and collaborates with numerous laboratories in France. The 3it.helios platform manages the 1MWp solar park equipped with bifacial, monocrystalline PV modules, and polycrystalline, installed on 2-axis trackers, 1-axis tracker, on the ground or on the roof, as well as 8 CPV trackers. It also includes a space dedicated to the development and testing of prototypes of solar systems — from new photovoltaic modules to stand-alone multi-energy systems, through the production of hydrogen using solar energy. This space accommodates the 3it research teams, students from Université de Sherbrooke, as well as several industrial partners.

The main research objective for the Post-doctoral fellow will be to assess the impact of snow on the performance of photovoltaic systems. This requires precise knowledge not only of the system parameters, but also of the environmental conditions in which it evolves: temperature, wind, direct, diffuse and reflected solar irradiance. Precise characterization methods and automated systems must therefore be put in place to monitor the performance of the systems, but also of the environmental conditions.

Your main mandate in this post-doctorate will be to set up characterization protocols and the associated instrumentation to characterize photovoltaic modules in the 3it.helios platform. With an expert role in characterization, you will assist users of the 3it.helios platform, and you will supervise students (interns, MSc, PhD) developing new instruments for the platform. You will promote this work through publications in scientific journals, conferences and patents.

Main tasks :

- Development of instruments and characterization protocols
- Supervision and training of students on their internship, master's and doctoral projects
- Characterization of photovoltaic modules
- Project management in conjunction with industrial partners

Discipline(s) by sector

Natural Sciences and Engineering

Civil Engineering, Electrical Engineering and Electronic Engineering, Mechanical Engineering

Funding offered

Yes

Partner(s)

Stace

The last update was on 29 March 2021. The University reserves the right to modify its projects without notice.