Modeling of Laser Cladding for Composite Materials

PROJECT DESCRIPTION

"This project studies aspects of heat transfer, fluid mechanics, physics, thermodynamics and materials behavior and will involve using basic mathematical analysis to capture the temperature evolution during laser cladding, laser welding, or other welding processes. The goal is to create a set of formulas useful to practitioners. The formulas will be tested and calibrated experimentally.

Student must be familiar with Matlab and basic aspects of heat transfer. Student must be able to concentrate on the problem and make intellectual contributions. Student will learn state of the art approaches to modeling heat transfer in welding with the help and mentorship of faculty and graduate students. After learning fundamentals, student will reproduce existing models, and then will extend models into novel situations.

The potential impact of this project is very high because of the large demand from industry for practical solutions based on the proper physics. For the experimental testing, student must be proficient in a laboratory experiment, respectful of safety guidelines. Students must be familiar and skilled with basic hardware tools. Skills in Python or LabView will be very welcome. For experiments, the student can (if desired) operate equipment and high-speed video, process and edit video and data acquisition signals."

FACULTY-DEPARTMENT

Engineering - Chemical and Materials Engineering

DESIRED FIELD OF (STUDENT) STUDY

Chemical Engineering, Mechanical Engineering, Materials Engineering, Mathematics, Physics, Computer Science or Engineering. Other fields welcome

INTERNSHIP LOCATION

University of Alberta Main Campus - Edmonton

NUMBER OF INTERNSHIP POSITIONS

1

INTERNSHIP START DATE

July 4

Contact: Brendan Cavanagh, Internship Coordinator (Inbound)
University of Alberta International
intern@ualberta.ca

INTERNSHIP END DATE

3 months after the start date

ARE THE DATES FLEXIBLE?

Yes, I am flexible regarding the internship dates. Selected students can contact me to request a date change.

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