

Control of Heating Performance of Thermal-sprayed Coatings

PROJECT DESCRIPTION

The proposed research project envisages the fabrication of metal and metal matrix composite coatings for heating and temperature control of airfoils. Possible airfoils include, but are not limited to, aircraft wings and wind turbine blades. The project will result in the development of a thermal model for the coating to obtain the surface temperature and energy generated as a function of the applied voltage. A closed-loop feedback controller for active control of the heating and thermal output of the coatings will also be developed. System identification techniques and artificial intelligence will be used to model the coating system and estimate its parameters. The industrial component of the project will revolve around the application of the results in wind turbine blades or other airfoil structures for consultation with corporate stakeholders such as Airbus, Pratt and Whitney, and GE.

FACULTY-DEPARTMENT

Engineering - Mechanical Engineering

OPEN TO STUDENTS FROM THE FOLLOWING INSTITUTIONS

Chinese universities participating in the [Double First-Class Initiative](#).

DESIRED FIELD OF STUDENT STUDY

Academic Background: Mechanical Engineering; Electrical Engineering; or Materials Science

Specialization: Heat transfer, MATLAB programming, Mechanical controls, Electronics, Mechatronics, Thermal spraying, and/or Materials science

INTERNSHIP LOCATION

Edmonton Campus

NUMBER OF INTERNSHIP POSITIONS

1

INTERNSHIP DATES

Start: July 3, 2019

End: October 3, 2019

ARE THE DATES FLEXIBLE?

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