Faculty of Engineering
Summer Research Program 2020-2021

Project Title: Developing Additively Manufactured Monoliths for CO\textsubscript{2} Gas Conversion

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Objective

This project will be aimed at designing and developing an additively manufactured (3D printed) Inconel 625 monolith for use in CO\textsubscript{2} gas conversion.

Project Details

Additive manufacturing (AM), or 3D printing, is a very interesting near net-shape fabrication process for metals that provides interesting new design degrees of freedom for the engineer. Component shapes can be fabricated that cannot be made any other way and this provides opportunities for new designs. In this project, we are looking to apply this technique to fabricate monoliths which are optimised to improve their performance in a CO\textsubscript{2} gas conversion reaction.

This project will have two main components: characterizing the Inconel 625 alloys which are fabricated (incl. mechanical testing and metallography) and designing the monolith structure for improved performance.

This project will suit materials engineers with skills in CAD and FEA/CFD.