

Summer Research Program 2011/2012

Project Title: Gasification of low-rank fuels
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Objective

- Assess gasification performance of a suite of low-rank solid fuels through experiments and modeling.

Description

Gasification is a technology that converts solid fuels into a gaseous product which can be fed into a gas turbine or a fuel cell for electricity generation at much higher efficiencies than the existing pulverised coal-fed combustion system. Various fuels behave differently during gasification. Understanding the behavior of a solid fuel during gasification is always an important part of technology development for their efficient utilization.

This project will involve both experimental work and modelling. Firstly, in the experimental part, students have to prepare various coals and biomass; secondly, different gas atmosphere effects on the gasification performance will be assessed under different operating conditions in two different reactors. The modelling work, based on the experiment results, will require the use of Matlab or Comsol.

This project has enormous practical significance.

The project will therefore suit a hardworking student with aptitude for both experimental and modelling work; some experience of using either Matlab or Comsol will be useful. The student will work alongside a PhD student and a Research Fellow.