



THE UNIVERSITY
of ADELAIDE

Liquid metal oxides for the storage of solar thermal energy and solar-assisted gasification

School of Mechanical Engineering

Project description

This project is based on the application of consecutive reduction and oxidation reactions for storage of solar thermal energy or solar-assisted gasification of any carbonaceous fuel. For details see:

Jafarian, M., Arjomandi, M., & Nathan, G. (2017). Thermodynamic potential of molten copper oxide for high temperature solar energy storage and oxygen production. *Applied Energy*, 201, 69-83.

Silakhori, M., Jafarian, M., Arjomandi, M., & Nathan, G. (2017). Comparing the thermodynamic potential of alternative liquid metal oxides for the storage of solar thermal energy. *Solar Energy*, 157, 251-258.

Sarafraz, M., Jafarian, M., Arjomandi, M., & Nathan, G. (2017). Potential use of liquid metal oxides for chemical looping gasification: a thermodynamic assessment. *Applied Energy*, 195, 702-712.

Primary aim

The primary aim of this project is further continue the project by conducting lab-scale experiments.

Secondary aim

The secondary aim of this project is to design, develop and test the components of the system.

Student attributes

Applicants with a strong background in fluid mechanics and heat transfer with a Bachelor (honours H2A or higher) or Masters Degree in Mechanical, Aerospace or Chemical Engineering are encouraged to apply. Familiarity with CFD and experimental fluid mechanics is an advantage.

For further enquiries

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