The University of Nottingham
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Advanced Materials Research Group
project summary

Project Title	Concentration of Hydrogen in a MgH_2 bed during dehydrogenation
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Project Summary	Optimal thermal management of a solid-state system for the storage of hydrogen will help alleviate the need for metallic powders to incorporate additives to improve thermal conductance and thus maintain the material's original high gravimetric and volumetric capacity. This will allow a safe method of hydrogen storage for the automotive industry. This project aims to develop a method of optimising solid-state stores for automotive applications, with this method being validated experimentally with a working prototype, it involves developing 2D and 3D thermofluid models to enable different designs and different bed formulations to be modelled with promising store designs being built and tested to validate the model. The project will look to optimise heat exchange within the store and the thermal conductivity of the bed formulation. Comparison of simulated and experimental results for heat transfer through a MgH_2 bed