University of Western Sydney
Bringing knowledge to life

RESEARCH DIRECTIONS

Solar Energy

Dr Leigh Sheppard and Dr Maria Nowotny of the Solar Energy Technologies Research Group, School of Natural Sciences, have been awarded an ARC Discovery grant to investigate different methods of improving the efficiency of solar-hydrogen fuel production. A Partner Investigator to this award will be Dr David Kisailius from the University of California at Riverside.

'As the consequences of global warming and climate change become increasingly recognised around the world, the need to find practical solutions has become more urgent', says Dr Sheppard. 'Because of the relationship between fossil fuel consumption and CO_2 emissions the finding of sustainable energy supplies is essential. Australia, with its abundance of sunshine and vast regions of available land, has a huge capacity to lead the world in the supply and utilisation of solar fuel'.

The team is pursuing a solution that is based on a photoelectrochemical process where sunlight is used to "split water" into its component parts - oxygen and hydrogen. The hydrogen gas produced in this way is solar-hydrogen fuel. This project aims to enhance solar-hydrogen generation from water splitting by addressing a major scientific roadblock that prohibits the visible fraction of sunlight being used during the oxidation of water.

The development of cost effective renewable energy technologies is of critical national importance. This project is closely focused on providing long-term energy security, in addition to significantly reducing Australia's contribution to carbon emissions and climate change.

Project Title: Improving Solar Energy Utilisation by Splitting Water with Visible Light
Funding has been set at: $235,000
Contact Details: l.sheppard@uws.edu.au
http://www.uws.edu.au/dr_leigh_sheppard
March 2011