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The National Hydrogen Materials Alliance

Launched October 2006

CSIRO

Background

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- The National Hydrogen Materials Alliance (NHMA) aims to develop new materials that improve the efficiency and economics of hydrogen generation, storage and end use.
- The NHMA is funded by the Australian Government through the National Flagship Program to specifically enhance collaboration between CSIRO and Australian universities in hydrogen R&D.
- Research clusters - like Flagships - focus on delivery and adoption of research outputs and are designed to maximise their impact in key areas of economic and community need.
- Over the next three years the NHMA cluster will receive A$9.6 million from the collaboration fund.

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NHMA - Overview

NHMA Overview

- Australia has a considerable, but largely dispersed effort in hydrogen generation, solid-state storage and utilisation technology.

- The NHMA has assembled selected activities and expertise into a coherent and focused effort.

- Through the development of new materials technology the NHMA will make significant contributions to the National Research Priorities of '*an environmentally sustainable Australia*'.

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NHMA Members

Led by hydrogen materials specialist Dr Andrew Dicks of The University of Queensland there are currently 12 members:

- The University of Queensland
- Griffith University
- The Australian National University
- Curtin University of Technology
- Monash University
- Queensland University of Technology
- Royal Melbourne Institute of Technology (RMIT)
- The University of Newcastle
- The University of New South Wales
- The University of Sydney
- The University of Wollongong
- Australian Nuclear Science and Technology Organisation

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Significant elements of the Research Plan are:

- Emphasis on genuine collaboration, not pursuit of isolated projects.
- Cooperate with other R&D Centres in Australia – and overseas – to be developed.
- Cooperate with industry where appropriate – both in Australia and overseas.

Two Research Streams

The Cluster has two research streams:

Hydrogen Generation and End Use projects:

- *New catalyst materials for hydrogen generation from hydrocarbon fuels*
- *Materials for electrolysis systems*
- *Photocatalytic materials for hydrogen production by water splitting*
- *Materials for advanced hydrogen fuel cells*

Hydrogen Storage projects:

- *Storage materials based on lithium*
- *Storage materials based on magnesium*
- *Storage in carbons*
- *Storage in porous materials*

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Cluster Update

NHMA Update

- Second workshop on storage planned for 15-16 February 2007 to work through detailed research plan for each of the four projects in the stream in materials based on lithium, magnesium, carbons and porous solids.

- Several research fellows have been appointed on NHMA funds (at Griffith University, RMIT University and Curtin University of Technology, University of Wollongong) with several more in process.

- A new experimental facility, the National Hydrogen Storage Reference Facility, is in construction at Griffith University. It will provide authoritative measurements of hydrogen uptake by materials of low density to all members of the NHMA Hydrogen Storage stream.

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End Note

- The NHMA is a new and exciting mechanism to draw together disparate expertise around Australia into a more coherent group with more focused goals.
- It will assist in the building of critical mass and infrastructure.
- It will form a powerful lead group in Australia that will act as a focal point for national and international collaboration in its chosen fields of hydrogen R&D.

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www.csiro.au/partnerships/NHMA

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