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**UNB/HSM SYSTEMS RESEARCH TEAM
COMMENDED BY US DEPARTMENT OF ENERGY**

Research conducted by Sean McGrady at the University of New Brunswick in Fredericton (UNBF) and HSM Systems has been recognized by the U.S. Department of Energy (DOE). They were inducted into the U.S. DOE Center of Excellence for Hydrogen Storage at their annual review in Washington, DC.

"This is an example of how the United States and Canada are supporting their commitment to international collaboration by inducting a non-U.S. institution into the Center of Excellence," said Pat Davis, Acting Program Manager of the U.S. program. "

UNB is now a member of the Metal Hydride Center of Excellence, which includes the Savannah River, Oak Ridge, Sandia and Brookhaven national laboratories, and top U.S. universities such as Stanford, Caltech and Carnegie Mellon.

"Dr. McGrady is to be congratulated and UNB is very pleased to be in the company of some of the most prestigious research organizations in North America," said Dwight Ball, Executive Director of Research Services at UNB.

Hydrogen storage is key to the advancement of hydrogen and fuel cell power technologies, which could lead to the creation of a renewable and environmentally friendly automotive fuel.

Dr. McGrady and his collaborators were recognized for developing promising new concepts that could lead to a breakthrough in hydrogen storage. They have successfully managed to make aluminum powder react with hydrogen gas, forming a compound that contains a higher density of hydrogen than is possible with liquefied or high-pressure forms of the fuel. The hydrogen can be released on demand by heating the resulting compound.

Hydrogen gas is usually stored, under pressure, in large metal composite cylinders, which are heavy and costly to transport and involve complex high pressure refueling requirements. Alternatively, it can be liquefied by cooling to -250 °C, but the technological challenges and energy penalty associated with maintaining a liquid under these conditions are challenging.

Dr. McGrady said the next step in the research is to take this solid material from its present demonstration stage and process it into a powder that could be used for an unlimited number of commercial applications. The powder is lightweight and non-volatile, making it safer to transport.

"The challenge of hydrogen storage is one of the major obstacles to developing a hydrogen economy that will be able to supersede current hydrocarbon energy technologies based on oil, coal and natural gas," said Dr. McGrady. "In addition to transportation, compounds such as this will find applications varying from large-scale power generation to domestic home energy systems."

Dr. McGrady has assembled a world-class research team of eight to work on his hydrogen storage program. This is one of the largest research and development teams focused on hydrogen in Canada, and one of very few in the country dedicated to novel hydrogen storage materials.

A chemistry professor at UNB Fredericton, Dr. McGrady has over 20 years' experience working with reactive hydrogen-containing materials. With nearly 60 publications and several U.S. patents to his credit, he has achieved an international reputation for his research.

Dr. McGrady earned his doctorate at the University of Oxford in the U.K., and held faculty positions at the Universities of Oxford and London before moving to Canada in 2003. In

2006 he was named a UNB Research Scholar, an award that allows him to concentrate on his research full time.

UNB has a Research and License Agreement with HSM Systems Inc., a New Brunswick-based company dedicated to the development and commercialization of novel technologies and materials for the storage and transportation of hydrogen.

UNB and HSM Systems are collaborating with one of the top hydrogen research groups in the world. Craig Jensen, an inorganic chemist at the University of Hawaii leads the team. Dr. Jensen has won several awards from the U.S. Department of Energy for his work on hydrogen storage, and holds several U.S. patents in the area.

The U.S. Department of Energy works with industry, academia, national laboratories and federal and international agencies on the research and development of a wide range of energy technologies including hydrogen production, delivery, storage and conversion technologies.

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