

Queen's University researcher to lead national research team advancing hydrogen storage in fuel cells

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Kingston, ON: On-board hydrogen storage is a key issue in the quest for fuel cell vehicles. The use of pure hydrogen creates challenges ranging from storage materials to reduce hydrogen loss to the placement of the tank on the vehicle. Extracting hydrogen from a chemical compound can assist in meeting these storage challenges, and sodium borohydride is one such compound showing promise. A sodium borohydride solution makes hydrogen and sodium metaborate (borax) when it is touched by a catalyst. This provides a controlled hydrogen source. A national research team being led by a Queen's University professor is investigating how to most efficiently reprocess the sodium metaborate back to sodium borohydride – one of the major roadblocks to its use. Dr. Boyd Davis, an adjunct professor in the mining engineering department, is coordinating the team that consists of researchers at Queen's, the Royal Military College of Canada, and the University of British Columbia. The team was recently awarded funding of up to \$320,000 from the AUTO21 Network of Centres of Excellence and industry.

"Through this project, we are putting together a team of engineers and scientists that is concerned with the less glamorous but important processing issues surrounding the future hydrogen economy," says Dr. Davis. "While our current focus is on sodium borohydride, this work is applicable to many other chemical storage systems for hydrogen – many of which are being promoted by Canadian companies. We hope to be able to provide one component of the research and development needed to see hydrogen become an integral part of Canadian society."

"I am delighted that Queen's is part of this collaborative research initiative," says Queen's University Vice-Principal (Research) Dr. Kerry Rowe. "The generous funding from AUTO 21 for this project will make possible the critical interactions between a wide range of researchers and promises to make important contributions to Canada's automotive and fuel cell industries."

"We are pleased to support this innovative project that will advance the hydrogen economy," says Dr. Peter Frise, CEO and Program Leader of AUTO21. "In addition to the technical knowledge created, the project provides an excellent training opportunity for 10 students at the three universities to work with expert researchers and also collaborate with industry representatives. This experience will help develop the students into the innovators of Canada's future automotive sector."

The project is one of seven new research projects worth a total of \$6.5 million being supported by the AUTO21 Network of Centres of Excellence and industry. AUTO21 is a federal program that supports 28 other auto-related R&D projects at 33 universities across Canada, with combined federal and industry funding of more than \$8 million per year. The new projects add 32 researchers and 53 student researchers to the AUTO21 investigative team. Over 250 university and industry researchers, and more than 250 graduate and post-graduate students are already part of the AUTO21 team. AUTO21 is funded by the Networks of Centres of Excellence of Canada.

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