

Overview

Fuel Cell Research Centre

Strategy Development Workshop for the Eastern Canadian
Hydrogen and Fuel Cell Community
Kingston, Ontario
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Background

The Centre for Automotive Materials and Manufacturing (CAMM) at Queen's University initiated a multi-university, industry-driven research program for fuel cells which is now established as an independent research centre...

Fuel Cell Research Centre (FCRC)

...a framework for complementing principal investigator research with multi-university, multidisciplinary research teams.

Mission

The Fuel Cell Research Centre (FCRC) will be Canada's leading university/industry/government partnership for research and development to improve performance, reliability, and durability while reducing the cost of fuel cell components and systems through innovations in materials, design, and manufacturing processes.

Why the Fuel Cell Research Centre

- Organically initiated by Queen's and RMC community of interest
- \$4.2 million CFI/OIT equipment grant approved by CFI
- RMC has a long history in fuel cell R&D
- Technology transfer from RMC defence research in fuel cells and fuel processing to commercial sector
- SWITCH, Kingston's Alternative Energy Cluster is active promoter of FCRC
- Support from local companies DuPont and Fuel Cell Technologies
- Kingston identified as fuel cell cluster in recent surveys of fuel cell activities in Ontario

About the Fuel Cell Research Centre

- More than 30 researchers affiliated with FCRC
- Over 2000 sq.ft. dedicated to fuel cells with room to expand
- Interim-Advisory Board with representatives from
 - E.I. du Pont Canada Company
 - Fuel Cells Canada
 - Fuel Cell Technologies, Inc.
 - Hydrogenics Corporation
 - National Research Council
 - Ontario Ministry of Economic Development and Trade
 - Queen's University
 - Royal Military College of Canada

FCRC Research Program

Objective: to advance the knowledge base and address the key technology challenges to the adoption of fuel cell applications

- fuel processing, hydrogen production and storage
- manufacturing processes and production economics
- materials and component performance, reliability, durability

Current Collaborations

Affiliated Institutions

- Royal Military College
- Queen's University
- University of Waterloo
- McMaster University
- University of Windsor

Industrial Partners

- E.I. du Pont Canada
- Fuel Cell Technologies, Inc.
- Questair Industries
- DaimlerChrysler
- Kingston Process Metallurgy
- Long-Dana

FCRC Research Program

To date, over \$3.5 million committed to fuel cell research projects by CAMM, industrial partners, and government agencies

- CAMM: \$1.25 million cash, \$150 thousand lab renovations
- Industry: \$885 thousand cash, \$1.15 million in-kind
- CFI: \$1.74 million cash; awaiting approval of OIT match
- Government and other: \$923 thousand cash

Impacts

- Two patents filed
- Three FCRC researchers hired by industrial partner
- New test methods developed for reliability and durability testing of flow field plates

What next for FCRC...

Build on base already established

- Continue developing Canada-wide collaborative partnerships
 - Formalize consortium with universities
 - Increase industrial partners
 - Collaborate with NRC, NRCan, Fuel Cells Canada
- Expand equipment and infrastructure
 - Received approval of CFI proposal 4 March 2004
 - Awaiting approval of OIT match
- Exploit operating fund opportunities
 - Ontario Research and Development Challenge Fund
 - NSERC (CRDs, Strategic Grants, Discovery Grants)