TRENT UNIVERSITY
CHEMISTRY/PHYSICS SEMINAR PROGRAM

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UOIT
Sciences Building, Room 4075
2000 Simcoe Street North
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Wednesday, November 26, 2014
11:00 am
Science Complex Room 115

"Hydrogen: Can we close the loop?"

As climate change becomes an increasing concern, new energy carriers are being investigated to reduce greenhouse-gas emissions. Hydrogen is an excellent alternative, but it is currently produced from fossil fuel sources with an associated release of CO_2. Thermochemical, electrochemical, and photochemical production of hydrogen by splitting of water are promissory, but their implementation for large scale production of hydrogen is still challenging.

In this seminar, I will describe the contributions made by my group toward the development of a low-temperature hybrid electrochemical/thermochemical cycle for production of hydrogen from water. Particular attention will be given to the studies we have carried out to get a better understanding of the cycle reactions and the formation of reaction by-products. The second part of my talk will focus in the synthesis and characterization of metal oxide/carbon catalyst support for polymer electrolyte membrane fuel cells. I will present preliminary electrochemical results that show our materials have a better overall performance than commercial carbon black in terms of Pt electrochemical active surface area and long term stability when used as catalyst support for the oxygen reduction reaction.

ALL WELCOME