

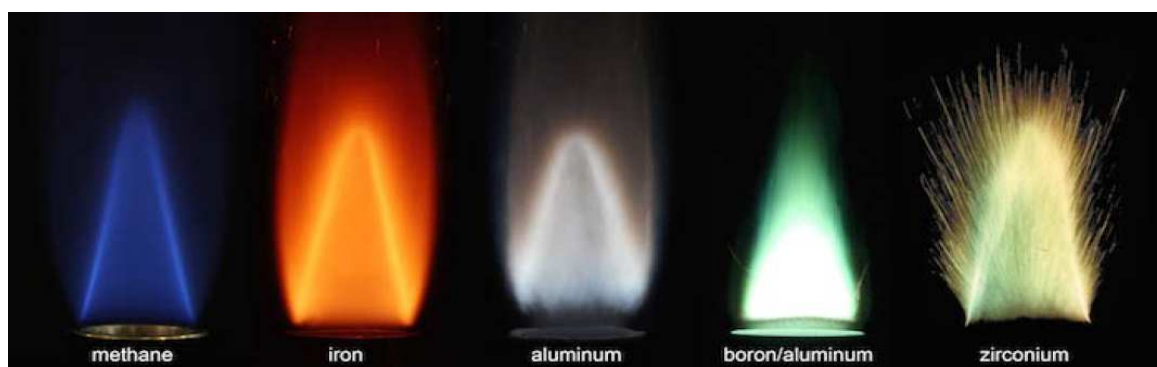
# ***Metal fuels for zero-carbon heat and power***

by

**Prof. Jeffrey Bergthorson**

McGill University, Canada

**Thursday, November 17, 2016 at 16h00**  
***Salle de conférence, ICARE***



In order to address climate change, we must transition to a low-carbon economy. Many clean primary energy sources are being developed, including solar, wind, and thermonuclear power that promise an abundant supply of clean electricity and thermal energy in the near future. The key question becomes how to store, transport and trade this clean energy in a manner that is as convenient as fossil fuels. The Alternative Fuels Laboratory (AFL) at McGill University is actively researching the use of recyclable metal fuels as a key enabling technology for a low-carbon society. Metal fuels, reduced using clean primary energy, have the highest energy density of any chemical fuel and are stable solids, simplifying trade and transport. The chemical energy stored in the metal fuels can be converted to useful thermal or motive power through two main routes: the Dry Cycle, where metal powders/sprays are burned with air, or the Wet Cycle, where metal powders are reacted with water to produce hydrogen and heat as an intermediate step before using the hydrogen as a fuel for various power systems. This talk will overview the concept of metal fuels and the various power system options.

Jeffrey Bergthorson received his B.Sc. in Mechanical Engineering from the University of Manitoba (1999), and his M.Sc. (2000) and Ph.D. (2005) in Aeronautics from the Graduate Aeronautical Laboratories of the California Institute of Technology. He is the Panda Faculty Scholar in Sustainable Engineering and Design, and an Associate Professor in the Department of Mechanical Engineering, at McGill University where he leads the Alternative Fuels Laboratory. Dr. Bergthorson's research interests are in the broad area of the combustion and emissions properties of alternative and sustainable fuels, including biofuels and the use of metals as recyclable fuels.

website:<http://afl.mcgill.ca/>