

Background

Theme B: Emerging and Enabling Technologies

Summary

Technology innovations from areas such as biology that are undergoing revolutionary change have yet to permeate the energy industry. This theme will provide underpinning and emerging technologies from both within and without the energy sectors. It focuses on incorporating understandings from biological, chemical and engineering science advances to enable novel energy recovery processes and routes to emissions reduction, novel sensors and sampling systems for monitoring both industrial and subsurface environments and innovative chemical and electrochemical routes to novel carbon storage vectors.

Leadership

Dr. John Shaw, Professor and NSERC/AB Innovates, Industrial Research Chair in Petroleum Thermodynamics, University of Alberta

Dr. John M. Shaw, professor and NSERC Industrial Research Chair in Petroleum Thermodynamics, is a specialist in the phase behaviour and thermophysical properties of coal liquids, heavy oils and condensate rich reservoir fluids and the mixing/de-mixing issues related to such multiphase materials. He is an associate editor of Energy and Fuels, and sits on the Network Coordination Council for the Canadian Oilsands Network of Research and Development (CONRAD).

Dr. Shaw developed the x-ray view cell technology that permitted the first direct observation of the phase behaviour of opaque asphaltene-rich fluids. His work has attracted international attention and he has held visiting professorships at the Technical University of Delft (Netherlands), the Institut Francais du Petrole (France) and the Syncrude Research Centre. He has delivered invited lectures at numerous conferences, institutes, universities and private companies.

Dr. Shaw obtained his B.A. Sc. (1981) and PhD. (1985) at the University of British Columbia and served as professor in the Department of Chemical Engineering and Applied Chemistry at the University of Toronto before joining the University of Alberta in 2001.

Round 1 Funded Projects

In 2010, CMC funded 17 Canadian research projects. Theme B funded projects were:

- Enabling Capture of CO₂ Under Anaerobic (Subsurface) Conditions
- A Pore-scale Microlab to Perform Fundamental Laboratory-based Studies of CO₂ Transport and Reactivity in Reservoirs