Computational Fuel Cell Dynamics

Banff International Research Station

April 19-25, 2003

Program

Contact Information

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Saturday April 19

All Day	Check in Corbett Hall
5:30 - 7:30pm	Buffet Dinner, Donald Cameron Hall, Main Dining Room

Sunday April 20

All Talks in Max Bell Room 159

7:30 - 9:00	Breakfast, Corbett Hall Lounge, 2nd Floor
9:00 - 9:45	Overview of PEM Fuel Cells Keith Promislow, Simon Fraser University
10:00 - 10:45	Advance PEM Fuel Cell Models and Application to PEM Commercialization Challenges John Kenna, Ballard Power Systems
11:00 - 11:45	A Simple but Comprehensive PEM Unit Cell Model Brian Wetton, University of British Columbia
12:00 - 1:00	Lunch, Donald Cameron Hall
1:30 - 2:15	PEMFC Device Modeling: Using CFD Models to Understand PEM Fuel Cell Behavior John Van Zee, University of South Carolina
2:30 - 3:15	The Autohumidification Polymer Electrolyte Membrane Fuel Cell Jay B. Benziger and Y.G. Kevrekidis, Princeton University
3:30 - 4:00	Break
4:00 - 4:45	1+1 Dimensional Model of Technical PEFC Single Cell with Focus on Water Transport Felix Buchi, Paul Scherrer Institut
5:30 - 7:30	Dinner, Donald Cameron Hall
7:30 - 8:30	Discussion Session

Monday April 21

7:30 - 9:00	Breakfast, Corbett Hall Lounge, 2nd Floor
9:00 - 9:45	Understanding proton conduction in the polymer electrolyte membrane through molecular and statisical mechanical modeling Stephen Paddison, Los Alamos National Laboratory
10:00 - 10:45	Conduction of water and protons through carbon nanotubes Gerhard Hummer, National Institutes of Health
11:00 - 11:45	Capillary-Driven Flow in Liquid Filaments Connecting Orthogonal Channels Jeff Allen, National Center for Microgravity Research
12:00 - 1:00	Lunch, Donald Cameron Hall
1:30 - 2:15	The development of Variational Methods for the investigation of Ion Transport in Hydrated Polymer Electrolyte Pores R. Paul, University of Calgary
2:30 - 3:15	Modeling hydrophobicity in a porous fuel cell electrode John Stockie, University of New Brunswick
3:30 - 4:00	Break
4:00 - 4:45	Energetic Variational Method in the Study of Multiple Component Fluids Chun Liu, Pennsylvania State University
5:30 - 7:30	Dinner, Donald Cameron Hall
7:30 - 8:30	Discussion Session

Tuesday April 22

7:30 - 9:00	Breakfast, Corbett Hall Lounge, 2nd Floor
9:00 - 9:45	Impedance as a diagnostic tool for studying fuel cells Daniel Baker, General Motors R&D Center
10:00 - 10:45	Analysis of Some Aspects of Water Transport in a PEMFC Using 3D Multiphase Simulations Ned Djilali, University of Victoria
11:00 - 11:45	A detailed numerical model describing DMFC: species transport, reaction kinetics and temperature feedback Klaus Gaertner and Jurgen Fuhrmann, WIAS Berlin
12:00 - 1:00	Lunch, Donald Cameron Hall
1:30 - 2:15	Diagnostics of Liquid Water Flooding in PEMFC Electrodes Trung Van Nguyen, University of Kansas
2:30 - 3:15	TBA Tim Myers, University of Cape Town
3:30 - 3:45	Break
3:45 - 4:15	Electrochemical Potentials in Steady-State Fuel Cell Modeling Joseph Ferhibach, Worcester Polytechic Institute
4:30 - 5:30	Discussion Session
5:30 - 7:00	Dinner, Donald Cameron Hall
7:00 - 8:30	Poster Session

Wednesday April 23

7:30 - 9:00	Breakfast, Corbett Hall Lounge, 2nd Floor
9:00 - 9:45	Ion Exchange Funneling in Modified Heterogeneous Ion Exchange Membranes Isaak Rubinstein, BenGurion University
10:00 - 10:45	Ionic Diffusion Through Microscopic Regions: From Molecular Description to Continuum Equations Boaz Nadler, Yale University
11:00 - 11:45	Membrane Swelling and Proton Transport in Nafion Ravindra Datta, Worcester Polytechnic
12:00 - 1:00	Lunch, Donald Cameron Hall
1:30 - 5:00	Afternoon excursions
5:30 - 7:30	Dinner, Donald Cameron Hall
7:30 - 8:30	Discussion Session

Thursday April 24

7:30 - 9:00	Breakfast, Corbett Hall Lounge, 2nd Floor
9:00 - 9:45	Multilevel adaptive methods for multiphase flow Jinchao Xu, Pennsylvania State University
10:00 - 10:45	Improving HFC performance through optimization of channel/GDL transmission coefficient Arian Novruzi, University of Ottawa
11:00 - 11:45	Modeling Carbon Monoxide Poisoning And Oxygen (Air) Bleeding in PEM Fuel Cells Xianguo Li, University of Waterloo
12:00 - 1:00	Lunch, Donald Cameron Hall
1:00 - 1:30	Flow and Reaction in Solid Oxide Fuel Cells Andrew King, Edgbaston
1:45 - 2:15	A detailed numerical Model for DMFC: Discretization and Solution methods Jurgen Fuhrmann, WIAS Berlin
2:30pm	Close of Session