

13TH ANNUAL REACTOR SIMULATION SYMPOSIUM  
 CHALK RIVER NUCLEAR LABORATORIES  
 CHALK RIVER, ONTARIO

1987 APRIL 27-28

PROGRAM SCHEDULE

SUNDAY, APRIL 26

7:30 to 9:30 p.m. Registration - Wine & Cheese Reception  
 Riverview Inn, Deep River

MONDAY, APRIL 27

7:35 a.m. CRNL Bus from Riverview Inn to CRNL

8:00 a.m. Check-in (Issue of Visitor's Badge:  
 Identification Required)  
 CRNL's Public Information Centre

8:20 a.m. CRNL Bus to Bldg. 508

8:30 a.m. Welcoming Address - R.E. Green,  
 Vice President, Reactor Development, AECL

Session 1: Reactor Physics I - Chairman - A.L. Wight (Ontario Hydro)

8:50 a.m. A New RFSP Model that Includes the Space  
 Page 2 Dependence of Fuel Temperature, Coolant Density  
 and Power Density  
 - D.A. Jenkins, B. Rouben (AECL-CANDU Operations)

9:10 a.m. CONIFERS - A Reactor Core Analysis Program with  
 Page 12 Emphasis on Reactors with Channels  
 - R.S. Davis (AECL-CRNL)

9:30 a.m. Lattice Characteristics that Influence the Change  
 Page 25 in Reactivity with Coolant Voiding in CANDU  
 Lattices  
 - J. Griffiths (AECL-CRNL)

9:50 a.m. Coffee

MONDAY, APRIL 27Session 2: Thermohydraulic Modelling - Chairman - J. Luxat (Ontario Hydro)

- 10:10 a.m.  
Page 50                      Choking Criterion for One-Dimensional Critical Multiphase Flow in Ducts and Open Channels  
- M. Dostie, Y. Mercadier  
  (Université de Sherbrooke)
- 10:30 a.m.  
Page 69                      Assessing Spatial Effects in Aerosol Transport Models  
- M. Razzaghi (AECL-WNRE)
- 10:50 a.m.  
Page 95                      Analysis of Frictional Pressure Drop for High Pressure Steam-Water Stratified Flow in a Large Diameter Pipe  
- M.M. Wong, M. Kawaji (University of Toronto)  
- K. Tasaka (JAERI)
- Page 115                      Investigation of Countercurrent Flooding Phenomena in Vertical-to-Inclined Elbows of Varying Angle  
- C.P. Tingle, M. Kawaji  
  (University of Toronto)
- 11:10 a.m.  
Page 132                      REGIME-3 Code for Prediction of Flow Regime Transition in a Two-Phase Manifold Flow  
- L. Lightstone, S.I. Osamusali, J.S. Chang  
  (McMaster University)
- 11:30 a.m.  
Page 154                      Numerical Modelling of Phase Distribution in Interconnected Subchannels  
- J.C. Kiteley, M.B. Carver, A. Tahir (AECL-CRNL)
- 11:50 a.m.  
Page 177                      Radionuclide Concentrations in the Steam-Condensate Supply System Due to Steam Generator Tube Chronic Leakage  
- W. Chan, R.Y. Chu, B. Phillips (Ontario Hydro)
- 12:15 p.m.                      Lunch (and group photo)

MONDAY, APRIL 27Session 3: Overall Plant Simulation - Chairman - K. Sedula (Sedula Systems)

- 1:30 p.m.  
Page 196                      Darlington 'A' Real Time Simulation  
- P. Archer (AECL-CANDU Operations)  
- E. Hung (Ontario Hydro)
- 1:50 p.m.  
Page 208                      Real Time Simulation of the Pressurizer and Bleed  
Condenser for the Bruce NGS-B Training Simulator  
- M.D. Langan, A. Manz (Ontario Hydro)
- 2:10 p.m.  
Page 224                      Running the CATHENA Thermohydraulics Code on  
a Supermicro Computer  
- K. Amrud, Q.S. Truong, R.L. Ferch, V.Q. Tang,  
(Atomic Energy Control Board)  
- D.M. Kawa (Wardrop Engineering Consultants)
- 2:30 p.m.  
Page 250                      PCTRAN/CND: Personal Computer Program for  
Predicting CANDU Reactor Thermalhydraulics  
- S.M. Sami, Y. Mercadier, M. Kraitem, A. Moreau  
(Université de Sherbrooke)  
- L.C. Po (Micro Simulation Technology)
- 2:50 p.m.  
Page 251                      A Simple Steam Generator Model for Plant  
Optimization Studies  
- N.J. Spinks (AECL-CRNL)  
- M.R. Soulard (AECL-CANDU Operations)
- 3:10 p.m.                      Coffee

Session 4: Figure of Eight Thermohydraulics - Chairman - W. Garland  
(McMaster University)

- 3:30 p.m.  
Page 262                      Characteristics of Two Phase Natural Circulation  
at Near Atmospheric Pressure in a  
Figure of Eight Loop  
- F.B.P. Tran (Ontario Hydro)  
- W.J. Garland, J.S. Chang (McMaster University)
- 3:50 p.m.  
Page 263                      A Simple Flow Stability Model for Figure-of-Eight  
Loop with Outlet Header Interconnect  
- P. Gulshani (AECL-CANDU Operations)
- 4:10 p.m.  
Page 284                      Two-Phase Flow Stability Tests in RD-14  
- P.J. Ingham, G.R. McGee, J.P. Mallory,  
T.E. MacDonald (AECL-WNRE)
- 4:30 p.m.  
Page 285                      Small Inlet Header Break Experiments in RD-14  
- G.R. McGee, F.W. Barclay (AECL-WNRE)

MONDAY, APRIL 27

5:10 p.m. CRNL Bus to Riverview Inn, Deep River

Riverview Inn

7:00 p.m. Cocktails (Cash Bar)

7:30 p.m. Banquet - Main Banquet Room

8:00 p.m. Guest Speaker: G.F. Lynch, General Manager,  
Local Energy Systems Business Unit

TUESDAY, APRIL 28

7:35 a.m. \*CRNL Bus from Riverview Inn to CRNL

8:00 a.m. Check-In (Issue of Visitor's Badge:  
Identification Required)  
CRNL's Public Information Centre

8:20 a.m. CRNL Bus to Bldg. 508

Session 5: Numerical Methods - Chairman - M. Carver (AECL-CRNL)

8:30 a.m. Error Bounds on the Solutions of Parabolic  
Page 288 Differential Equations  
- S.R. Vatsya (AECL-WNRE)

8:50 a.m. The Allure of R-Functions  
Page 312 - S.R. Douglas, M.S. Milgram (AECL-CRNL)

9:10 a.m. A Comparison of the Rate Form of the Equation  
Page 319 of State to the Jacobian Form  
- W.J. Garland (McMaster University)

9:30 a.m. A Non-Linear, Finite Element, Heat  
Page 347 Conduction Code to Calculate Temperatures in  
Solids of Arbitrary Geometry: The FEAT Program  
- M. Tayal (AECL-CANDU Operations)

9:50 a.m. Numerical Simulation of Phase Redistribution  
Page 377 Caused by Obstructions and Bends  
- M.B. Carver (AECL-CRNL)  
- M. Salcudean (University of B.C.)

\* NOTE: Riverview Inn guests checking out of Inn at this time may wish to bring luggage to CRNL where it will be stored for you at the Gatehouse Bldg. 401.

TUESDAY, APRIL 28

10:30 a.m. Coffee

Session 6: Reactor Physics II - Chairman - F. McDonnell (AECL-CRNL)

10:50 a.m.  
Page 432 Simulating the Power Rundown Transient from Poison Injection System for a CANDU Reactor  
- N. Roy, M.Z. Farooqui, S.G. Lie, H.G. Austman, A.L. Wight (Ontario Hydro)

11:10 a.m.  
Page 446 Thorium-Fuelled CANDU Nuclear Reactor Optimal Fuel Management at Approach to Refuelling Equilibrium  
- H.W. Bonin (Royal Military College)

11:30 a.m.  
Page 462 The Role of Enriched Fuel in CANDU Power Uprating  
- P.S.W. Chan, A.R. Dastur (AECL-CANDU Operations)

11:50 a.m. Lunch

Session 7: Fuel Channels - Chairman - J. Hopwood (AECL-CANDU Operations)

12:50 p.m.  
Page 486 Predicting Creep Response of CANDU Fuel Channel Assemblies  
- R.G. Sauvé (Ontario Hydro)

1:10 p.m.  
Page 519 A Preprocessor for CDEPTH Input File Preparation  
- C.O. Poidevin, J. Tennant (Ontario Hydro)

1:30 p.m.  
Page 540 In-Reactor Deformation of Zr-2.5 wt% Nb Pressure Tubes  
- A.R. Causey, V. Fidleris, S.R. MacEwen (AECL-CRNL)  
- C.W. Schulte (Ontario Hydro)

1:50 p.m.  
Page 566 Irradiation-Induced Deformation of Zircaloy-2 Calandria Tubes in CANDU Reactors  
- A.R. Causey, V. Fidleris (AECL-CRNL)  
- R.A. Holt (Ontario Hydro)

2:10 p.m.  
Page 594 Modelling the Steam Temperature Distribution in CATHENA and Its Application to Pressure Tube Circumferential Temperature Distribution Analysis  
- C.B. So (AECL-WNRE)

2:30 p.m. Coffee

TUESDAY, APRIL 28

Session 8: Thermohydraulic Code Applications - Chairman - V. Krishnan  
(AECL-WNRE)

- 2:50 p.m.  
Page 614                   NUCCP (NUCIRC) Predictions of Channel Flow and Comparison with Site Measurements at the Point Lepreau Generating Station  
- W.J. Hartmann (AECL-CANDU Operations)
- 3:10 p.m.  
Page 634                   The Phenomenology of the PHT Pump Trip Events  
- G. Delorme, (Groupe d'Analyse Nucléaire)  
- L.J. Watt (IDEA Research)
- 3:30 p.m.  
Page 656                   SOPHT Simulation of Valve Failures in the Heat Transport System of Bruce NGS-B  
- D. Zobin (Ontario Hydro)
- 3:50 p.m.  
Page 678                   Simulation of ECCS Performance Using FIREBIRD III Mod. 1  
- V.Q. Tang, Q.S. Truong  
  (Atomic Energy Control Board)
- 4:30 p.m.                   CRNL Bus to Riverview Inn