

## Course Overview

### *Aim of Course*

The aim of this course is to provide an understanding of the CANDU fuel design, performance and operation, and of how the fuel interacts with the interfacing systems. The course will be of great interest to the fuel designers, regulator, manufacturers, station operations, fuel-channel and fuel-handling-system designers, safety analysts, performance and inspection staff.

### *Course Outline*

This course will provide an overview of the CANDU fuel design, modeling, performance and operation, with a special emphasis on the systems that interface with it. Fuel, more than any other reactor component, interfaces with many different systems. This course is designed to enlighten those involved in fuel design and performance of the interfaces; and vice versa. The course will describe the design of the bundle, the detailed nuclear physics of its operation, the thermal-hydraulic performance, the fuel handling, fuel and physics of the reactor, the discharge and storage of the fuel.

### Registration

Please register on-line via the link on the CANDU Fuel Technology Course web page, which you can reach directly at

[http://www.cns-snc.ca/events/2019\\_fuel\\_technology\\_course](http://www.cns-snc.ca/events/2019_fuel_technology_course) or via the CNS web site (<http://www.cns-snc.ca>).

The registration fees are shown below, and include HST (HST # 870488889RT)

- CNS Member: \$750 [Must be a CNS member in good standing]
- Non-CNS Member: \$850
- Full-time student (CNS member) or CNS Retiree member: \$300.

For registration information, please communicate with:

CNS Office  
998 Bloor St. W., #501  
Toronto, ON, Canada, M6H 1L0  
Tel: 416-977-7620  
e-mail: [cns\\_office@cns-snc.ca](mailto:cns_office@cns-snc.ca)

---

### Accommodations at Hilton Garden Inn

Please make accommodation arrangements, if required, on-line via the dedicated link <https://hiltongardeninn.hilton.com/en/gi/group/s/personalized/Y/YYZAJGI-CNS19-20191002/index.jhtml>, or else by telephone directly with the hotel at 1-905-686-9400 (use group code CNS19). A special group rate of \$144 + tax per night is available on the nights of October 2 & 3 if booked before 2019 September 12. **Please reserve early to avoid disappointment.**

## CANDU FUEL TECHNOLOGY COURSE

Canadian Nuclear Society  
Fuel Technologies Division



**2019 October 3 - 4**  
**Hilton Garden Inn**  
**500 Beck Crescent**  
**Ajax, Ontario, L1Z 1C9**

Course contacts (not for registration):

Paul Chan, Professor  
Chemistry and Chemical Engineering Dept.  
Royal Military College of Canada  
Tel: (613) 483-6095 Ext. 6145  
E-mail: [paul.chan@rmc.ca](mailto:paul.chan@rmc.ca)

Erl Kohn  
Consultant, Fuel Design  
Kinectrics Inc.  
Tel: (519) 490-1488  
E-mail: [erl.kohn@acanac.net](mailto:erl.kohn@acanac.net)

**CANDU Fuel Technology Course  
October 3 - 4, 2019  
Ajax**

**Objectives of the Course**

- To provide the understanding of CANDU fuel design, modelling, performance and safety
- To foster the understanding of the systems that interface with fuel and the effects of fuel on trip setpoint
- To promote knowledge of fuel within the CANDU industry

**Day 1**

08:00	<b>Registration</b>
08:30	<b>Opening Remarks</b> <i>Paul Chan, RMC</i> <i>Erl Kohn, Kinectrics Inc.</i>
08:45	<b>Design Overview</b> <i>Erl Kohn, Kinectrics Inc.</i>
09:30	<b>Fuel Defect Detection</b> <i>Erl Kohn, Kinectrics Inc.</i>
10:15	<b>Coffee Break</b>
10:30	<b>Fuel Design Codes and Predictions</b> <i>Mukesh Tayal, AECL-Retired</i>

11:15	<b>Chemical and Material Requirements</b> <i>John Roberts, Bruce Power -Retired</i>
12:00	<b>Lunch</b>
13:00	<b>Fuel CHF/CCP</b> <i>Glenn Harvel , UOIT</i>
13:45	<b>Reactor Fuel &amp; Physics Operation</b> <i>Charles Olive, Kinectrics Inc.</i>
14:30	<b>Coffee Break</b>
14:45	<b>Fuel Safety</b> <i>Samir Girgis, AECL- Retired</i>
15:30	<b>Fuel and NOP/ROP Trip Setpoint</b> <i>Wei Shen, CANDU Owners Group</i>
16:15	<b>Fuel Physics Within the Bundle</b> <i>Ben Rouben, 12 &amp; 1 Consulting</i>
18:00	<b>Dinner</b>
<b><u>Day 2</u></b>	
08:00	<b>Fuel PIE &amp; Adv Hot-cell Tech</b> <i>Jeffrey Armstrong, CNL</i>
08:45	<b>Specifying the Design</b> <i>Paul Chan, RMC</i>

09:30	<b>Defective Fuel Modeling</b> <i>Brent Lewis, RMC- Emeritus Prof</i>
10:15	<b>Coffee Break</b>
10:30	<b>Fuel Performance Assessment</b> <i>Paul Gillespie, Kinectrics Inc.</i>
11:15	<b>Multiphysics Approach to Fuel Modeling</b> <i>Andrew Prudil, CNL</i>
12:00	<b>Lunch</b>
13:00	<b>Conversion Facility - Ceramic UO<sub>2</sub></b> <i>Vanni Iemma, Cameco</i>
13:45	<b>Fuel Manufacturing</b> <i>Thomas Onderwater, BWXT NEC</i>
14:30	<b>Coffee Break</b>
14:45	<b>Fuel Handling</b> <i>Ralph Granz, BWXT NEC</i>
15:30	<b>Long Term Management of Canada's Used Nuclear Fuel</b> <i>Chris Boyle, NWMO</i>
16:15	<b>Closing Remarks</b> <i>Erl Kohn, Kinectrics Inc.</i>