



# 25th CNS/CNA Annual Student Conference

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**McMaster University**  
**Hamilton, Ontario**  
**March 10-11, 2000**



## Preamble:

The Canadian Nuclear Society and Canadian Nuclear Association (CNS/CNA) Annual Student Conference is a student-organized assembly. Its goal is to serve as a forum for the exchange of technical information among undergraduate and graduate students, their professors and representatives of the nuclear industry by means of oral presentations of the students' work.

McMaster University is proud to host the 25th CNS/CNA Annual Student Conference in March 10-11, 2000. Although this event is taken place, this web site will remain open as an archive.

## Conference Details:

- Organization
  - [Contacts / Committee members](#)
  - [Registration](#) (closed)
  - [Accommodation](#)
  - [How to get there / area information](#)
- [Sponsorship](#)
- Program
  - [Call for papers](#)
  - [Program and full papers](#)
  - [Dinner Speaker](#) (pdf 104kb)
  - [Attendees](#)
  - [Awards](#)

## Financial Assistance:

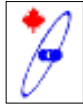
For the purpose of making the conference affordable to students from across the country to attend, there are no registration fees, all activities are free and a one-night accommodation is covered for students. Some travel costs may be reimbursed after the conference depending on the amount of funds available and the number of participants requesting assistance (use the travel expense claim [form](#) (pdf 6kb)). Students are also encouraged to seek financial assistance from their universities, i.e., department, graduate school and graduate or undergraduate student associations.

## **Awards for Best Papers:**

The student presentations are assessed, based on both technical and communicative skills, by a jury composed of professors and industry representatives. Awards are presented for the best communications.

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# 25th CNS/CNA Annual Student Conference Contacts



## Conference Chairs:

### Conference Advisor

Dr. Bill Garland, Professor  
Dept. of Engineering Physics  
McMaster University  
1280 Main Street West  
Hamilton, Ontario  
Canada, L8S 4L7  
email: [garlandw@mcmaster.ca](mailto:garlandw@mcmaster.ca)  
tel: (905) 525-9140 x 24925, fax: (905) 528-4339

### Technical Program Chair

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### Venue Chair

Imre Vencel  
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McMaster University  
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Canada L8S 4L7  
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tel: (905) 525-9140 x 23191, fax: (905) 528-4339

### Conference Chair

Nima Safaian  
Engineering Physics & Mgmt(III)  
email: [safaian@mcmaster.ca](mailto:safaian@mcmaster.ca)

### Sponsorship

Evelyn Jackson  
Engineering Physics & Mgmt(II)  
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### Members at large

Joe Dallaire  
Engineering Physics(III)  
email: [dallaj@mcmaster.ca](mailto:dallaj@mcmaster.ca)

Sonia Lala  
Engineering Physics(III)  
email: [lalas@mcmaster.ca](mailto:lalas@mcmaster.ca)

Robert Pasuta  
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McMaster Nuclear Reactor  
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tel: (905) 525-9140 x 27140, fax: (905) 528-4339

Jeff McDonald  
Engineering Physics & Society(II)  
email: [mcdonajm@mcmaster.ca](mailto:mcdonajm@mcmaster.ca)

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## Conference Accommodation



### 25th CNS/CNA Annual Student Conference McMaster University Hamilton, Ontario March 10-11,2000

#### Conference Accommodation

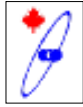
If you require accommodation, please make a reservation with [Visitors Inn](#) (Hamilton). Please note that **YOU** are **RESPONSIBLE** for contacting Visitors Inn to arrange your own accommodations for the night of March 10th as soon as possible (mention that you are attending the 25th Annual CNS/CNA conference). Accommodation costs are covered by the conference up front for students.

**Contact:**

Visitors Inn  
649 Main st. West  
Hamilton, Ontario  
Phone/Fax: (905)529-6979  
Toll Free Reservation: 1-800-387-4620  
E-Mail: [reservations@visitorsinn.com](mailto:reservations@visitorsinn.com)

[Visitors Inn](#) (Hamilton-Wentworth County web site page)

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# Conference Directions and Area Information



## 25th CNS/CNA Annual Student Conference McMaster University Hamilton, Ontario March 10-11,2000

### Conference Directions and Area Information

**Visitors Inn** (for the banquet on Friday night) is located at the corner of Highway 403 and Main Street West. It is located approx. 1.5 kms to McMaster University and medical centre as well as downtown Hamilton.

From Toronto & Niagara Falls:

- Take Q.E.W to Hwy 403 West (Hamilton)
- Travel on the 403 past Hwy 6 exit, past the York Road exit, past the Main Street East exit
- exit on Main Street West
- and turn right on Main Street to the Visitors Inn.

From Detroit & London: Take Hwy 401 East to Hwy 403

- East to Hamilton.
- Exit Aberdeen Avenue, and left on Longwood Road, then right on Main Street West to the Visitors Inn.

From Downtown Hamilton:

- King Street West past Hwy 403 and left on Macklin Street to the Visitors Inn.

**McMaster University** (for the conference on Saturday) is located in the west end of Hamilton.

From Toronto:

- Take the QEW west towards Hamilton to Highway 403
- Travel on the 403 past Hwy 6 exit, past the York Road exit, past the Main Street East exit
- Take the Main Street **West** exit
- At the traffic lights at the top of the ramp turn left onto Main St W. You are now heading west on Main St W.
- Go past the hospital (on your right) to the intersection of Main and Cootes Drive
- Hang a right onto Cootes and take the first exit. That takes you to the west end of Campus
- Turn right as you enter the campus and stop at the kiosk and tell the attendant you are with the CNS Annual Student Conference
- Go straight ahead and follow the road as it swings left back towards the hospital
- The Engineering Annex is on your left; park in the spaces provided

Accessibility (by Airports):

- Hamilton International Airport is located approximately 8 km southwest of the City of Hamilton in the Township of Glanbrook, 15 minutes from downtown Hamilton (60 minutes from downtown Toronto).
- Lester B. Pearson International Airport is located 68 km east of Hamilton-Wentworth, approximately a 45 minute drive from downtown Hamilton.
- Buffalo International Airport is approximately 110 km or a one and a half hour drive by car, from Hamilton.

Area Information

- [Map of Hamilton](#)
- [General Info about Hamilton](#)
- [General Info about Mac](#)

McMaster Web Site:

- [Home](#)
  - [Road Directions to Mac and the Campus Map](#)
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# 25th CNS/CNA Annual Student Conference Sponsors

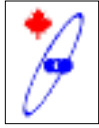


**We are proud to announce the following Conference Sponsors:**

- [Canadian Nuclear Society](#) (a nuclear society for the individual) - *Join today - be part of the nuclear network - be part of the solution.*
- [CNA](#) - The Canadian Nuclear Association is an association of many industries and enterprises sharing a common interest in the development and application of nuclear energy for peaceful purposes.
- [OPG](#) - Ontario Power Generation (formerly Ontario Hydro)
- [AECL](#) - Atomic Energy of Canada Limited
- [MNR](#) - The McMaster Nuclear Reactor
- Department of [Engineering Physics](#), [McMaster University](#)
- The McMaster [Engineering Faculty](#)
- [AECB](#) - The Atomic Energy Control Board
- [Babcock and Wilcox Canada](#)
- [The CNS Golden Horseshoe Branch](#)
- [SAIC Canada](#)
- Engineering Physics Society (Undergrad)

Our deepest and sincerest thanks for making this conference possible.

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# Call For Papers

## 25th CNS/CNA Annual Student Conference

McMaster University  
Hamilton, Ontario  
March 10-11, 2000

### Call for Papers:

Students are invited to submit papers reporting their work. The contributed papers will be published in a bound conference proceedings and made available to attendees. Papers must be submitted in camera-ready format. Topics to be covered in the conference include, but are not limited to, the following nuclear related disciplines:

- Nuclear Safety
- Radiation and the Environment
- Reactor Physics
- Simulation / Numerical Methods
- Thermalhydraulics
- Nuclear Systems and Technology
- Nuclear Medicine
- Waste Management
- Fusion Science and Technology
- Applications of Radiation and Radioisotopes
- Nuclear Chemistry
- Nuclear Instrumentation
- Nuclear Materials
- Fuel Cycles
- Irradiation Processes and Food Irradiation
- Reactor Control and Instrumentation
- Information Technology

### Format of Papers:

Papers should be in French or English, 2-5 pages long without page numbering. Text should be typed single spaced on 8 1/2x 11" paper with 1" margins on all sides. The first page should include the title of the paper, author(s) name, affiliation and complete address. The recommended font is Times Roman 12 point. The references should be listed at the end of the paper.

### Presentations:



Presentations should be in French or English with a maximum duration of 15 minutes, followed by a 5 minute question period. Overhead and slide projectors will be available. Other audio-visual equipment can be made available.

## **Submission Deadlines:**

**Notice of Participation:** The attached Notice of participation form should be completed by all participants, whether presenting or not (including non-student participants) and mailed or faxed no later than January 15, 2000.

**Papers:** To be included in the Conference Proceedings, papers should be mailed to the Conference Chair no later than February 16, 2000.

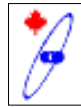
## **Contact:**

Dr. Bill Garland, Professor, Dept. of Engineering Physics  
McMaster University, 1280 Main Street West, Hamilton, Ontario, Canada, L8S 4L7  
email: [garlandw@mcmaster.ca](mailto:garlandw@mcmaster.ca), tel: (905) 525-9140 x 24925, fax: (905) 528-4339

Conference URL:

<http://epic.mcmaster.ca/~garlandw/univcomm/studconf2000/confindex.htm>

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## 25th CNS/CNA Annual Student Conference McMaster University Hamilton, Ontario March 10-11,2000

### Conference Program:

#### Friday, March 10, 2000 at the Visitors Inn

6:00 PM: Reception

7:00 PM: Conference Banquet

8:30 PM: Invited Talk: "[The Impotence of Being Earnest: Adventures in Communicating the Nuclear Vision](#)" (pdf 104kb), Dr. Jeremy Whitlock, Chalk River Laboratories, AECL

#### Saturday, March 11, 2000 at McMaster University, John Hodgins Engineering Bldg, Room 365

8:30 AM: Opening Remarks / Sign up for McMaster Nuclear Reactor Tour

9:00 AM: Session 1, Chaired by Dave Jackson, McMaster University

- J.A. Kennedy and S.E. Day, "Comparison of McMaster Nuclear Reactor Irradiation Experiments with Simulation", McMaster University, (M). ([pdf 145 kb](#))
- M.J. McCall and M. Pierre, "A Feasibility Study of the SLOWPOKE-2 Reactor as a Neutron Source for BNCT", Royal Military College of Canada, (M). ([pdf 159kb](#))
- A. McLean, "Modeling Creation of Methane and its Derivatives in the Tokamak Edge-Effect Simulation Code DIVIMP", University of Toronto, (U). ([pdf 79 kb](#))
- T.R. Chalovich, "Neutron Radioscopy at the SLOWPOKE-2 Facility at RMC for the Inspection of CF-18 Flight Control Surfaces", Royal Military College of Canada, (M). ([pdf 281 kb](#))

10:30 AM : Coffee Break

11:00 AM: Session 2, Chaired by Nick Idvorian, Babcock and Wilcox Canada

- G. Harrington, "Hideout of Sodium Phosphates in Steam Generator Crevices", University of New Brunswick, (M). ([pdf 220 kb](#))
- L. McCrea, "Deposition of Corrosion Product Particles onto Heat Exchange Surfaces", University of New Brunswick, (M). ([pdf 34 kb](#))
- I. Attieh, "Regularization of Feedwater Flow Estimation in PWRs", University of Tennessee, (P). ([pdf 59 kb](#))

12:15 PM: Luncheon

13:20 PM: Reactor Tours

14:30 PM: Session 3, Chaired by Frank Steinmoeller, Babcock and Wilcox Canada

- I. Miedema and M. Walker, "High Polymer-Based Composite Containers for the Disposal/Storage of High, Intermediate and Low Level Radioactive Waste", Royal Military College of Canada, (M). ([pdf 37kb](#))
- I. Vencel, "An Investigation of the Performance of a System That is Guarded by a Responsive System of Protection", McMaster University, (M). ([pdf 94kb](#))
- M.J. McCall, "Development and Validation of a Predictive Code for AirCrew Radiation Exposure (PC-AIRE)", Royal Military College of Canada (M). ([pdf 198kb](#))
- I. Attieh, "Pattern Recognition Techniques for Transients Detection", University of Tennessee, (P). ([pdf 24kb](#))

16:30 PM: Coffee Break

17:00 PM: [Awards](#) Presentations & Closing Remarks

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# **25th Canadian Nuclear Association/Canadian Nuclear Society Annual Student Conference**

Hamilton, March 10-11 , 2000

Invited Talk

**Title:**

The Impotence of Being Earnest: Adventures in Communicating the Nuclear Vision

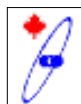
By : Dr. Jeremy Whitlock

Time : Friday, March 10 ,8:30 pm.

Location : VISITORS INN , 649 Main St. West, Hamilton, Ontario.

## **SUMMARY:**

This talk will share some of the experiences of a nuclear engineer who not long ago was a student himself wondering about where in the cosmos he was headed. Life as a nuclear professional is like living in a glass house with people throwing stones at you. It is intensely rewarding and intensely controversial, and both aspects merge in the act of communicating nuclear's benefits to the public. Dr. Whitlock's involvement in this cause can be traced to pro-nuclear activism at the age of twelve, adding a unique perspective to his subsequent adventures dealing with anti-nuclear activists, students and other groups. His efforts in the public arena have earned him the Canadian Nuclear Society's 1999 Education and Communication Award. He still wonders about where in the cosmos he is headed.



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## Summary:

|               | Attending | Presenting |
|---------------|-----------|------------|
| Undergraduate | 12        | 1          |
| Master's      | 12        | 8          |
| PhD           | 2         | 2          |
| Professors    | 2         |            |
| Industrial    | 13        |            |
| Total         | 41        | 11         |

## Attendees

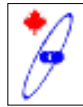
| Name               | Category | Presenting | Affiliation | Email                  |
|--------------------|----------|------------|-------------|------------------------|
| Akhavan, Zary      | Masters  |            | none        | zakhavan@sprint.ca     |
| Ellaschuk, Bernard | Masters  |            | McMaster    | ellaschuk-b@rmc.ca     |
| Kennedy, J         | Masters  | Yes        | McMaster    | kennej@mcmaster.ca     |
| Vencel, I          | Masters  | Yes        | McMaster    | venceli@mcmaster.ca    |
| Ara, Marcos        | Ugrad    |            | McMaster    | aram@mcmaster.ca       |
| Chen, Kevin        | Ugrad    |            | McMaster    | kchen@cheerful.com     |
| Dallaire, J        | Ugrad    |            | McMaster    | dallaij@mcmaster.ca    |
| Jackson, E         | Ugrad    |            | McMaster    | jacksoel@mcmaster.ca   |
| Jin, Nick          | Ugrad    |            | McMaster    | jin.n@symatico.ca      |
| Kowalski, Kaska    | Ugrad    |            | McMaster    | kowalk@mcmaster.ca     |
| Lala, S            | Ugrad    |            | McMaster    | lalas@mcmaster.ca      |
| McDonald, J        | Ugrad    |            | McMaster    | mcdonajm@mcmaster.ca   |
| Safaian, N         | Ugrad    |            | McMaster    | safaian@mcmaster.ca    |
| Shahideh, M        | Ugrad    |            | McMaster    | shahidm@mcmaster.ca    |
| Wille, G           | Ugrad    |            | McMaster    | gord_wille@hotmail.com |
| Chalovich, T       | Masters  | Yes        | RMC         | chalovich-t@rmc.ca     |
| Cosby, L           | Masters  |            | RMC         |                        |
| Ellaschuck, B      | Masters  |            | RMC         | ellaschuk-b@rmc.ca     |
| Pierre, M          | Masters  | Yes        | RMC         |                        |
| McCall, M          | Masters  | Yes        | RMC         | mccall-m@rmc.ca        |
| Miedema            | Masters  |            | RMC         |                        |
| Walker, M          | Masters  | Yes        | RMC         | walker-m@rmc.ca        |
| Pierre, M          | PhD      |            | RMC         | pierre-j@rmc.ca        |
| Attieh, I          | PhD      | Yes        | Tennessee   | iattieh@utk.edu        |

|               |         |     |         |                        |
|---------------|---------|-----|---------|------------------------|
| McLean, A     | Ugrad   | Yes | Toronto | mclean@ecf.toronto.edu |
| Harrington, G | Masters | Yes | UNB     | k4uh@unb.ca            |
| McCrea, L     | Masters | Yes | UNB     | s3s9@unb.ca            |

**Judge / Session Chair**

|                     |          |   |          |  |
|---------------------|----------|---|----------|--|
| Grant, Ian          | Industry |   | AECB     | grant.i@atomcon.gc.ca                      |
| Hawthorne, C        | Industry | S | AECB     | hawthorne.c@atomcon.gc.ca                  |
| Thibert, Jacques    | Industry |   | AECB     |  |
| Guellouz, S         | Industry | J | AECL     | guellouzs@aecl.ca                          |
| Meneley, Dan        | Industry | J | AECL     | meneleyd@aecl.ca                           |
| Boyd, F             | Industry | J | CNS      | FBoyd96@aol.com                            |
| Pasuta, R           | Industry |   | McMaster | pasutar@mcmaster.ca                        |
| Garland, W          | Prof     |   | McMaster | garlandw@mcmaster.ca                       |
| Jackson, David      | Prof     | S | McMaster | jacksond@mcmaster.ca                       |
| Idvorian, Nick      | Industry |   | B&W      | idvorian@pgg.mcdermott.com                 |
| Reinhardt, Wolf     | Industry | J | B&W      | reinharw@pgg.mcdermott.com                 |
| Steinmoeller, Frank | Industry | S | B&W      | steinmof@pgg.mcdermott.com                 |
| Fluit, Steve        | Industry | J | B&W      | fluits@pgg.mcdermott.com                   |
| Magill, Mary Ella   | Industry |   | OPG      | maryella.magill@ontariopowergeneration.com |
| LEE Shih Young      | Industry |   | OPG      | sya.lee@ontariopowergeneration.com         |

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**25th CNS/CNA Annual Student Conference  
McMaster University  
Hamilton, Ontario  
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## **Awards:**

- **First Place (Undergraduate):** A. McLean, "Modeling Creation of Methane and its Derivatives in the Tokamak Edge-Effect Simulation Code DIVIMP", University of Toronto.
- **First Place (Master's) (Tie):** M.J. McCall, "Development and Validation of a Predictive Code for AirCrew Radiation Exposure (PC-AIRE)", Royal Military College of Canada.
- **First Place (Master's) (Tie):** T.R. Chalovich, "Neutron Radioscopy at the SLOWPOKE-2 Facility at RMC for the Inspection of CF-18 Flight Control Surfaces", Royal Military College of Canada.
- **First Place (Doctoral):** I. Attieh, "Pattern Recognition Techniques for Transients Detection", University of Tennessee.

## **Judges:**

- Dan Meneley, AECL (Head Judge)
  - Sadok Guellouz, AECL
  - Fred Boyd, editor, CNS Bulletin, formerly AECB
  - Steve Fluit, Babcock and Wilcox Canada
  - Wolf Reinhardt, Babcock and Wilcox Canada
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# 25<sup>st</sup> CNA/CNS Annual Student Conference

March 10-11, 1996  
Hamilton, ON

## Travel Expenses Reimbursement Form

Name(s) :

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University:

\_\_\_\_\_

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Address:

\_\_\_\_\_

\_\_\_\_\_

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\_\_\_\_\_

-

Tel.: (\_\_\_\_) \_\_\_\_\_ Fax: (\_\_\_\_) \_\_\_\_\_ E-mail: \_\_-

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Assistance towards the cost of travelling to this conference will be provided to the extent possible with our limited budget. To claim assistance, please mail a list of your expenses, this form, supported by **invoices** to:

**Bill Garland**  
**Dept. of Engineering Physics**  
**McMaster University**  
**1280 Main Street West**  
**Hamilton, Ontario**  
**L8S 4L7**

**Tel. (905) 525-9140 ext. 24925**  
**Fax (905) 528-4339**  
**E-mail: garlandw@mcmaster.ca**

**Notes:** Requests must be received no later than **March 24, 2000.**



Please indicate clearly the name and address to whom a cheque should be sent.

**Total amount requested:** \$ \_\_\_\_\_  
(Please provide a detailed list)

**Amount granted:** \$ \_\_\_\_\_