



Symposium on Plasma And Nuclear Systems (SPANS-2023)

Virtual Event

21-Aug-2023

Ontario Tech University – Oshawa, ON, Canada

**Sponsors: IEEE-Toronto, NPSS Chapter, CNS – UOIT Chapter,
CNS – Fusion Energy and Accelerator Science and Technology Division (CNS-
FEASTD)**

Canadian Association of Physicists (CAP) – Plasma Physics Division, IEEE-Canada

Chair: Professor Hossam A.Gabbar (Ontario Tech University),

Contacts: Hossam.Gaber@ontariotechu.ca

Information and updates, please visit: <http://www.ieee-sege.com/index.html/SPANS.pdf>

Canadian Nuclear Society, SEGE

Message from SPANS Chair, Dr. Hossam A. Gabbar



- Professor in the Faculty of Energy Systems and Nuclear Science, and cross appointed in the Faculty of Engineering and Applied Science, UOIT
- UOIT welcomes all attendees at SPANS.
- IEEE NPSS (Nuclear and Plasma Sciences Society), Toronto, has been active in organizing workshops in plasma and nuclear systems since its establishment.
- The recent workshop was on Real Time Measurement, Instrumentation, and Control (RTMIC). This workshop has been extended with the collaboration with CNS-Fusion Energy and Accelerator Science and Technology Division (CNS-FEASTD), and the Canadian Association of Physicists (CAP) – Plasma Physics Division to organize SPANS (Symposium on Plasma and Nuclear Systems).
- SPANS provides a unique opportunity for fruitful discussions and collaboration between industries and academia. In addition, it provides great opportunities for students to present their work and have closer discussions with researchers, scientists, and professionals from industries to add great values to their skills and awareness of real industrial projects.

Queen's Rotamak Design

Dr. Jordan Morelli, Queen's University

Professor
Faculty, Engineering & Applied Physics
Physics, Engineering Physics &
Astronomy
Arts & Science
Queen's University



Electrical and Optical Diagnostics of Laboratory Plasmas

Dr. Hassaballa Safwat

Professor, Physics Department, Faculty of Science,
Islamic University of Madinah, Al-Madina Al-
Munawarah, Saudi Arabia

Department of Physics, Faculty of Science, Al-Azhar
Univ. Nasr City, Cairo, Egypt



Establishing an open, systems level technical basis in determining the SMR emergency planning zone (EPZ), Dr. Akira Tokuhiko

Professor, Energy and Nuclear Engineering, Faculty of Engineering and Applied Science, Ontario Tech University



Addressing Human Factors Challenges for Control Room Operators in Small Modular Reactors, Dr. Siby Samuel

Assistant Professor, Systems Design Engineering,
University of Waterloo



Generation and confinement of runaway electrons during injection of impurity gas puffing in ohmic discharges of STOR-M tokamak

Dr. S. Sajjad*, Dr. C. Xiao

Department of Physics, University of Saskatchewan,
Saskatoon, Sk, Canada

Student Presentations

- Sharif Abu Darda: Plasma-Based Mass Separation System for High-Level Radioactive Waste Treatment
- Mustafa Eldeeb: MW Plasma Torch for Waste Processing
- Otavio Lopes Alves Esteves: Nuclear-Renewable Hybrid Energy System Simulator
- John Gaber: EEG-Based Human Performance Monitoring in NPP and SMR Control Rooms

Student Innovation Competition

- The event will include student competition, please submit your abstract and author list to:
Hossam.gaber@ontariotechu.ca by 10-July-2023, and complete the registration (at least one author)

TOPICS

- **Plasma Devices and Applications.**
- **Plasma Experiments, Diagnostics and Control.**
- **Plasma Simulation and Modeling.**
- **Nuclear Fusion Systems.**
- **Small Modular Reactor (SMR) Systems.**
- **Generation-IV Nuclear Technologies.**
- **Advanced Reactor Systems.**
- **Nuclear Power Plant (NPP) Safety Systems.**
- **NPP Control Systems.**
- **NPP Monitoring and Measurement Systems.**

Objectives of Symposium



- **This symposium provides forum for researchers from academia and industry to present and discuss latest research innovations in nuclear and plasma systems.**
- **SPANS will provide attendees with state-of-the-art research and technologies and engage in active discussions with industry.**
- **SPANS will also provide industry with opportunities to promote their products, services, and business cases.**
- **Standard regulators will have the chance to engage in fruitful discussions on how R&D is linked with regulations and standards.**

SPANS 2023 - Agenda



- 9:00 – 9:15 Opening Talk, Dr. Hossam A. Gabbar, Ontario Tech University
- 9:15 – 10:10 Dr. Jordan Morelli, Queens University
- 10:10 – 10:15 Break
- 10:15 – 11:00 Dr. Safwat Hassaballa, Islamic University of Madinah, KSA
- 11:00 – 11:45 Dr. S. Sajjad, University of Saskatchewan
- 11:45 – 11:00 Dr. Akira Tokuhiko, Ontario Tech University
- 11:00 – 11:30 Dr. Siby Samuel, University of Waterloo
- 11:30 – 12:00 Dr. Hossam Gaber, Ontario Tech University
- 12:00 – 13:00 Break
- 13:00 – 4:00 Paper Presentations
- 4:00 – 4:15 Closing Session

Student Presentations

- Sharif Abu Darda, Plasma-based Mass Separation for Radioactive Waste Treatment
- Mustafa Mansour, MW Plasma Torch for Waste-to-Energy Process
- Otavio Lopes Alves Esteves, Nuclear Reactor-in-the-Loop and Integrated Simulator for Nuclear-Renewable Hybrid Energy System Deployments
- John Gaber, EEG-Based Human Behavior and Performance Monitoring for Safe Nuclear Power Plant Operation

SPANS-2023

Call for Papers

Please send abstracts for papers to:

hossam.gaber@ontariotechu.ca

Presentations are organized by subtopics of this symposium

Abstract Deadline

15-Jul, 2023

SPANS-2023

Registration Fees: \$50

(Discount fee of \$30 for students, IEEE, CNS-FEASTD, and CAP Members)

(please send registration information to:

hossam.gaber@ontariotechu.ca)

Registration

For Registration:

www.sege-conference.com/SPANS.html

ZOOM Link

Hossam Gaber is inviting you to a scheduled Zoom meeting.

Join Zoom Meeting

<https://ontariotechu.zoom.us/j/9953259403?pwd=QStZUWNPY1hUaXQvR1duUENYcUgrQT09>

Meeting ID: 995 325 9403

Passcode: 9057218668

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Find your local number: <https://ontariotechu.zoom.us/j/9953259403?pwd=QStZUWNPY1hUaXQvR1duUENYcUgrQT09>