

G4SR and GIF Advanced Manufacturing Workshop

Full Day Workshop October 3, 2022



Workshop Overview:

This is a joint workshop run by the Generation IV International Forum (GIF) Forum with Industry 2022 and G4SR-4. The workshop is being organized by:

- GIF Advanced Manufacturing and Materials Engineering Task Force (AMME-TF); and
- The Canadian Advanced Manufacturing in Nuclear Alliance (CAMiNA).

The workshop is designed to develop and disseminate knowledge of the steps required to successfully introduce advanced manufacturing to the supply chain of advanced nuclear reactors. As such it will be of interest to :

1. Gen IV reactor developers looking to use AM methodologies to reduce the time and cost of advanced reactor development and manufacture.
2. Supply chain companies seeking competitive advantage in AM innovations and knowledge in factory manufacturing.
3. Personnel involved in Nuclear Regulation and Nuclear Standards looking to gain knowledge on AM and the innovation it can bring to Advanced Reactor deployment.
4. Researchers looking for information on AM research roadmap, innovation discoveries and enabling infrastructure such as a modern AM research institute.

In order to address the objectives of the above-mentioned target audiences, the Workshop will consist of two parts:

Part (a) Plenary Presentations by speakers with a focus on how the adoption of advanced manufacturing technologies can reduce the cost and time to deployment of advanced reactors and the challenges still to be met regarding its widespread adoption for advanced high temperature reactors. Speakers include:

Eric Abonneau, French Alternative Energies and Atomic Energy Commission

Richard Russell, U.S. National Aeronautics and Space Administration

Wendy Reed, U.S. Nuclear Regulatory Commission

Bill Smith, Terrestrial Energy

Part (b) will be break-out into two separate tracks:

- Track (1) Advanced Manufacturing Demonstrations at McMaster Manufacturing Research Institute (MMRI), designed for those audience with broader interest on AM, and keen to see the demonstrations of AM innovations at work, while engaging further discussion with MMRI experts during demonstrations on the various topics presented at the Plenary session .
- Track (2) is an interactive workshop where participants will work collectively to identify paths to qualifying AM materials and components for use in Gen IV reactors. Qualifying new AM processes in a timely manner is a key challenge if these processes are to impact upcoming new reactors. This workshop is the part of a series undertaken by the GIF Advanced Manufacturing and Materials Engineering Task Force aimed at identifying concrete plans and strategies to qualify AM materials for nuclear use.

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Registration:

- [Click here](#) for details about this Workshop.
- [Click here](#) to pay \$75 Registration Fees for this workshop. (GIF attendees need a code for their special rate)

For any questions about this Workshop, please inquire by email to:

- Christine Burow, Program Director, Canadian Advanced Manufacturing in Nuclear Alliance (CAMiNA) Christine.Burow@ocni.ca
- For questions on the GIF Advanced Manufacturing and Materials Engineering Task Force (AMME-TF) and the TRACK 2 workshop or if you are interested in attending, to receive an invitation and registration code, please contact Mark Messner at messner@anl.gov or Takuya Funahashi at takuya.funahashi@oecd-nea.org.

Draft Agenda:

8:30 am	Plenary Presentations			
10:00 am	Coffee Break and networking			
10:30 am	Continuation of Plenary Session including 10 minute wrap up discussion			
11:00 am	Track 1 Advanced Manufacturing Demonstrations at McMaster Manufacturing Research Institute (MMRI)		Track 2 (invitation by request) GIF AMME-TF Workshop #3 Participants will work together in small groups on the barriers and solutions to accelerating the adoption of advanced manufacturing technologies. This will include a focus on qualification of advanced processes and manufactured components which has been identified as a key barrier to advanced technology adoption	
	11:00 am	Board buses to McMaster	11:00 am	Overview of workshop and break-out group assignments
	12:15 pm	Lunch	12:00 am	Lunch
	1:00 pm	Tours, demonstrations and presentations at MMRI and at McMaster Nuclear locations	12:30 pm	Break-out group discussions Presentation and discussion of group outputs
	4:30 pm	Board buses to Delta Conference Centre	5:00 pm	Outcomes of workshop
5:30 pm	END			

Tentative

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Plenary Speakers:

8:30 – 11:00 am

- Richard Russel, NESC Technical Fellow for Materials, U.S. National Aeronautics and Space Administration
Aerospace experience of qualifying advanced manufacturing
- Eric Abonneau, French Alternative Energies and Atomic Energy Commission
How do new materials and processes get into codes
- Wendy Reed, U.S. Nuclear Regulatory Commission
WGSAR's activities on Materials Qualification and Lifetime Performance
- Bill Smith, SVP Operations & Engineering, Terrestrial Energy
Perspectives from an SMR Developer

G4SR Advanced Manufacturing Workshop Tours



The G4SR Conference Advanced Manufacturing Workshop is centered on the use of advanced materials and manufacturing methods specifically for the nuclear industry. The workshop will focus on finding solution to problems faced in reactor materials, manufacturing and operations.

Canadian Center for Electron Microscopy



- Extensive electron and ion microscopy capability with extensive material characterization capability



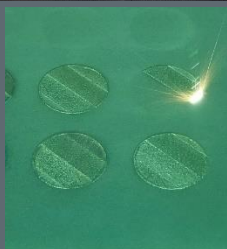
McMaster Manufacturing Research Institute

- Providing solutions to the challenges faced by today's manufacturing industry - optimizing many facets of the manufacturing process
- Currently moving to a new facility at the McMaster Innovation Park (Sept. 6th).



Additive Manufacturing Group

- Focuses on fundamental and applied research and education programs dealing with metal additive manufacturing applications covering a wide range of materials and challenging geometries and finishes



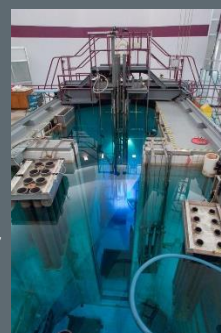
Center for Advanced Nuclear Systems

- Provides unique nuclear material behavior assessment, nuclear safety, thermal hydraulics behavior, and health physics dose response capability



McMaster Nuclear Reactor

- Started operation in 1959
- A 5 MW multi-purpose reactor that provides neutrons for research and medical isotope production
- It is an open-pool type Materials Test Reactor with a core of low enriched uranium fuel that is moderated and cooled by light water
- Canada's most powerful research reactor and the nation's only major neutron source



Date: Monday, October 3rd, 2022
Time: 9:00 AM to 5:00 PM
Location: Delta Hotels Toronto Airport & Conference Centre with tours at McMaster University in the afternoon



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