IAEA

Atoms for Peace and Development

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International Atomic Energy Agency
Agence internationale de l'énergie atomique
Международное агентство по атомной энергии
Organismo Internacional de Energía Atómica

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The Secretariat of the International Atomic Energy Agency (IAEA) presents its compliments to the IAEA's Member States and has the honour to draw their attention to the **Workshop on Computational Nuclear Science and Engineering** (hereinafter referred to as "event") to be held virtually via Cisco Webex from **12 to 16 July 2021**.

The purpose of the event is to provide young researchers from both developed and developing countries with critical skills related to computational physics, nuclear science and engineering.

The attached Information Sheet provides further details of the event.

The event will be held in English.

Member States are invited to designate one or more participants to represent the Government at this event. Member States are strongly encouraged to identify suitable women participants.

Designations should be submitted to the IAEA through the competent national authority (Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority) not later than **11 June 2021** using the attached Participation Form (Form A). Completed and authorized Participation Forms should be sent either by email to: Official.Mail@iaea.org or by fax to: +43 1 26007 (no hard copies needed). Copies should be sent by email to the Scientific Secretaries of the event, Mr Matteo Barbarino, Division of Physical and Chemical Sciences, Department of Nuclear Sciences and Applications (Email: M.Barbarino@iaea.org), Mr Chirayu Batra, Division of Nuclear Power, Department of Nuclear Energy (Email: Chirayu.Batra@iaea.org), Mr Kalle Heinola, Division of Physical and Chemical Sciences, Department of Nuclear Sciences and Applications (Email: K.Heinola@iaea.org) and to the Administrative Secretary, Ms Marion Linter (Email: M.Linter@iaea.org). The Scientific Secretaries of the event will liaise with the participants directly concerning further arrangements, as appropriate, once the official designations have been received.

The IAEA takes no responsibility for, and the provider of the virtual meeting services has represented and warranted that the Services shall not contain, and that no end user shall receive from the software used to hold the virtual meeting, any virus, worm, trap door, back door, timer, clock, counter or other limiting routine, instruction or design, or other malicious, illicit or similar unrequested code, including surveillance software or routines which may, or is designed to, permit access by any person, or on its own, to erase, or otherwise harm or modify any data or any system, server, facility or other infrastructure of any end user (collectively, a "Disabling Code").

The Secretariat of the International Atomic Energy Agency avails itself of this opportunity to renew to the IAEA's Member States the assurances of its highest consideration.

2021-03-30

Enclosures: Information Sheet

Participation Form (Form A)

IAEA
International Atomic Energy Agency
Atoms for Peace and Development

Workshop on Computational Nuclear Science and Engineering

Virtual Event

12–16 July 2021

Ref. No.: EVT2101006

Information Sheet

Introduction

Computational science and engineering applied to the field of nuclear science, technology and applications, is tightly related to the study and implementation of numerical analysis, codes and data libraries to address complex physics and engineering problems. With the advancement of computational resources, young nuclear scientists and engineers are encouraged to adopt a variety of tools, including multi-physics and multi-scale approaches in various plasma codes, first-principles calculations, molecular dynamics and Monte Carlo simulations, rate theories, dislocation dynamics, coupled thermal hydraulics and neutronics, structural mechanics and finite element/difference/volume methodologies. In addition, there is an increasing need for understanding computational methods, including advanced modelling and simulation techniques, algorithms, data science methods like machine learning and data mining, deep learning, artificial intelligence, and high performance computing. Integrating high performance computing to mathematical modelling, numerical algorithms and large-scale databases of observations is leading a new paradigm in science and engineering.

Objectives

The event – through its interdisciplinary programme of lectures – aims to provide students, young researchers, and young professionals with critical skills and tools in areas such as mathematical techniques for modelling and simulation of complex systems, high performance computing, and computational methods for processing and analysing large data sets, applied in nuclear science and engineering.

Target Audience

The event aims to bring together students, young nuclear scientists and engineers, with a strong interest in the development and implementation of modelling and simulations techniques in nuclear science and engineering, as well as in the development and implementation of computational methods, such as machine learning and high performance computing, for complex nuclear physics and engineering systems.

Working Language

The working language of the event will be English. All communication and papers must be sent to the IAEA in English. No simultaneous interpretation will be provided.

Structure

The event programme will consist of three hours of lectures on each day. The event will serve as a short introduction to the extended School/Workshop that is intended to take place in 2022 as an in-person event.

Topics

The lectures will cover the following topics:

- **Computational Nuclear Science and Engineering**

  Keywords: computational methods for nuclear sciences; computational methods for nuclear engineering.

- **Nuclear Observables Challenges**

  Keywords: computational methods for nuclear data; nuclear data for high fidelity, high performance reactor modelling and simulation.

- **Advanced Modelling and Simulation Methodologies for Nuclear Science and Engineering**

  Keywords: integrated multi-physics modelling for nuclear fusion plasma science; integrated multi-physics simulation for nuclear fusion chamber components; reactor multi-physics modelling combined with digital measurement data.

- **Open Source Data and Codes for Nuclear Science and Engineering**

  Keywords: open source data and codes for nuclear fusion science; open source data and codes for nuclear engineering.

- **Advanced Computational Methods for Nuclear Science and Engineering**

Keywords: machine learning; algorithm development for data analysis in nuclear research; high performance computing; high performance humans in computing; data sciences for reactor systems.

Participation and Registration

All persons wishing to participate in the event must be designated by an IAEA Member State or should be members of organizations that have been invited to attend.

In order to be designated by an IAEA Member State, participants are requested to send the **Participation Form (Form A)** to their competent national authority (e.g. Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority) for onward transmission to the IAEA by **11 June 2021**. Participants who are members of an organization invited to attend are requested to send the Participation Form (Form A) through their organization to the IAEA by the above deadline.

Selected participants will be informed in due course on the procedures to be followed with regard to administrative and technical matters.

Key Deadlines and Dates

11 June 2021	Deadline for submission of Participation Form (Form A) through the official channels
12 July 2021	Event begins
16 July 2021	Event ends

Lecturers

Ms Maria Grazia Pia	Italy
Mr Jonathan Citrin	Netherlands
Mr Carlo Fiorina	Switzerland
Mr Amitava Bhattacharjee	United States
Mr Luis Chacon	
Mr Benoit Forget	
Ms Kathryn Huff	
Ms Michelle Kuchera	
Mr Nick Murphy	
Mr Jean Ragusa	
Ms Alice Ying	
Mr Georg Schnabel	IAEA

IAEA Contacts

Scientific Secretaries:

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Mr Kalle Heinola
Division of Physical and Chemical Sciences
Department of Nuclear Sciences and Applications
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Administrative Secretary:

Ms Marion Linter
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Department of Nuclear Sciences and Applications
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Subsequent correspondence on scientific matters should be sent to the Scientific Secretaries and correspondence on other matters related to the event to the Administrative Secretary.

Event Web Page

Participants are encouraged to visit the event web page regularly to check for new or updated information regarding the meeting:

IAEA meeting web page:
https://www.iaea.org/events/evt2101006

IAEA-INDICO meeting web page:
https://conferences.iaea.org/event/255/

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Participation Form

Workshop on Computational Nuclear Science and Engineering

Virtual Event

12–16 July 2021

To be completed by the participant and sent to the competent national authority (e.g. Ministry of Foreign Affairs, Permanent Mission to the IAEA, or National Atomic Energy Authority) of his/her country for subsequent transmission to the International Atomic Energy Agency (IAEA) either by email to: Official.Mail@iaea.org or by fax to: +43 1 26007 (no hard copies needed). Please also send a copy by email to the Scientific Secretaries M.Barbarino@iaea.org; Chirayu.Batra@iaea.org; K.Heinola@iaea.org and to the Administrative Secretary M.Linter@iaea.org.

Deadline for receipt by IAEA through official channels: 11 June 2021

Family name(s): (same as in passport)	First name(s): (same as in passport)	Mr/Ms
Oren	Gal	Mr

Institution:

Nuclear Research Center-Negev

Full address:

Department of Physics, Nuclear Research Center-Negev, P.O.B. 9001, Be'er-Sheva,Israel

Tel. (Fax):

Email:
galoren.com@gmail.com

Nationality:	Representing following Member State/non-Member State/entity or invited organization:
Israeli	

If/as applicable:

Do you intend to submit a paper? Yes ☐ No ☑

Would you prefer to present your paper as a poster? Yes ☐ No ☑

Title: