Joint ICTP-IAEA 2nd Course on Scientific Novelties in the Phenomenology of Severe Accidents in Water Cooled Reactors

24 - 28 June 2019
Trieste, Italy

Further information:
http://indico.ictp.it/event/8694/
smr3303@ictp.it

The course programme covers scientific topics of direct relevance to the physical, chemical and radiological phenomena occurring during the progression of severe accidents in WCRs, including an overview of past events and advanced technologies designed to cope with such events.

Description:

The course will build a complete understanding of the science underpinning the complex phenomena associated with the progression of severe accidents in WCRs and their consequences. Knowledge transfer will be facilitated between the international expert lecturers and the young nuclear professional and engineer participants through discussions and hands-on learning, with the goal to gain a comprehensive understanding of the physical, chemical and radiological phenomena specific to severe accidents in WCRs. Relevant nuclear safety principles, recent advancements in scientific methods, approaches and simulation tools to assess the interrelated phenomena during in-vessel and ex-vessel phases of severe accident progression, and the role of technologies designed to prevent progression of, and mitigate consequences from, such accidents in WCRs are presented.

As part of the application, participants should submit a 2-page original essay, covering two of the course topics of their choice from Phenomenology in Severe Accident Progression.

Topics:

Introduction:

- Physics of Water Cooled Power Reactors;
- Nuclear Safety, Defence in Depth and Design Basis Accidents in Water Cooled Power Reactors;
- Progression of Fukushima Daiichi Accident and its Consequences.

Phenomenology in Severe Accident Progression

- Nuclear Fuel Degradation and Relocation;
- In-Vessel Melt Retention;
- Reactor Vessel Failure Mechanisms;
- Ex-Vessel Corium Cooling;
- Containment Failure Mechanisms;
- Physics and Chemistry of Fission Products;
- Hydrogen Generation, Transport and Explosion.

Challenges in Severe Accident Consequence Mitigation:

- Level of Knowledge and Uncertainties in Severe Accident Phenomena;
- Numerical Simulations of Severe Accident Phenomena;
- Technologies for core and containment protection;
- Emergency Response during, and Remediation after, Severe Accidents.

Directors:

A. MIASSOEDOV (IAEA, NENP/NPTDS)
S. MASSARA (IAEA, NSNI/SAS)

Local Organizer:

N. SERIANI, ICTP, Trieste, Italy

How to apply:

Online application:
http://indico.ictp.it/event/8694/

Female scientists are encouraged to apply.

Grants:

A limited number of grants are available to support the attendance of selected participants, with priority given to participants from developing countries. There is no registration fee.

Deadline:

10 April 2019

The Abdus Salam
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for Theoretical Physics
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