The Abdus Salam International Centre for Theoretical Physics

Joint ICTP-IAEA Course on Science and Technology of Supercritical Water Cooled Reactors

Organizer(s): IAEA: Katsumi Yamada; ICTP Local Organizer: C. Tuniz
Trieste - Italy, 27 June 2011 - 1 July 2011

Final programme

Monday, 27 June 2011 (Room:Adriatico Guest House Giambiagi Lecture Hall)

08:30 - 10:00 (Room: Adriatico Guest House - Giambiagi Lecture Hall Area (Lower Level 1))
REGISTRATION AND ADMINISTRATIVE FORMALITIES
NOTE: During the registration time-slot the ICTP shuttle bus will run frequently between Adriatico Guest House (AGH) and Enrico Fermi Building in order to transport all paid visitors to Enrico Fermi Building for the completion of financial transactions in the ICTP Operations Office and Bank. All participants are kindly requested to return to Adriatico Guest House, Giambiagi Lecture Hall, by 10.20 a.m. for the Opening of the activity.

10:00 - 10:20 **Claudio Tuniz** / *ICTP*
Welcome Remarks - Instroduction of ICTP

10:20 - 11:00 **K. Yamada** / *IAEA*
Opening Remarks - Objectives/Schedule - Introduction of Lecturers and Participants

11:00 - 11:30 **K. Yamada**
Overview of IAEA Activities on SCWRs

11:30 - 12:30 **I. Pioro** / *University of Ontario*
Introduction and Historical Development of SCWRs

12:30 - 14:00 --- Lunch Break ---

14:00 - 15:00 **N. Aksan** / *IAEA*
Requirement and Considerations for Design of a SCWR

15:00 - 16:00	**L. Leung** / *Atomic Energy of Canada Ltd. (AECL)* **Overview of SCWRs Concepts**
16:00 - 16:30	(Room: Adriatico Guest House (Terrace)) --- Coffee Break ---
16:30 - 17:15	**D. Bittermann** / *AREVA NP GmbH* **Economics of SCWRs**
17:15 - 17:45	**Questions and Answers (Q&A)/Team Discussion**
19:00 - 21:00	(Room: Adriatico Guest House (Terrace)) --- Reception ---

Tuesday, 28 June 2011 (Room:Adriatico Guest House Giambiagi Lecture Hall)

08:30 - 09:30	**I. Pioro** **Introduction to Thermodynamics**
09:30 - 10:30	**L. Leung** **SCWR Core Design 1: General**
10:30 - 11:00	--- Coffee Break ---
11:00 - 11:45	**X. Liu** / *Shanghai Jiao Tong University* **SCWR Core Design 2: LWR Type**
11:45 - 12:30	**L. Leung** **SCWR Core Design 3: HWR Type**
12:30 - 14:00	--- Lunch Break ---
14:00 - 15:00	**X. Liu** **Introduction to Thermal-Hydraulics**
15:00 - 16:00	**M. Anderson** / *University of Winsconsin* **Heat Transfer to Supercritical Fluid**
16:00 - 16:30	--- Coffee Break ---
16:30 - 17:30	**M. Anderson** **Pressure Drop and Critical Flow**
17:30 - 18:00	**Questions and Answers (Q&A)/Team Discussion**

Wednesday, 29 June 2011 (Room:Adriatico Guest House Giambiagi Lecture Hall)

08:30 - 09:30	**N. Aksan** **Natural Circulation and Passive Safety Systems**
09:30 - 10:30	**D. Novog** / *McMaster University* **Introduction to Reactor Physics**

10:30 - 11:00	--- Coffee Break ---
11:00 - 11:45	**W. Ambrosini** / *University of Pisa* **Flow Stability**
11:45 - 12:30	**W. Ambrosini** **Scaling Laws**
12:30 - 14:00	--- Lunch Break ---
14:00 - 15:00	**W. Ambrosini** **CFD Applications to SCWR**
15:00 - 15:30	**D. Novog** **Neutronics and Thermal-Hydraulics Coupling**
15:30 - 16:00	--- Coffee Break ---
16:00 - 17:00	**Y. Oka** / *Waseda University* **Plant Dynamics and Control**
17:00 - 17:30	**Questions and Answers (Q&A)/Team Discussion**
17:30 - 18:30	**Y. Oka** **Special Lecture on Super LWR and Super FR R&D**
19:00 - 21:00	(Room: Adriatico Guest House (Terrace)) --- Official Dinner ---

Thursday, 30 June 2011 (Room:Adriatico Guest House Giambiagi Lecture Hall)

08:30 - 09:30	**D. Novog** **Introduction to Safety**
09:30 - 10:30	**D. Bittermann** **SCWR Safety**
10:30 - 11:00	--- Coffee Break ---
11:00 - 11:45	**L. Heikinheimo** / *Teollisuuden Voima Oyj (TVO)* **Introduction to Materials and Chemistry**
11:45 - 12:30	**R. Novotny** / *Joint Research Centre Institute for Energy/European Commission* **SCWR Chemistry**
12:30 - 14:00	--- Lunch Break ---
14:00 - 14:30	**L. Heikinheimo** **Materials Requirements for SCWRs**
14:30 - 15:15	**L. Heikinheimo** **Mechnical Properties and Corrosion Resistance**
15:15 - 15:45	--- Coffee Break ---

15:45 - 16:45	**R. Novotny** **Irradiation Effects**
16:45 - 16:55	(Room: Adriatico Guest House (Terrace)) **GROUP PHOTOGRAPH WILL BE TAKEN ON THE ADRIATICO GUEST HOUSE TERRACE**
16:55 - 18:10	**Questions and Answers (Q&A)/Team Discussion**

Friday, 1 July 2011 (Room:Adriatico Guest House Giambiagi Lecture Hall)

08:30 - 09:00	**K. Yamada** **Overview of On-going R&D Programs**
09:00 - 10:30	**Team Discussion**
10:30 - 11:00	--- Coffee Break ---
11:00 - 11:30	**Presentation of Team Discussion**
11:30 - 12:30	**K. Yamada** **The accident at Fukushima Nuclear Power Stations and lessons learned**
12:30 - 14:00	--- Lunch Break ---
14:00 - 14:30	**Presentation of Course Certificates**
14:30 - 15:00	**Completion of Course - Closure Remarks**
15:00 - 15:00	**Adjourn Course**