

**INTERNATIONAL ATOMIC ENERGY AGENCY****TECHNICAL MEETING****ON****‘HEAT TRANSFER, THERMAL-HYDRAULICS AND SYSTEM DESIGN FOR
SUPERCRITICAL WATER COOLED REACTORS’****July 5-8, 2010****University of Pisa, Pisa, Italy****INFORMATION SHEET****I. BACKGROUND**

There is high interest internationally in both developing and industrialized countries in the design of innovative supercritical water cooled reactors (SCWRs). This interest arises from the high thermal efficiencies (44-45%) and improved economic competitiveness promised by this concept, which utilizes and builds upon the recent developments of highly efficient fossil power plants. The SCWR is one of the six concepts included in the Generation-IV International Forum (GIF).

In support of Member States’ efforts in the area of SCWRs, the IAEA started in 2008 a Coordinated Research Project (CRP) on “Heat Transfer Behaviour and Thermo-hydraulics Code Testing for SCWRs”. The two key objectives of this CRP are: 1) To establish accurate databases for heat transfer, pressure drop, blowdown, natural circulation, and stability for conditions relevant to supercritical pressure fluids, and 2) To test analysis methods for SCWR thermohydraulic behaviour, and identify code development needs. Annual Research Coordination Meetings take place under the framework of this CRP once a year to assess the progress of the project. These meetings are mainly focused on programmatic issues associated with the project and very little time is available for discussion on details and specific technical areas.

This is why during the 2nd Research Coordination Meeting for this CRP held in Vienna in August 24-27, 2009, Member States expressed an interest in organizing a technical meeting in which specialists in the areas of heat transfer and thermal-hydraulics, thermodynamics and systems design for supercritical water cooled reactors would have the opportunity of participating in extended technical discussions on the details associated to the science and engineering of supercritical water cooled reactor concepts. The University of Pisa kindly offered to host such a technical meeting.

II. OBJECTIVES

The purpose of the meeting is to provide a platform for detailed presentations and technical discussions leading, to exchange of results, fostering world-wide collaboration in research activities, improving the communication between industry (utilities, vendors etc.), regulatory organizations and research organizations, and to review and update the science and engineering of supercritical pressure water cooled reactor concepts.

The meeting will have the following main objectives (with an emphasis on application and design issues):

- To review progress in the development of correlations, equations and methods to describe the heat transfer behaviour with fluids under supercritical pressure conditions;
- To evaluate comparisons of analyses and numerical predictions of thermal-hydraulics codes against theoretical estimates and experimental data;
- To review the status of core design and neutronics studies for current SCWR concepts;
- To review the status of current SCWR concepts, system design and approach to safety.

As usual in this type of meeting, the programme will include a discussion session to enable participants to contribute to the summary and highlights of the meeting and to make recommendations to the IAEA on future work in this field.

III. TOPICS TO BE COVERED

Papers are invited on all aspects of heat transfer, thermal-hydraulics and system design for supercritical water cooled reactors. Experimental and theoretical/modelling studies will be considered.

The following topics, with emphasis on application and design issues for SCWRs, have been identified as being of particular interest:

- Heat Transfer (including fluid-to-fluid scaling), thermal-hydraulics and thermodynamics for SCWRs;
- Critical flow during blowdown from supercritical pressures;
- Stability issues for SCWRs;
- Natural circulation in SCWRs;
- Core design and neutronics for SCWRs;
- Design of safety system and related aspects for SCWRs.

IV. ORGANIZATION

Meeting Chairman: Dr. Romney Duffey
Atomic Energy of Canada Limited
Chalk River Laboratories
Stn 99, Chalk River, Ontario
Canada K0J 1J0
Tel: +1 6135843311
Email: duffeyr@aecl.ca; charbonj@aecl.ca

Meeting Coordinator: Prof. Walter Ambrosini
Università di Pisa
Dipartimento di Ingegneria Meccanica, Nucleare
e della Produzione
Via Diotisalvi, 2
56126 – PISA
Italy
Phone: +39-050-2218073
Fax: +39-050-2218065
E-mail: walter.ambrosini@ing.unipi.it

Scientific Secretary: Dr. Sama Bilbao y León
International Atomic Energy Agency
Wagramer Strasse 5
P.O. Box 100, A2569
1400 Vienna, Austria
Phone: +43 (1) 2600-22865 or 22803
Fax: +43 (1) 2600-29598
Email: S.Bilbao@iaea.org

Technical Program Committee (TPC): Dr. Nusret Aksan, Switzerland (Chairman of TPC)
Prof. Derek Jackson, University of Manchester, UK
Dr. Luca Ammirabile, EC/JRC-IE, Netherlands
Dr. Mark Anderson, University of Wisconsin, United States
Dr. Yoon Yeong Bae, KAERI, Republic of Korea
Prof. Xu Cheng, SJTU, China
Dr. Andrey Churkin, Hidropress, Russia
Dr. Shuisheng He, Aberdeen University, UK
Prof. Pei Xue Jiang, Tsinghua University, Beijing, China
Dr. Laurence Leung, AECL, Canada
Prof. Thomas Schulenberg, KIT, Germany
Dr. Pallippattu Vijayan, BARC, India
Prof. Walter Ambrosini, Università di Pisa, Italy

Local Organising Committee (LOC): Prof. Sandro Paci, Università di Pisa, Italy
Dr. Nicola Forgione, Università di Pisa, Italy
Prof. Giuseppe Forasassi, CIRTEN, Italy
Ing. Fosco Bianchi, ENEA, Italy
Prof. Paolo di Marco, Università di Pisa, Italy

V. DEADLINE FOR PAPERS AND PARTICIPATION IN THE MEETING

The meeting may be attended only upon official designation. Participants should complete the attached Forms A and B (if applicable) and send them, together with an abstract of approximately 500 words to the appropriate national authority (Ministry of Foreign Affairs or National Atomic Energy Authority) for subsequent transmission to the IAEA, not later than **April 30, 2010 (Deadline Extended to May 16, 2010)**, with copies to the IAEA Scientific Secretary, Dr. Sama Bilbao y León and to the Meeting Coordinator, Prof. Walter Ambrosini.

The abstracts should summarize the content and principal conclusions of the paper the author intends to present during the technical meeting.

Authors will be notified about the acceptance of their paper(s) on the basis of the abstract submitted and the preliminary programme will be issued by **May 31, 2010**. Those authors whose papers are accepted will be asked to prepare full papers for publication in the proceedings of the Technical Meeting. They will receive guidelines for the preparation of the full papers and will be requested to submit their full papers in MS Office Word format and their presentations in Power Point format by **June 21, 2010**. All accepted abstracts will be reproduced in unedited form in the Book of Abstracts, which will be distributed at registration.

The proceedings of the Technical Meeting containing presentations, conclusions and recommendations will be published by the IAEA as soon as possible after the meeting.

The IAEA reserves the right to refuse the presentation or publication of any paper that does not meet the expectations raised by the information originally given in the abstract.

VI. VENUE AND ACCOMMODATION

The meeting, hosted by the University of Pisa, will be mainly held at the Centro Ricerca Termica (CRT) of ENEL SpA in Pisa, Italy.

Delegates should arrange their accommodation directly with their hotels (a list of recommended options will be provided in the meeting website). Meals will be available at the ENEL Centre cafeteria.

Optionally, an additional fifth day will be set aside for a technical visit to the ENEA Brasimone Center.

Further details regarding travel arrangements and social events will be provided to participants at the meeting website:

<http://www-pub.iaea.org/MTCD/Meetings/Announcements.asp?ConfID=38683>

Designated participants who require a visa to enter Italy should submit the necessary application form in due time to the nearest diplomatic or consular representative of Italy.

VII. EXPENDITURES

In accordance with the established rules, Governments or other national authorities are expected to bear the travel and other costs of designated participants in the Technical Meeting. Limited funds are, however, available to help cover the cost of participants from Member States eligible to receive technical assistance under the IAEA's Technical Cooperation Programme. Such assistance can be offered, upon specific request, to one participant per country provided that, in the IAEA's view, this participant will make an important contribution to the meeting. The application for financial support should be made at the time of designation of the participant.

The Secretariat wishes to state that compensation is not payable by the IAEA for any damage to or loss of the experts' personal property. However, for the period of their engagement with the IAEA, including travel between their residence and the duty station, the designated experts will be covered under the IAEA's insurance policy for permanent total disablement or death resulting from service-incurred accidents or illness up to a maximum of €100,000, for permanent partial disablement resulting from service-incurred accidents or illness up to a maximum of €100,000 and for medical expenses up to a maximum of €20,000 plus €10,000 for supplementary travel and accommodation expenses in case of illness or injury resulting from service-incurred accidents or illness, in accordance with the terms of the IAEA's relevant insurance policy. This insurance coverage only covers accidents and illnesses insofar as they clearly result from attendance at an IAEA meeting. The IAEA recommends that the expert also make arrangements for private insurance coverage on an individual basis.

VIII. WORKING LANGUAGE

The working language of the meeting will be English. All communications, abstracts, and papers must be sent in English.

FORM A
I3-TM-38683



INTERNATIONAL ATOMIC ENERGY AGENCY

Technical Meeting
on
HEAT TRANSFER, THERMAL-HYDRAULICS AND SYSTEM DESIGN FOR
SUPERCritical WATER COOLED REACTORS '

July 5-8, 2010
University of Pisa, Pisa, Italy

To be sent to competent official authority (Ministry of Foreign Affairs, National Atomic Energy Authority) for transmission to the International Atomic Energy Agency, Vienna International Centre, Wagramer Strasse 5, P.O. Box 100, A-1400 Vienna, Austria

PARTICIPATION FORM

DEADLINE FOR APPLICATION: April 30, 2010

Family name:		All initials of given name:	Mr. Ms.
Institution:		Full address:	
		For urgent communications please indicate: Phone No.: Telefax No.: E-mail:	
Nationality:	Designating government or organization:		
Mailing address (if different from address of institution):			

Do you intend to present a paper?	YES <input type="checkbox"/>	NO <input type="checkbox"/>
Title of Paper		
.....		
An abstract of my paper is attached?	YES <input type="checkbox"/>	NO <input type="checkbox"/>



INTERNATIONAL ATOMIC ENERGY AGENCY

Technical Meeting
on
‘HEAT TRANSFER, THERMAL-HYDRAULICS AND SYSTEM DESIGN FOR
SUPERCritical WATER COOLED REACTORS ’

July 5-8, 2010
University of Pisa, Pisa, Italy

FORM FOR SUBMISSION OF A PAPER

DEADLINE FOR APPLICATION: April 30, 2010

TITLE OF THE PAPER		
AUTHOR(S) INITIAL(S) AND FAMILY NAME(S)	SCIENTIFIC ESTABLISHMENT(S) IN WHICH WORK HAS BEEN CARRIED OUT	TOWN/COUNTRY
1.		
3.		
3.		
AUTHOR WHO WILL PRESENT THE PAPER		Mailing Address:
Mr./Ms.		
Initial(s):		
Family Name:	For urgent communications please indicate: Telefax No.: E-Mail: Telex No.:	
I HEREBY AGREE TO ASSIGN TO THE INTERNATIONAL ATOMIC ENERGY AGENCY <input type="checkbox"/> THE COPYRIGHT OR <input type="checkbox"/> THE NON-EXCLUSIVE, ROYALTY FREE LICENSE TO PUBLISH THE ABOVE-MENTIONED PAPER, AND CERTIFY THAT NO OTHER RIGHTS HAVE BEEN GRANTED WHICH COULD CONFLICT WITH THE RIGHT HEREBY GIVEN TO THE AGENCY.		
DATE:	(SIGNATURE OF MAIN AUTHOR)	