

STUDENT PROGRAM

2014 International Congress on the Advances in Nuclear Power Plants (ICAPP 2014)

April 6-9, 2014 - Charlotte, North Carolina - Westin

www.icapp.ans.org



ANS

Paper Deadlines:

NOTE: Congress is two months earlier than usual for USA meetings.

- **Abstract Submission: August 30, 2013**
- Abstract Acceptance: October 1, 2013
- Draft Papers: November 15, 2013
- Review Notification: December 20, 2013
- Final Papers/Copyright: January 31, 2014

Call For Papers —Student Program

The purpose of the Student Program is to encourage the active participation of students in ICAPP 2014 by submitting high quality technical papers on the various aspects of the advances in nuclear power plants. ICAPP will provide up to 20 fellowships for students (up to \$500 for travel plus a shared hotel room).

Students participating in this program will be expected to make a presentation during a technical session, as well as to design a poster summarizing their work to be exhibited and discussed during a poster session. To qualify for the program, the student must be the first author of a paper, which has been accepted to one of the technical tracks.



This program seeks to promote the interaction of students with experienced nuclear professionals and to help them establish mentoring and networking links in their areas of interest.

The International Congress on the Advances in Nuclear Power Plants (ICAPP) provides a forum for leaders of the nuclear industry to exchange information, present results from their work, review the state of

the industry, and discuss future directions and needs for the deployment of new nuclear power plant systems around the world.

Full-length papers will be peer reviewed and published on a CDROM. All authors will present their papers in English. About 20 minutes will be allotted for each paper. At least one author is required to register for the congress.

Abstract Submission

By August 30, 2013 student authors should submit a one-page 500 word abstract (text only) with contact information to www.icapp.ans.org or icapp@icapp.ans.org. Please indicate your preferred track and that you would like to be considered for the student program.

Technical Tracks

1. Water-Cooled Reactor Programs and Issues

Evolutionary designs, innovative, passive, light and heavy water cooled reactors; super critical water reactors; issues related to meeting near term utility needs; emerging plant safety issues, design improvements; business, political and economic challenges; infrastructure limitations and improved construction techniques including modularization.

2. High Temperature Reactors

Design and development issues, components and materials, safety, reliability, economics, demonstration plants and environmental issues, fuel design and reliability, power conversion technology, impact of non electricity applications on reactor design; advanced thermal and fast HTR designs.

3. Advanced Reactors

Reactor technology with enhanced fuel cycle features for improved resource utilization, waste characteristics, and power conversion capabilities. Small Modular Reactor development and licensing; potential reactor designs with longer development times such as liquid fuel reactors, Gen IV, INPRO, and GNEP.

4. Operation, Performance and Reliability Management

Training, O&M costs, life cycle management, risk based maintenance, operational experiences, performance and reliability improvements, outage optimization, human factors, plant staffing, outage reduction features, major component reliability, repair and replacement, in-service inspection, and codes & standards.

5. Plant Safety Assessment, Regulatory and Licensing Issues

Transient and accident performance including LOCA and non-LOCA, severe accident analysis, nuclear plant secu-

urity, natural disaster initiated severe accidents, impact of risk informed changes, accident management and emergency situations, advances in regulatory issues for operating and future plants, life assessment and management of aging, degradation and damage extension lessons from plant operations, containment with radiological and non-radiological inventory, probabilistic safety assessment and reliability engineering, new methodologies for plant safety analysis. Fire protection, emergency preparedness, and used fuel storage and transportation. Reactor licensing, advanced reactor design certification, combined license, and multinational design license application and evaluation.

6. Reactor Physics and Analysis

Nuclear data libraries and related error files, lattice calculation, deterministic and Monte-Carlo approaches, core calculation, multi physics coupling. Progresses achieved in this domain contribute to the improvement of core performances (for existing reactors and next generation reactors). New fuels, new fuel management, new reactor cores (i.e. pebbled bed reactors) and characterization of spent fuels.

7. Thermal Hydraulics Analysis and Testing

Experimental techniques and measurements, phenomena identification and ranking, computer code scaling applicability and uncertainty, containment thermal hydraulics, separate and integral system tests, improved code development and qualification, single and two phase flow and heat transfer; advanced computational thermal hydraulic methods; single and two phase CFD.

8. Fuel Cycle and Waste Management

TRU separation processes, fuel and

target design for transmutation, transmutation performances, scenarios for P&T deployment, review of national programs on P&T, impact of P&T on waste minimization, advanced reprocessing processes and technologies (Purex, Coex, Urex, Pyro), nuclear material recycling technologies (MIMAS, Vibropack), modeling of processes, back end fuel cycle options, uranium and plutonium management issues, waste conditioning storage and disposal, thorium cycle, fully integrated fuel cycle and symbiotic nuclear power systems, Accelerator Driven Systems (ADS). Fuel supply and waste management and non-proliferation concerns

9. Materials and Structural Issues

Fuel, core, reactor pressure vessel and internals structures, advanced materials issues, environmental effects and fracture mechanics, concrete and steel containments design and analysis, design and monitoring for seismic, dynamic and extreme accidents, irradiation issues, materials and structural mechanics issues, aging material issues, codes and standards for new generation plants.

10. Nuclear Energy and Global Environment

Environmental impacts and carbon reduction of nuclear and alternative systems, including applications such as the production of hydrogen, sea water desalination, liquid fuels produced with reduced carbon footprints, biofuels, heating and other co-generation applications. Scenario analysis of nuclear role substitution for fossil fuels not only for power but for transportation, and its qualitative contribution. International collaborative arrangement to support world nuclear energy development, especially in developing countries and with respect to fuel supply and waste management and non-proliferation concerns.