



AMERICAN NUCLEAR SOCIETY REACTOR PHYSICS DIVISION



Message from the Chair

By *Bob St. Clair*
(robert.stclair@duke-energy.com)

Having just returned from PHYSOR 2010, I can convey to all of you that the Topical Meeting was very successful. The high attendance, the content of the technical presentations, and the activities in Pittsburgh all attested to a well planned and executed meeting. Congratulations to the entire PHYSOR 2010 Organizing Committee!

Continuing in that theme, the technical programs of the Reactor Physics Division (RPD) continue to thrive under the leadership of our Program Committee Chairman, Fausto Franceschini. While the selection of the location for PHYSOR 2012 has yet to be made, there will be many opportunities to learn, contribute, and exchange technical information at the National ANS meetings between now and PHYSOR 2012. The RPD Program Committee continues to put together excellent sessions and I encourage your participation.

The RPD also continues to move forward with sound financials, utilizing our funds to recognize and encourage students through scholarships and through aid in attending ANS meetings. Under the guidance of our Standards Committee Chairman, Dimitri Cokinos, the RPD continues to develop and support many national standards. However, the Division needs more and new volunteers to ensure its ongoing success and growth. Please feel free to contact any member of the Executive or Program Committees to learn how you can help.

Finally, I would like to pass along my personal assurances about the RPD leadership team. Due to unforeseen circumstances, I was unable to attend the Winter ANS meeting last November. That required several members of the team to fill in on short notice at Professional Division Committee Meetings, the RPD Executive Committee Meeting, and even presenting a report on the health of RPD to the ANS Board of

Directors. They all went off without a hitch, (probably better than if I had been there). All I had to do was ask for their help. Consequently, I feel very good about the future leadership of RPD and hope that you will too.

Results of 2010 Election

By *Bob St. Clair*
(robert.stclair@duke-energy.com)

The 2010 election result is as follows:

G. Ivan Maldonado - Chair
Benoit Forget - Vice Chair
Mark D. DeHart - Secretary
Alireza Haghighat - Treasurer
Robert J. Borland - Executive Committee
Blair P. Bromley - Executive Committee
Tunc Aldemir - Executive Committee
Ako Yamamoto - Executive Committee

Congratulations to all the new officers!

Program Committee News

By *Fausto Franceschini*
(francef@westinghouse.com)

ANS 2009 Winter Meeting, Washington, D.C.

The 2009 Winter Meeting was held in Washington, D.C. (November 15-19 2009). A total of 42 papers were presented in 5 sessions, with overall high technical quality and good attendance.

In addition to the standing RPD sessions (Reactor Physics General – 15 papers, Reactor Analysis Methods – 7 papers and Reactor Physics Design, Validation and Operating Experience – 8 papers), two special sessions were organized: Fuel Isotopic Benchmarks and Applications to Code Validation (organizers Ian Gauld and Mark DeHart - 5 papers) and Validation of Advanced Depletion Approaches for High-Temperature Gas-Cooled Reactor (organizer: Mark DeHart - 7 papers). Thanks to Mark and Ian for their efforts.

Best Paper Award (ANS 2009 Winter Meeting)

Based on the scores provided during the paper review process, the selection for the RPD Best Paper Award at the ANS 2009 Winter Meeting was narrowed down to three papers: “A Hybrid Monte Carlo-S2 Method with No Spatial Truncation Error” by Emily R. Wolters, Edward W. Larsen and William R. Martin (Univ. of Michigan), “Pin Power Redistribution due to Control Rod Depletion Within the Westinghouse NEXUS System” by Fausto Franceschini and Baocheng Zhang (Westinghouse) and “Evaluation of PWR Isotopic Composition Data” by Georgeta Radulescu, Ian C. Gauld and Germina Ilas (ORNL). A panel of judges attended the presentations, and selected the paper entitled “**A Hybrid Monte Carlo-S2 Method with No Spatial Truncation Error,**” presented by **Emily R. Wolters**, as the winner of the award. Congratulations to the authors and appreciation to the judges!

ANS 2010 Annual Meeting, San Diego, CA

Please plan to attend the upcoming ANS 2010 Annual Meeting in San Diego, CA. (June 13-17), and the RPD sessions in particular. We have a total of 38 papers in 5 sessions plus one panel: Current Issues in LWR Core Design and Reactor Engineering Support (organizers: Moussa Mahgerefteh and Robert St. Clair). In addition to our standing sessions (Reactor Physics General – 10 papers in 2 sessions, Reactor Analysis Methods – 8 papers and Reactor Physics Design, Validation and Operating Experience – 7 papers), we will have two special sessions, “Advances in Reactor Core Analysis Methods to Meet the Challenges of Next-Generation and Advanced NPP Designs” (organizers Mark DeHart and Ivan Maldonado - 4 papers) and “Advances in Small- and Medium-Sized Reactor Designs” (organizers: Youssef Shatilla and Pavel Hejzlar- 9 papers). Thanks and congratulations to the session and panel organizers for all their effort.

ANS 2010 Winter Meeting, Las Vegas, NV

Get ready! Submission of summaries has already started, with a deadline of June 11.

There will be a number of RPD sessions that you may consider submitting to, including our standing sessions (Reactor Physics General, Reactor Analysis Methods, and Reactor Physics Design, Validation and Operating Experience) and

5 special sessions (“Progress in Reactor Physics Standards”, “Progress in Reactor Physics Analysis for Thorium-Fuelled Reactors”, “Burnable Poison Optimization, Design, and Analysis”, “Methods, Validation and Analysis for Sustainable Nuclear Energy”, and “Numerical Error Estimation in Nuclear Engineering Modeling”). The meeting will also feature the **panel** “The Philosophy of Benchmark Development within the ANS Joint Benchmark Committee”.

Reviewers will be greatly appreciated. If you would like to be added to the RPD list of reviewers please send your request to the Program Chair, Dr. Fausto Franceschini.

Special Sessions at Upcoming ANS Meetings

Please consider organizing a special session or panel at one of the upcoming ANS meetings, such as the 2011 ANS Annual Meeting in Hollywood. Timely special sessions and panels on topics of interest to academia and industry, with good quality contributions, have kept RPD one of the most active and relevant divisions.

Participation in Program Committee Activities

The success of our division is due to the active involvement of its members. I would like to encourage you to continue to contribute by submitting technical papers, organizing special sessions, reviewing papers, chairing sessions, and as members of the Program Committee and RPD governance in general.

PHYSOR 2010 – “Advances in Reactor Physics to Power the Nuclear Renaissance” – Pittsburgh, PA May 9 – 14, 2010

By Mohamed Ouisloumen
(ouislom@westinghouse.com)

The ANS Pittsburgh local section hosted the PHYSOR 2010 international reactor physics conference in Pittsburgh (Pennsylvania, USA) during the week of May 9th. RPD played a major role in organizing and sponsoring this conference by providing funding to support students, submitting papers, helping in the review process, and managing and coordinating the technical sessions and workshops. The conference was a great technical, organizational, and financial success, with excellent feedback received from the attendees.

The conference began with a half-day opening plenary session chaired by Larry Foulke (University of Pittsburgh) with Aris Candris (Westinghouse), Bertrand Barré (AREVA) and Dan Pace (FENOC) as the keynote speakers. The nuclear renaissance is alive and well according to the presenters. They also addressed the obstacles facing this renaissance as well as the industry's needs in analysis methods to maintain the high standards for current operating nuclear power plants. A total of 67 technical sessions were carried out during the remaining 7 half-days, with 5 parallel sessions running concurrently. The number of papers presented at this conference was 292 which covered all aspects of reactor physics: from the newest computational methods and experiments, over issues of coupling neutronics with thermal-hydraulics and materials development, up to the next generation of reactors. The meeting attracted 471 registered participants and their guests with 53% of participants from the USA. Approximately 18% of the participants were students, with half of these from the USA. The finances of this meeting were equally successful with profits to go toward the local and national ANS sponsoring sections and divisions, including RPD.

The conference also had 2 luncheon events and a banquet with keynote speakers Donald E. Dei (USA Department Of Energy), Everett Redmond II (Nuclear Energy Institute), and Robert J. Buechel (Westinghouse). With sponsorship from Idaho National Laboratory (INL), the Organizing Committee offered a competition for the "best student paper" awards. The following students were selected for the awards:

- 1st place: William Walters (University of Florida, U.S.), for his paper on: "*A Methodology for Determination of Detector Response for Inspection of a Spent Fuel Pool*"
- 2nd place: Wencong Wang (Shanghai Jiaotong University, China), for his paper on: "*Direct Optimization of Loading Pattern Search Using the HHLP Theory and the MILP Method*"
- 3rd place: Federico Puente Espel (Penn State, U.S.) for his paper titled: "*New Developments of the MCNP/CTF/NEM/NJOY Code System – Monte Carlo Based Coupled Code for High Accuracy Modeling*"

Finally, 9 workshops covering many aspects of reactors physics and technology were organized

by many RPD members during the first and last days of the conference.

Review of Proposals for 2012 RPD Topical Meeting, PHYSOR 2012

By Fausto Franceschini

The Reactor Physics Division is planning to sponsor a Topical Meeting in 2012. This will be the next in the series of biennial PHYSOR topical meetings on the Physics of Reactors – PHYSOR 2012.

The PHYSOR topical meetings have a history of providing excellent programs and attracting papers of high quality content, with a strong domestic and international participation. The most recent PHYSOR topical meetings were held in Interlaken, Switzerland (September 2008) and Pittsburgh, Pennsylvania (May 2010). According to the established pattern, the location of PHYSOR 2012 is scheduled to be in North America.

Several organizations expressed an interest to host PHYSOR 2012. A presentation of their proposals will take place within the upcoming meeting of the RPD Program Committee in San Diego, on Sunday June 13, from 2 to 4 pm, in the Room Crescent of the Hotel Town and Country Resort. After the presentations, the hosting organization of PHYSOR 2012 will be selected by vote of the Program Committee and Executive Committee members. All are invited to attend, but only PC and EC members will be allowed to vote.

My gratitude and best wishes to all the organizations that will contend hosting PHYSOR 2012. Their intentions, commitment and efforts thus far are admirable.

Please feel free to contact me with any questions regarding the RPD topical meetings, the selection process and associated criteria.

Honors & Awards

*By Dimitrios Cokinos
(cokinos@bnl.gov)*

Wigner Award

The 2009 Eugene P. Wigner, Reactor Physicist award was presented to Professor Ed Larsen from

the University of Michigan. The Wigner award, one of the most prestigious awards of the Society, is presented on yearly basis, whenever possible, to a person or persons of any nationality who have made outstanding contributions to the field of Reactor Physics. In addition to the inaugural award presented to Dr. Wigner in December 1990 at Princeton, past recipients of the award include A.M. Weinberg, J. Horowitz, A.F. Henry, E.M. Gelbard, R.L. Murray and N. Corngold.

Candidates for the Wigner award need not be members of ANS. More information on nominations for this award may be found in the ANS web site. Deadline for nominations is April 1, 2011.

ANS Fellow Award

Members of the Reactor Physics Division are invited to submit nominations for the ANS Fellow award. This award is presented twice a year and recognizes technical achievements in the candidate's field. Details about this award and deadlines may also be found in the ANS web site.

Best Paper Award

One of the longest running programs of the Reactor Physics Division is the Best Paper Award. The winning paper is selected by a panel of judges at the ANS national meetings and the biennial topical meetings (PHYSOR).

See previous Sections of this newsletter for the best paper awards at the ANS 2009 Winter Meeting and the 2010 RPD Topical Meeting, PHYSOR 2010. Congratulations to all the winners!

Reactor Physics Standards

*By Dimitrios Cokinos
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Four ANSI/ANS standards have been undergoing revisions and are now nearing completion. They are:

- ANSI/ANS-19-11 (Moderator Temperature Coefficient)
- A review and update of ANSI/ANS-5.1, Decay Heat Power in LWRs, is proceeding, and work continues on the development of the proposed standards on Delayed Neutrons (ANS-19.8) and Nuclear Data for radioisotope production (ANS-19.12)
- ANSI/ANS-19.1 (Nuclear Data for Reactor Design)
 - ANSI/ANS-19.3 (Steady State Neutronics Methods for Power Reactor Analysis)
 - ANSI/ANS-19.6.1 (Reload Physics Tests for Pressurized Water Reactors)

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