



AMERICAN NUCLEAR SOCIETY REACTOR PHYSICS DIVISION



Message from the Chair

By Ben Rouben

I hope that everyone had a good winter and early spring, and I look forward to the ANS Annual Meeting in Boston, where I know participation by Reactor Physics Division members will be high!

In addition to its usual excellent input to US meetings, the Reactor Physics Division continues a very strong involvement on the international scene. One example of this is participation in PHYTRA1, The First International Conference of the Moroccan Association for Nuclear Engineering and Reactor Technology (“GMTR”) on the Physics and Technology of Reactors and Applications, which was held in the exotic locale of Marrakech, Morocco, 2007 March 14-16. This was a very well organized Conference, and it attracted good international participation from many countries in Africa, Europe, America and Asia. ANS President Harold MacFarlane represented the ANS as a whole. RPD was well represented, with Vice-Chair Farzad Rahnama and Executive Committee member Abderrafi Ougouag both presenting papers. I was pleased to participate as well, representing dually RPD and the Canadian Nuclear Society and AECL with a paper on CANDU. Congratulations to the PHYTRA1 organizers, particularly Professors L. Erradi, A. Jehouani and O.K. Bouhelal for a very successful first PHYTRA. I am pleased that RPD could contribute to its success. The photo shows me sharing a pleasant moment with PHYTRA1 organizers Profs. L. Erradi (left) and O.K. Bouhelal.



On the international scene, we now look forward to our next RPD Topical, PHYSOR-2008, which will be held 14-19 September 2008 in Interlaken, in the beautiful Swiss Alps, with the theme “Nuclear Power: A Sustainable Resource”. The conference web page is at www.physor2008.ch/. Extended Summary submission starts August 15, 2007.

Of course, the Division will also strongly support the Boston meeting (8 sessions and 48 papers, as Bojan indicates below), as well as the upcoming national meetings in Washington (November 2007) and Anaheim (2008 June).

I thank the RPD Executive, as well as all RPD members, for making RPD one of the strongest Divisions in the ANS, and I look forward to continued excellent success for the Division, in all its initiatives.

Executive Committee Meeting Fall 2006

The Fall 2006 RPD Executive Committee meeting was held in conjunction with the ANS Winter meeting in Albuquerque, NM. In addition to the typical meeting content, the Division was honored with a visit by ANS President Harold MacFarlane. The Executive Committee also received updates on Program Committee activities, RPD financial status, Standards and Awards status, benchmarks and release of ENDF-B VII, and changes in ANS and Division bylaws. Details can be found in the meeting minutes located on the RPD website.

Program Committee News

ANS 2006 Winter Meeting, Albuquerque, NM

By Bojan Petrovic / G. Ivan Maldonado

The 2006 Winter Meeting was held in Albuquerque, NM, November 12-16, 2006. A total of 26 papers were presented in four RPD sessions. The three usual standing sessions were: Reactor Physics General – 7 papers; Reactor Analysis Methods – 7 papers; and Reactor Physics Design, Validation and Operating Experience – 5 papers. Additionally, a fourth special session entitled Research

Reactor Modeling was organized by Prof. Tunc Aldemir from Ohio State University and attracted 7 papers. All RPD sessions were well attended. While the number of papers was somewhat lower than usual, this was expected due to the highly successful RPD topical meeting, PHYSOR-2006, which was held less than two months prior to this Winter Meeting. Overall, the 2006 was another successful year for RPD.

Best Paper Award at ANS 2006 Winter Meeting

By Bojan Petrovic

Based on the scores provided during the paper review process, selection was narrowed down to three papers to be considered for the RPD Best Paper Award at the ANS 2006 Winter Meeting. A panel of judges attended the three presentations, and selected the paper entitled "Computation of the ORNL HFIR Reactor's Exposure Dependent Eigenvalue Using MCNP-Based Core Depletion," by N. Xoubi and G.I. Maldonado (University of Cincinnati) and R.T. Primm (Oak Ridge National Laboratory) to receive the award. Congratulations to the authors, and thanks to the judges! Our compliments also go to two runner-up papers, "A Deterministic and Statistical Analysis of a PCMI Fuel Failure" by M. R. Young (Westinghouse) and L. E. Hochreiter (Penn State), and "Evaluation of ^{231}Pa and ^{233}Pa Resonance Parameters and Covariance in the Resolved Resonance Region" by L. Leal and H. Derrien (ORNL).

ANS 2007 Annual Meeting, Boston, MA

By Bojan Petrovic / G. Ivan Maldonado

The 2007 Annual Meeting will be held in Boston, MA, June 24-28, 2007. A total of 48 papers are expected to be presented covering 6 topics arranged in 8 sessions, plus one panel session. Bojan Petrovic attended the semiannual paper auction at the ANS Headquarters in Chicago (Feb. 12-13, 2007) during which the paper review was finalized, sessions and Chairs established, meeting rooms auctioned, and the National Program Committee met. Out of the 57 papers submitted for the Boston meeting, 16 were accepted, 29 were accepted with revision, 6

were rejected unless revised (3 of those eventually accepted), 1 paper was rejected, 2 papers were withdrawn, and 3 papers were transferred to other divisions due to a better thematic fit. A dedicated but relatively small group of reviewers performed an excellent job to complete all the reviews on time. It would be great if for future meetings more people could contribute and share the load!

In addition to the three standing sessions (Reactor Physics General, Reactor Analysis Methods, and Reactor Physics Design, Validation and Operating Experience), Bob StClair (Duke Power) has organized a panel session on Current Topics for Reactor Engineer. Moreover, three special sessions have been organized: The Physics of Plutonium and MOX-Fueled Cores (organizer Paul Edelmann), New Perspectives on Validation and Verification for Reactor Physics Analysis (organizer Mark DeHart), and Recycling of Transuranics in Advanced Fuel Cycle Systems (organizer Pavel Hejzlar) – this session, co-sponsored by the FCWMD, had a particularly strong response, with almost 20 papers to be presented.

ANS 2007 Winter Meeting, Washington, D.C.

By Bojan Petrovic / G. Ivan Maldonado

Get ready! Submission of summaries will be possible starting May 1, with a deadline of June 8. There will be plenty of interesting RPD sessions that you may consider submitting to. In addition to our standing sessions (Reactor Physics General, Reactor Analysis Methods, and Reactor Physics Design, Validation and Operating Experience) four special sessions are planned: Design and Evaluation of Advanced Burner Reactors (organizer Taek K. Kim and Won-sik Yang), LWR Automatic Core Design Optimization (organizer Albert Gu), Advanced Methods, Codes, and Benchmarking of the NURESIM Core Physics European Simulation Platform (organizer Jose Aragonés) and Latest Lattice Physics/Core Simulation Methods for Reactor Analysis (organizer Akio Yamamoto). Reviewers will be needed, as always. Please let me know if you would like to be added to the RPD list of reviewers (petrovb@westinghouse.com).

ANS 2008 Summer Meeting, Anaheim, CA (and beyond.....)

By Bojan Petrovic

Please consider organizing a special session for one of the upcoming ANS meetings. The time to propose sessions for the Anaheim meeting is now, i.e., by the 2007 Annual Meeting in Boston (June 2007). Special sessions on relevant topics with good quality contributions have kept over the years RPD as one of the most active and relevant divisions; let's keep it that way, and further improve if possible!

PHYSOR-2008 Update at ANS 2006 Winter Meeting

By Bojan Petrovic / Konstantin Foskolos

At the 2006 Winter Meeting, Konstantin Foskolos provided a progress report on the PHYSOR-2008 topical meeting. The meeting will take place September 14-19, 2008, in Interlaken, Switzerland. The first call for papers will be issued in spring 2007, with the 1000-word summary deadline of Oct 5, 2007. Further information is available at the meeting website (www.physor2008.ch). It is now time to start preparing your contributions for this topical meeting!

Your Active Participation is Encouraged!

By Bojan Petrovic

The continued success of our division is due to active participation of you, the members. In addition to performing good technical work and submitting papers to Annual/Winter ANS meetings and RPD topical conferences, I would like to encourage you to contribute by organizing special sessions, reviewing papers, chairing sessions, and as members of the Program Committee and RPD governance in general. Please let me know if you are interested in any of these activities and/or if you have any questions.

Reactor Physics Standards News

The next reactor Physics standards committee meeting will be held during the Boston ANS Annual Meeting on the usual day and time, Monday morning from 8:30 to 10:30 in the MIT room at the Boston Marriott hotel in Copley

Square. People interested in the physics standards are invited to attend.

The revision of the Nuclear Data standard, ANS-19.1, is well underway and a draft is expected to be circulated among the members of the working group. The existing version of ANS-19.1 – 2002 has been reaffirmed. A major new revision of ANS-19.6.1, Reload Startup Physics Tests is being prepared. It will be significantly improved over the previous edition. Standard ANS-19.11, Moderator Temperature Coefficient, is also scheduled to undergo a revision. Following a number of iterations, the Fast Neutron Fluence in Pressure Vessels proposed standard, ANS-19.10, has finally converged and a final version is about to be balloted.

During the Albuquerque meeting a new Reactor Physics standard has been proposed to provide criteria and guidance for neutron spectral characteristics, sources and other important reactor physics parameters required for the production of isotopes for medical applications. Work continues on the adoption by the International Standards Organization (ISO) of three reactor physics standards as has been reported earlier.

Computational Benchmarks for the Doppler Reactivity Defect

A set of computational benchmarks for the Doppler reactivity defect in PWR pin cells was created and distributed in the summer of 2006. The benchmarks cover UO₂ fuel pins with enrichments from 0.711 to 5.0 wt.%, reactor-recycle MOX fuel pins with PuO₂ content from 1 to 8 wt.%, and weapons-grade MOX fuel pins with PuO₂ content from 1 to 6 wt.%. The benchmarks have been officially approved by the Joint Benchmark Committee of the Mathematics and Computations, Reactor Physics, and Radiation Protection and Shielding Divisions of the ANS.

To date, 44 separate solutions from 15 organizations in 8 different countries have been received. In addition, 8 papers on the topic were presented at the Joint International Topical Meeting on Mathematics and Computations and Supercomputing in Nuclear Applications, held in Monterey, CA, in April. The benchmark specifications along with contributed results will be posted on the Internet later this year. New contributions are still encouraged. Anyone who

has questions or would like a copy of the benchmark specifications should contact Russ Mosteller at Los Alamos National Laboratory (mosteller@lanl.gov, 505-665-4879).

RPD Financial Report

By Jeff Bradfute, RPD Treasurer

The Reactor Physics Division is in excellent financial health. As of the December of 2006, we had a balance of \$25,368! This robust balance can be attributed to the very successful Physor 2006 Conference. Our membership allocation from ANS Headquarters for 2006 was \$1,589. We receive \$1 for every ANS member who joins the Division and saw an increase of 97 members from 2005. This was 6.5% more members than 2005, so RPD is continuing to experience growth in our membership!

The RPD also continues to make generous contributions to support student activities: the Henry/Greebler Scholarship is now fully endowed with a balance of over \$100,000, and \$4000 was contributed in 2006 to support student activities. It remains clear that the RPD is meeting its objectives relative to student support. Given our current financial health, you can be assured that RPD will continue to focus in this area.

REACTOR PHYSICS DIVISION

	ACTUAL 12 MONTHS 2006
BUDGET FUNDS	
CARRY FORWARD FROM 2005	9,483
2006 MEMBER ALLOCATION	1,589
DIVISION INCOME 2006	24,388
TOTAL BUDGET FUNDS	35,460
BUDGET EXPENSES	
NEWSLETTERS	115
AWARDS, PLAQUES	0
NATIONAL MEETING COSTS	0
DIVISION OFFICER EXPENSE	0
STUDENT SUPPORT	4,000
SCHOLARSHIP/NEED FUNDING	0
OTHER EXPENSES (M&C Share of Physor 2006)	5,977
TOTAL EXPENSES	10,092
EXCESS (DEFICIENCY) OF BUDGET FUNDS OVER EXPENSES	25,368

Reactor Physics Division Website

<http://rpd.ans.org>

Announcements
Bylaws, Charter, Goals
Meeting Minutes
Newsletters

ANS Reactor Physics Division Program Committee
(March 2007)

Chair

Dr. Bojan Petrovic
Westinghouse Electric Company
Science and Technology Dept.
1344 Beulah Road
Pittsburgh, PA 15253
(412) 256-1295 (Voice)
(412) 256-2444 (FAX)
PetrovB@westinghouse.com

Alternate

G. Ivan Maldonado
University of Cincinnati
Dept. of Mechanical, Industrial, and Nuclear Engr.
PO Box 210072
Cincinnati, OH 45221-0072
(513) 556-0412 (Voice)
(513) 556-3390 (Fax)
Ivan.Maldonado@uc.edu

Incoming/Outgoing		
2004/2007	2005/2008	2006/2009
<p>Prof. Hironobu Unesaki Kyoto University (KURRI) Division of Nuclear Engr. Science Kumatori-cho, Sennan-gun, Osaka 590-0494, JAPAN +81-724-51-2361 (Voice) +81-724-51-2603 (Fax) unesaki@kuca.rii.kyoto-u.ac.jp</p>	<p>Prof. Tunc Aldemir Ohio State University Bldg. 1, Rm. 130B, Ste. 255 650 Ackerman Rd Columbus, OH 43202 Voice: (614) 292-4627 Fax: (614) 292-3163 Email: aldemir.1@osu.edu</p>	<p>Mark D. DeHart, Ph.D. Reactor Analysis Group, Nuclear Science and Technology Division Oak Ridge National Laboratory Voice: 865-576-3468 E-mail : dehartmd@ornl.gov</p>
<p>Dr. Emilio Fuentes Florida Power & Light Company 700 Universe Blvd Juno Beach, FL 33408 Phone: 561-691-7413 Fax: 561-694-4310 Emilio_Fuentes@fpl.com</p>	<p>Dr. Hany Abdel-Khalik North Carolina State University Dept. of Nuclear Engineering PO Box 7909 Raleigh, NC 27606-7909 Voice: (919)515.4600 Fax: (919)515.5115 abdelkhalik@ncsu.edu</p>	<p>Dr. Young S. Ham Lawrence Livermore National Lab Chemical Biology & Nuclear Science P.O. Box 808, L-235 Livermore, CA 94551 Tel. (925) 423-2474 Fax: (925) 422-3570 ham4@LLNL.GOV</p>
<p>Paul G. Edelmann, P.E. Los Alamos National Laboratory D-5, Nuclear Design & Risk Analysis PO Box 1663, MS K575 Los Alamos, NM 87545 (505) 667-2938 (Voice) (505) 665-2897 (FAX) edelmann@lanl.gov</p>	<p>Prof. José M. Aragonés Dept. of Nuclear Engineering Polytechnic University of Madrid College of Industrial Engineering c/ José G. Abascal,2 28006 Madrid, SPAIN (34) 91-336-3110 [Phone] (34) 91-336-3002 [Fax] arago@din.upm.es</p>	<p>Albert G. Gu AREVA NP Inc 2101 Horn Rapids Rd. Richland, WA 99352 509-375-8509 (Voice) 509-375-8402 (Fax) Albert.Gu@areva.com</p>
<p>Prof. Edmundo del Valle G. Instituto Politécnico Nacional Departamento de Ingeniería Nuclear Av. IPN s/n, Col. Lindavista México, D.F., 07738 MEXICO Tel. +52(55)57296000 x 55033 Fax. +52(55)55862957 edmundo@nuclear.esfm.ipn.mx</p>	<p>Dr. John F. Zino Principal Engineer GE Nuclear Energy Global Nuclear Fuel P.O. Box 780, Mail Code F-12 Wilmington, NC 28402 TEL (910) 675-6116 FAX (910) 675-6614 John.Zino@gnf.com</p>	<p>Szelim Kong Bechtel Bettis, Inc. Bettis Atomic Power Laboratory PO Box 79 West Mifflin, PA 15122-0079 Tel (412) 476-5945 szelim@comcast.net</p>
<p>Dr. David J. Loaiza Los Alamos National Laboratory MS J562 Los Alamos, NM 87545 (505) 667-4936 (Voice) dloaiza@lanl.gov</p>	<p>Prof. Youssef Shatilla, D.Sc. Department of Nuclear Engineering King Abdul Aziz University P.O. Box 80204 Jeddah 21589, Saudia Arabia Tel (9662) 640-0000 ext 68346 Fax (9662) 695-2276 yshatilla@kaau.edu.sa</p>	<p>Dr. Ronald J. Ellis Nuclear Science and Technology Div Oak Ridge National Laboratory P.O. Box 2008, 1 Bethel Valley Road Oak Ridge, TN 37831-6172 Office: (865)574-6107 Fax: (865)574-9619 ellisrj@ornl.gov</p>
<p>Keith J Drudy PWR Core Technologies Westinghouse Electric Company Nuclear Fuels Business Unit Westinghouse Energy Center Monroeville, PA 15146 (412)374-5841 (Voice) drudyk@westinghouse.com</p>	<p>Kevin T. Clarno, Ph.D. Reactor Analysis Group Oak Ridge National Laboratory P.O. Box 2008 Oak Ridge, TN 37831-6363 Phone: (865) 241-1894 Fax: (865) 574-9619 clarnokt@ornl.gov</p>	<p>Dr. Michael Scott McKinley Defence and Nuclear Technologies Lawrence Livermore National Lab L-95 LLNL, 7000 East Ave. Livermore, CA 94551 Phone: (925) 424-2738 Fax: (925) 424-6163 mckinley9@llnl.gov</p>