

Minutes
Reactor Physics Division Executive Committee Meeting
Sunday, June 26, 2011
Location: Room 204
Westin Diplomat Resort, Hollywood, FL, USA

The meeting was called to order by Ivan Maldonado (Division Chair) at 4:04 pm. Prof. Maldonado asked all attendees to introduce themselves and circulated a signup sheet for attendance (see Attachment 1). The meeting agenda was also provided to all participants (see Attachment 2).

Prior to beginning with the agenda, the meeting began with two items related to Division interest – a report on the Fukushima accident, and a report from student visitors on past and upcoming student conferences. These are summarized below.

Fukushima Status

A. Yamamoto distributed a write-up on reactor physics analyses performed following the accident – this document (Attachment 3) was prepared for the upcoming RPD newsletter. Yamamoto also discussed the importance of the Working Aid program for supporting emergency responders at the Fukushima site.

Student Conference Visitors

Mr. Tim Cahill from Georgia Tech provided a handout from the 2011 Student Conference (Attachment 3). The conference sent a new attendance record for student conferences. Mr. Cahill thanked RPD for their financial support.

Ms. Sherry Faye from University of Nevada at Las Vegas (UNLV), co-chair for the ANS 2012 Student Conference, then gave a brief presentation on the plan for the upcoming student conference. The conference is scheduled for Thursday-Sunday, April 12-15, 2012 in Las Vegas, NV. A career fair is planned for Friday-Saturday, along with a poster session for Saturday afternoon. Technical and non-technical workshops are planned. Ms. Faye distributed a meeting flyer providing more conference details (Attachment 4).

B. Forget noted that current student funding is \$2000 for annual student conferences and \$500 for each national meeting for student support (\$1000/yr). He suggested that the division increase the conference support to \$2500 to attain “Neutrino Level” recognition (per the conference flyer. After positive discussion, Forget made a formal motion, which was seconded by E. Nichita, and approved unanimously. It was noted that the current support level for national meetings remains unchanged at \$1000/yr.

Secretary’s Report

Division Secretary M. DeHart distributed minutes from the November 2010 meeting; these were also provided to the division membership by email in advance of the meeting. With no comments or concerns, R. Borland moved to accept the minutes, seconded by R. Ellis. The motion was unanimously approved.

DeHart reported on the status of the newsletter. The publication of the newsletter has been delayed pending contributions from the Chair (I. Maldonado), information on Scholarships (J. Gehin), and information on Physor 2012 (R. Ellis). Once these contributions are provided, the newsletter will be released. DeHart has added additional topics to the newsletter to provide more reader interest – these include a Japanese perspective on Fukushima, an article on the International Reactor Physics Experiment Evaluation Project, and a discussion of the history of ANS-19 Standards.

Treasurer's Report

A. Haghighat was delayed in traffic and would be late for the meeting. In his absence, B. Forget distributed Haghighat's budget update (see Attachment 5). The Division's current balance is \$66,000, and will be \$55,000 at the end of the year.

Related to the budget, J. Gehin reported that the scholarship committee is still studying the possibility of establishing a second undergraduate scholarship. Although the division doesn't have sufficient funds in place yet, Gehin noted that profits from the upcoming Physor 2012 meeting would help, and that an endowment does not need to be fully funded when initiated. However, the division will have to have a plan in place to fully fund the endowment before ANS will accept it. The division is free to offer a non-endowed scholarship at any time.

2011 Election Results

I. Maldonado announced that Ronald Ellis has been elected to the Executive Committee Secretary position, effective after the current meeting. Mark DeHart will become the new Treasurer, Ali Haghighat the Vice Chair, and Ben Forget the incoming Executive Committee Chair. Newly elected to the Executive Committee are Dave Nigg (INL), Mohamed Ouisloumen (Westinghouse), Ugur Mertuyurek (ORNL) and Massimo Salvatores (CEA-Cadarache).

RPD Website update

B. Forget reported that the RPD website has had a few updates: some of the presentations from the previous meeting were uploaded and a link to the ANS website for scholarship information was added. He still needs information on scholarship recipients and RPD fellows from J. Gehin. He also would like some new images to add to the site. Finally, a disbursement for Hanna Shapira is still needed for website services.

Scholarship Committee

J. Gehin reported that the current Scholarship Committee membership consists of himself, Scott Palmtag, Dimitrios Cokinos and Tom Downar. Paul Romano of MIT was selected as this year's recipient of the Henry Greebler award.

Program Committee

F Franceschini provided the agenda for the Program Committee meeting (see Attachment 6); the PC met immediately prior to the Executive Committee meeting. Franceschini reported that after breaking records at the last meeting, the current meeting almost

doubled that record with 95 papers accepted after the review process was completed (104 papers were submitted). This represents 37% of the entire ANS meeting. 15 sessions are scheduled for this week:

Standing Sessions:

- Reactor Physics: General I (Mon PM) Chairs: A. Talamo and B. Forget
- Reactor Physics: General II (Wed AM) Chairs: M. Fensin, B. Forget
- Reactor Analysis Methods I (Tue AM) Chairs: B. Petrovic, B. Zhang
- Reactor Analysis Methods II (Wed PM) Chairs: B. Zhang, C. Rabiti
- Reactor Physics Design, Validation, and Operating Experience I (Tue PM)
Chairs: T. Taiwo, P. Ferroni
- Reactor Physics Design, Validation, and Operating Experience II (Thu PM)
Chairs: P. Ferroni, I. Maldonado

Special Sessions:

- Nuclear Data Covariance: Evaluation, Processing and Application - I (Tue AM)
Chairs: L. Leal, G. Aliberti, Organizers: L. Leal, G. Aliberti
- Nuclear Data Covariance: Evaluation, Processing and Application - II (Thu AM)
Chairs: L. Leal, G. Aliberti, Organizers: L. Leal, G. Aliberti
- Advances in Small and Medium Sized Reactor Designs (Wed PM)
Chairs: Y. Shatilla, P. Tsvetkov, Organizers: Y. Shatilla, T. Remick
- Advances in Nuclear Reactor Kinetics - I (Tue PM) Chairs: P. Ravetto,
D. Chandler, Organizers: P. Ravetto, D. Chandler, T. Primm, A.
Yamamoto
- Advances in Nuclear Reactor Kinetics - II (Thu AM) Chairs: P. Ravetto,
D. Chandler, Organizers: P. Ravetto, D. Chandler, T. Primm, A.
Yamamoto
- Design and Analysis for Plutonium and Minor Actinides Transmutation I
(Mon PM) Chairs: M. DeHart, A. Worrall Organizers: M. DeHart,
F. Franceschini, I. Maldonado
- Design and Analysis for Plutonium and Minor Actinides Transmutation II
(Wed AM) Chairs: A. Stanculescu, M. DeHart Organizers: M. DeHart,
F. Franceschini, I. Maldonado
- Design and Analysis for Plutonium and Minor Actinides Transmutation III
(Wed PM) Chairs: A. Worrall, M. Fratoni Organizers: M. DeHart,
F. Franceschini, I. Maldonado
- Design and Analysis for Plutonium and Minor Actinides Transmutation IV
(Thu PM) Chairs: A. Rineiski, A. Worrall Organizers: M. DeHart,
F. Franceschini, I. Maldonado

For the Winter Meeting, the three standing sessions will be accompanied by three special sessions:

- Current Activities in Reactor Physics Methods Validation Based on Experimental Measurements, Organizers: Mark D. DeHart and Jim Gulliford
- Reactor Physics Design and Analysis for Compact Power Systems for Terrestrial

and Space Applications, Organizers: Blair P. Bromley, Shannon M. Bragg-Sitton, John D. Bess and Pavel V. Tsvetkov
Model adaptation and data assimilation for reactor core calculations, Organizers:
Aldo Dall Osso and Hany Abdel-Khalik

A tutorial on VESTA, by Wim Haeck, is also planned, along with a panel session on Fukushima.

Updates on the status of M&C 2011 and Physor 2012 were provided at the Program Committee meeting as well.

Franceschini also noted that it is getting close to the time to get out a call for proposals for Physor 2014. This will be an international meeting. Both China and Korea have expressed an interest in bidding for this meeting.

Standards Committee

D. Cokinos distributed a history of ANS-19 Standards (Attachment 7) and briefly discussed this history – this history has already been included in the draft newsletter. He then provided a written summary of ongoing Standards activities (see Attachment 8), and close with a request for more volunteers for supporting the various ANS-19 Standards committees. Some Standards are suffering from a lack of support.

Honors & Awards

D. Cokinos distributed a written description of the two awards currently supported by RPD (Attachment 9). He then discussed the two awards. The Wigner award is a very prestigious award administered by RPD. Because of its high visibility, the ANS National Honors and Awards, chaired by Paul Turinsky, feels that the award should be administered at the national level. However, no action has been taken along this line at this time. However, the Executive Committee is disinclined to give up ownership of the award.

Dr. Nils G. Sjöstrand of Sweden's Chalmers University of Technology was selected as this year's Wigner Award winner. The citation on the award reads "For his engineering contributions to the early development of reactor physics, in particular for his work with pulsed neutron experiments and of the area method; for his work on accurate numerical solutions of the transport equation; and for his leadership in establishing reactor physics education in Chalmers." Imre Pazsit of Chalmers was present at the EC meeting and said a few words about Dr. Sjöstrand and his research. Due to health issues Dr. Sjöstrand will probably not be able to travel to the US to accept the award or to do the traditional lecture – alternate options such as a prepared video are being considered.

Joint Benchmark Committee

M. DeHart handed off the JBC report to Glenn Sjoden, who was present at the EC meeting. Sjoden reported on efforts to refocus the committee and begin to move it in a new direction. He is working on a Roadmap for the JBC, and wants to formulate a reference document to review available benchmarks and identify special benchmarks.

JBC is looking at doing special session prior to the next ANS meeting. Currently they are looking at a 4-hour meeting Saturday evening in the 5-9 or 6-10 time frame.

Forest Brown mentioned a document at LANL that may serve as a starting point for this effort.

Goals & Strategic Committee

B. Forget discussed 1-Year and 5-Year Plan for the Division. These documents were send out as an email prior to the meeting and need review and comment for subsequent submission.

Forget represented the division at the Professional Development Committee meeting Saturday evening. Information provided included the process for nominating and selection of ANS Fellows, and on getting special publications out for Topical meetings.

Board Representative

The Division's liason to the ANS Board of Directors, Regis Matzie provided an update on the evolving strategic plan that was introduced at the last EC meeting. The Board of Directors has been pursuing a "Transformation Initiative" for ANS over last two years. Matzie pointed out a press release (Attachment 11) that describes the results of this initiative.

New Business

I. Maldonado and F. Franceschini are currently finalizing a document that will describe the duties of the various volunteer roles within the division. This information will be send out to the EC when completed, and will be posted to the division website.

Adjournment

M. DeHart moved to adjourn the meeting; this motion was seconded by R. Borland and unanimously approved by those present. The meeting was ended at 5:40 pm.

**Attachment #1
Signup Sheet**

2011 ANS Annual Mtg. RPD EC
Hollywood, CA (Attendance)

	NAME	Affiliation and/or Contact
1.	IVAN MALDONADO	IVAN.MALDONADO@UT
2.	BEN FORGET	BFORGET@MIT.EDU
3	Jess Gehin	gehinj@ornl.gov
4	MARK DEHART	Mark.DeHarte@inl.gov
5	Dimitri Cokinos	cokinos@bnl.gov
6	DAVID GRIESHEIMER	dgrieshe@umich.edu
7.	RON ELLIS	rellisrj@ornl.gov
8.	SANDRA DULLA	sandra.dulla@polito.it
9.	PIERO RAVETTO	piero.ravetto@polito.it
10.	Scott Palmtag	palmtag@gmail.com
11.	BLAIR BROMLEY	yelmorb7@nrtca.net; bromleyb@aecl.ca
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15	Ugur Mertylene	mentylene@ornl.gov
16	Hany Abdel-Khalik	abdelkhalik@ncsu.edu
17	Regis Matzire	matzire@westinghouse.com
18	Imre Pizzit	imre@chalmers.se
19	Glenn Sjoden GaTech	sjoden@gatech.edu
20	BEN ROUBEN	ROUBENB@ALUM.MIT.EDU
21	Fausto Franceschini W	francef@westinghouse.com
22	Ali Haghghat	haghghat@vt.edu

Attachment #2
Meeting Agenda

Reactor Physics Division Executive Committee Meeting
Sunday, June 26, 2011, 4:00 - 6:00 PM
The Westin Diplomat Resort and Spa, Room #204
Hollywood, FL

AGENDA

- | | | |
|-----|---|--------|
| 1. | Secretary's Report – Mark DeHart | 5 min |
| | a. Approval of minutes, November 2010 meeting (Las Vegas) | |
| | b. RPD Newsletter Status/Schedule | |
| 2. | Treasurer's Report – Ali Haghighat | 10 min |
| | a. Student Support (National Meetings and Student Conference) | |
| | b. 2011 Budget Status (payments, income, pending items, etc.) | |
| 3. | 2011 Nominating/Elections Committee Report – Bob St Clair (past Chair) | 5 min |
| 4. | RPD Website Update – Ben Forget | 10 min |
| | a. Content Updates | |
| | b. Payments (Ali Haghighat) | |
| 5. | Scholarship Committee - Jess Gehin | 5 min |
| 6. | Program Committee Updates - Fausto Franceschini | 15 min |
| | a. 2011 Winter Meeting (Washington, D.C.) | |
| | c. 2012 Annual Meeting (Chicago, IL) | |
| | d. 2012 Winter Meeting (San Diego, CA) | |
| 7. | Topical Meetings (Updates, Requests for Sponsorship) | 10 min |
| | a. MC 2011 (Rio de Janeiro, Brazil) – MCD Representative or Fausto | |
| | b. PHYSOR 2012 (Knoxville, TN) – Jess Gehin, Ivan Maldonado, Ron Ellis | |
| | c. INREC-2012 Request for Class IV Topical Co-Sponsorship, Rizwan Uddin | |
| | d. PHYSOR 2014 Planning - Fausto Franceschini | |
| 8. | Standards Committee Update - Dimitri Cokinos | 5 min |
| 9. | Honors and Awards Committee Update - Dimitri Cokinos | 10 min |
| | a. Wigner Award | |
| | b. ANS Fellows | |
| | c. Update on Categorization of Division Administered Awards | |
| 10. | Student Conference Update – (RPI) | 5 min |
| 11. | Joint Benchmark Committee Report - Mark DeHart | 5 min |
| 12. | Goals and Strategic Planning Committee – Ben Forget | 5 min |
| 13. | Professional Divisions | 10 min |
| | a. PDC Update (workshop update by Ivan and Ben) | |
| | b. Liaison report (Regis Matzie – PDC Liaison) | |
| 14. | New Business | 10 min |
| | a. Outlining Duties of EC and PC Committee Members (Ivan & Fausto) | |
| 15. | Adjournment | |

Attachment #3

Fukushima Daiichi Accident and Related Reactor Physics Considerations
(Short article being submitted to the upcoming ANS-RPD newsletter)

Nagoya University
Akio YAMAMOTO

First of all, as a Japanese national, as a member Atomic Energy Society of Japan, and as a member of Reactor Physics Division of AESJ, I would like to express sincerely thanks to the "ANS-Japan Relief Fund" (ANS-JRF) with very warm messages, assistances and supports. Your fund (45,000 US\$) is used for refreshments for workers in Fukushima Daiichi Nuclear Power Plant, who are making every effort to stabilize the situation of reactors and to converge the accident. I also would like to express gratitude to the government of United States for the strong support and assistance for the overall disaster.

Immediately after the disaster at March 11, researchers of Japanese reactor physics community, especially the faculties of universities, have been heavily involved in the correspondences to major Mass-medias. Since detail plant situations were not known at that time, we had very difficulty to make the "correct" explanation and interpretation based on the information with large uncertainties. But I felt that basic reactor physics knowledge is invaluable not only to take countermeasure for the accident, but also to make adequate explanation to Japanese national. In the following, several topics of the accident that are related to reactor physics will be briefly described.

Since the Fukushima Daiichi accident occurred due to loss of cooling capability and loss of ultimate heat sink, the first priority was put to the decay heat analysis. Though the decay heat of the scrambled cores can be roughly estimated by simplified formulas, additional information such as number of fuel bundles, bundle average exposure, and their cooling time was necessary to estimate decay heat in the spent fuel pools. Since such information was not classified, rough estimation of decay heat in the spent fuel pools were very difficult. We had to depend on the analysis results by TEPCO.

Unfortunately, large amount of radioactive materials were released to environment during the accident. We tried to estimate the average exposure of damaged fuel bundles from the radioactive isotope ratio measured in the environment. Analysis was carried out by SCALE6/TRITON, with the support from Dr. DeHart (thanks again!). Based on the ratio of Cs134/Cs137, rough estimation of the average exposures of damaged fuel bundles is approximately 20,000 MWd/t for Unit 1, 2, and 3. The estimated exposure is lower than the core average exposure of these cores, suggesting high power bundles (e.g. once-burnt) are more damaged, or old peripheral bundles are less damaged. More detail analysis will be carried out in the future.

Re-criticality of the damaged cores was one of the topics of the accident. The hypothetical re-critical scenario during a severe accident of BWR is as follows. Loss of cooling capability of the core (e.g. loss of coolant accident) → Increase core temperature due to decay heat → "Meltdown" of control rod materials, whose melting points are lower than those of fuel bundle materials, while fuel bundles keep their geometry → re-flooding → re-critical condition. However, in actual situation, possibility of this scenario is considered to be very low since melted control rod material and fuel are mixed together in the damaged core. In the case of Fukushima Daiichi, progress of the event would be different since the coolant level in the core gradually decreased due to decay heat. The core was severely damaged and part of the fuel debris would be dropped at the bottom head of pressure vessel. Even in this case, possibility of re-criticality would be very low when relocation of control rod material and fuel/moderator volume ratio in such condition are taken into account. Dr. Mosteller et al. performed this kind of analysis and the paper was published in Nuclear Technology.

Regardless to the above consideration from the viewpoint of reactor physics, possibility of re-criticality has been widely discussed, mainly due to the measurement results of radioactive

isotopes in environment. TEPCO once reported that ^{138}I was detected in the contaminated water at the bottom floor of the turbine building. ^{138}I has short half life and is produced by the capture reaction of ^{137}I that is included in sea water. Since sea water was injected to the cores of Unit 1-3, detection of ^{138}I seemed to be the evidence of the re-criticality. However, the measurement data for ^{138}I is wrong - it was the mistake of TEPCO. Similarly the possibility of re-criticality was discussed based on the ratio of $^{131}\text{I}/^{134}\text{Cs}$ or $^{131}\text{I}/^{137}\text{Cs}$. Since half life of ^{131}I is much shorter than that of Cs, the I/Cs ratio should show monotonously decreasing behavior. However, several "anomalies" were observed for the I/Cs ratio showing some peaks after reactor shutdown. When re-criticality occurred after reactor shutdown, the I/Cs ratio would be increased. There are various measurement data for the I/Cs ratio including the contaminated water in the turbine building, spent fuel pool, sub-drain water, and so on. Since chemical behavior of I and Cs are different, the I/Cs ratio would show different values when the environment samples were taken from different places. The "anomalies" of the I/Cs ratio would be explained by the chemical behavior of I and Cs in different samples.

When the above discussion is taken into account, positive measurement data indicating the re-criticality of the damaged cores in Fukushima Daiichi would not be obtained so far.

For wrap-up, I reconfirm that the knowledge of the reactor physics is one of the fundamentals for reactor safety, i.e., the knowledge of reactor physics is invaluable for emergency responses for accident. I am teaching basic reactor physics as a tool to design and to understand reactors so far, but I think the safety aspect should be also taken into account in reactor physics as a post-Fukushima curriculum.

Attachment #4
Report of 2011 ANS Student Conference

2011 ANS Student Conference

Hosted by the Georgia Institute of Technology in Atlanta, GA

Summary and Facts At-a-Glance

Dates:	April 14-17, 2011
Location:	Hyatt Regency, Downtown Atlanta
Attendance:	672 (new attendance record)
Demographics/Statistics:	505 students from 44 different colleges/universities 167 professionals from 76 different companies/organizations 50 international attendees 48 participating companies/organizations in Exhibit Fair 12 guest speakers 8 professional workshops
Technical Tours:	Plant Vogtle – Waynesboro, Georgia MOX Fuel Fabrication Facility – Aiken, South Carolina NRC Technical Training Center – Chattanooga, Tennessee
Student Presentations:	123 podium presentations 42 posters 22 awards given

We would like to extend a thank you to all of the Professional Divisions for their continued support of the ANS Student Conference!

Further information about the conference can be found on the conference website at <http://gtans.org>.

Podium Presentation and Poster Award Winners

Division	Name	University	Title
Accelerator Applications	Michelle Okoniewski	Rensselaer Polytechnic Institute	Compact High Energy Pyroelectric X-ray Production
Aerospace Nuclear Science & Technology	Charles Menke	University of Tennessee Knoxville	Dose Estimates for CRATER using HETC-HEDS
Biology and Medicine	Delvan Neville	Oregon State University	Thyroid Ablation Second-hand Dose to Partner During Spooling
Environmental Sciences and Decommissioning, Decontamination, & Reutilization	Shilo McCrory	Idaho State University	Characterization of the Chemical Form of C-14 in Irradiated Graphite
Detection & Measurements	Jeff Webster	Purdue University	Actinide Mixture Detection with Centrifugally Tensioned Metastable Fluid Detectors
Education, Training, & Workforce Development	Derick Kopp	Clemson University	Development of an On-line Radiation Detection and Measurements Course
Fuel Cycle & Waste Management	Daniell Tincher	University of South Carolina	MA Transmutation Feasibility in LWR with Various Am/Cm Separation Efficiencies
Fusion Energy & Plasmas	Ahmad Ibrahim	University of Wisconsin Madison	Global Evaluation of Prompt Dose Rates in ITER Using FW-CADIS
Human Factors, Instrumentation, & Controls	Margaret Myers	Oregon State University	U.S. Army Radiation Dispersal Device Field Training Exercise
Isotopes and Radiation	Todd Sherman	University of Utah	Developing Neutron Activation Analysis Protocol at the University of Utah
Mathematics & Computation	Bo Shi	Georgia Institute of Technology	Two-group Eigenvalue Calculation with Modified Power Iteration Method
Nonproliferation & Nuclear Safeguards	Andra Shaughnessy	Oregon State University	Antineutrino Detection in a High Temperature Gas-Cooled Reactor
Nuclear Installations Safety	David Spengler	Pennsylvania State University	Public Perception of the Risk of Nuclear Power
Operations & Power	Matthew Pitman	Pennsylvania State University	Retiring the Oldest Commercial US Nuclear Power Plant
Policy	Geoffrey Haratyk	Massachusetts Institute of Technology	Economics of Nuclear Wind Hydrogen Energy Storage
Radiation Protection & Shielding	Avdo Cutic	University of Utah	Mobile Cart Design for University of Utah TRIGA NAA Line
Reactor Physics	Carey Read, Jr.	University of South Carolina	Modifying CINDER90 to Simulate Helium Production in Minor Actinide Targets
Robotics and Remote Systems	Theresa Wilks	University of California Berkeley	Measurement of Superconducting Undulators using the Pulsed Wire Technique
Thermal Hydraulics/Fluids	Dillon Shaver	Rensselaer Polytechnic Institute	DNS - RANS Coupled Simulation of Fission Gas Escape
	Andrew Cartas	University of Florida	Silicon Carbide Uses as an Inert Matrix Fuel
Poster	Johnathan Doojhibulpoi	University of California Berkeley	Design of Pebble-Bed High Temperature Heat Transfer Experiment [PS-HT]#2
	Dan Hanson	University of Tennessee Knoxville	Assessing Thermochromatographic Separation for Nuclear Forensics

Attachment #5
Status Update for Upcoming 2012 ANS Student Conference

UNIVERSITY OF NEVADA, LAS VEGAS
APRIL 12-15, 2012

ANS 2012 Student Conference

“Nuclear Science and Technology: Past, Present and Future”



CONFERENCE HIGHLIGHTS

TECHNICAL SESSIONS
 We have the ability of holding up to seven concurrent technical sessions with minimal conflicting events, offering more students an opportunity to share their research.

NETWORKING SOCIAL
 Meet up with old friends and make new connections at the 1950s themed rooftop social on Thursday evening. Dance to your favorite cold war tunes or pose for a photo in 1950s garb!

TOURS
 Tours will be available of the Nevada National Security Site, Atomic Testing Museum, Varian Medical Systems and the UNLV science & engineering laboratories.

ORAL HISTORY TOURS
 Guests are invited to take a step back in time by viewing photographs and video clips collected from the weapons testing era and shared by the Nevada Test Site Oral History Project.

About the Conference

The ANS Student Section at the University of Nevada, Las Vegas is pleased to host the 2012 ANS Student Conference in fabulous Las Vegas, Nevada! Hosting the ANS Student Conference for the first time gives many nuclear science and engineering students their first opportunity to experience our unique facilities in Nevada. We are sure that we will deliver an exciting and technically diverse conference that should not be missed!

ANS Student Section at UNLV

The UNLV ANS Student Section was founded in 2003 as the university was starting up its nuclear engineering and radiochemistry programs. Student section members are drawn from the three prestigious and fast growing nuclear based programs; materials and nuclear engineering (M.S.), radiochemistry (Ph.D.), and health physics (B.S. and M.S.). The composition of student members from the three degree programs gives the UNLV ANS student section its diversity and resources that make it so awesome!

Conference Details

Attendance to student conferences has been steadily increasing in the past several years. Due to this trend, we estimate an attendance upwards of 750.

Guests accommodations will be available at the all suite Alexis Park Resort. The property is a non-gaming resort on lushly landscaped grounds with 3 sparkling pools.

Conference events will be held at the UNLV Student Union which offers nearly 30,000 square feet of flexible meeting space.



Program Details

Technical presentations: the main focus of the student conference. General areas that abstracts will be drawn from include:

- Nuclear Engineering
- Nuclear Science
- Radiochemistry
- Nuclear Policy
- Fuel Cycle
- Outreach

Career fair: offered to promote networking between students and professionals. Private interview rooms will be offered to top level sponsors. Dinner will be hosted in the career fair on Friday night, giving all attendees time to socialize after a day of technical sessions.

Poster session: held on Saturday afternoon after the career fair closes, offering professionals a chance to interact with students that are presenting posters. The posters will be set up first thing Saturday morning so attendees can view them throughout the day, with the opportunity to ask questions during the poster presentation session later in the afternoon.

Workshops: both technical and non-technical workshops will be offered to all conference attendees.



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Visit us at: www.ansatunlv.com

@ansatunlv



UNIVERSITY OF NEVADA, LAS VEGAS APRIL 12-15, 2012

How to Get Involved

2012 Sponsorship Opportunities

Nucleus (\$25,000+)

- One guest speaker
- Three additional free registrations
- Premium career fair booth
- Priority interview space
- One full page ad in conference program
- Banners/ads at all major events
- Advance access to resume book
- Logo in conference program
- Logo on one conference giveaway
- Logo on conference t-shirt

Proton (\$15,000+)

- Two additional free registrations
- Choice career fair booth
- Priority interview space
- One full page ad in conference program
- Limited ad space at major events
- Advance access to resume book
- Logo in conference program
- Logo on conference t-shirt

Neutron (\$10,000+)

- Two additional free registrations
- One full page ad in conference program
- Advance access to resume book
- Logo in conference program
- Logo on conference t-shirt

Electron (\$5,000+)

- One additional free registration
- One half page ad in conference program
- Logo in conference program
- Logo on conference t-shirt

Neutrino (\$2,500+)

- One 1/4 page ad in conference program

Career Fair Booth Only (\$1,500)

All sponsorship levels \$2,500 & up include:

- One free registration (\$250 value)
- Career fair booth
- Linked logo on the conference website

Other Opportunities

Sponsorship

- Custom ad space in the conference program and other conference material
- Sponsorship of specific conference events and functions such as tours, socials and workshops

For general conference information,
please contact:
Vanessa Sanders
General Chair: Program
vsndrs1@aol.com
(321) 536-3540



Technical

- Volunteer to be a technical session judge
- Volunteer to chair a technical session
- Offer or participate in a workshop

For sponsorship information,
please contact:
Sherry Faye
General Chair: Logistics
sherryafaye@gmail.com
(315) 415-9629

**Attachment #6
Division Budget**

Hollywood, FL, June 26th, 2011
Prepared by Alireza Haghghat

AMERICAN NUCLEAR SOCIETY
BUDGET 2011

REACTOR PHYSICS

BUDGET FUNDS
CURRENT YEAR MEMBER ALLOC.
CARRY FORWARD, PRIOR YEAR
DIVISION INCOME /OTHER

	ACTUAL 2004	ACTUAL 2005	ACTUAL 2006	ACTUAL 2007	ACTUAL 2008	ACTUAL 2009	BUDGET 2010	THREE MONTHS ACTUAL 2011	PROPOSED BUDGET 2011
	1457	1492	1569	1651	3434	3500	3586	3846	3846
	8995	9505	9483	31345	29059	29553	34628	65800	65800
	11131	1430	24388	-3937	1060	10219	30746	0	0
	21583	12427	35460	29059	33553	43272	68960	69646	69646
	0		115		0	27			
	78	73			0	76			
	0	246			0	50			
	0				0	0			
	2000	2000	4000		4000	7000	3000		3000 (1)
	10000				0	0			
									1000 (2)
	0	625			0	1491	0		10000 (3)
	12078	2944	4115	0	4000	8644	3000	0	14000
	9505	9483	31345	29059	29553	34628	65960	69646	55646

(1) ANS meetings = \$1000 plus ANS student conference for 2012 = \$2000
(2) For 2010 and 2011
(3) Contribution to Dr. Weinberg's Memorial Fund

Attachment #7
Program Committee Meeting Agenda

RPD PROGRAM COMMITTEE

MEETING AGENDA

ANS Annual Meeting, Hollywood, FL

2:00 – 4:00 pm, Sunday, June 26, 2011

The Westin Diplomat Resort and Spa: Room 204

- I. Call to Order
- II. Approval of minutes from the ANS 2011 Winter Meeting, Las Vegas, NV, November 2010.
- III. Old members/new members

OLD MEMBERS:

Dr. Benoit Forget, Assistant Professor
Dr. Hansen Joo, Fellow Engineer
Dr. Deokjung Lee
Dr. Mohamed Ouisloumen,
Dr. Dubravkov Pevec
Dr. Zhaopeng Zhong

NEW MEMBERS:

1) Dr. Germina ILAS (ORNL) – Not Present

2) Tatjana Jevremovic, Ph.D. - Attending

EnergySolutions Presidential Endowed Chair Professor in Nuclear Engineering Director, University of Utah Nuclear Engineering Program Professor of Nuclear Engineering Professor of Civil and Environmental Engineering Professor of Chemical Engineering
2298 MEB, 50 South Central Drive
The University of Utah, Salt Lake City, UT 84112
Phone: 801.587.9696
E-mail: Tatjana.Jevremovic@utah.edu
URL: <http://www.nuclear.utah.edu/nep.html>

3) Dr. Baocheng Zang (Westinghouse) - Core Physics Methods Development - Attending

4) Dr. Javier Ortensi – Attending (R&D Scientist at INL, PhD from Idaho State)

Nuclear Science and Engineering Division
Idaho National Laboratory
Idaho Falls, ID 8341-3870

Ph: (208)526-4256

- 5) Dr. Justin Pounders (Bettis, PhD from GaTech) - Attending**
- 6) Dr. Tomasz Kozlowski**, Royal Institute of Technology (KTH) Research Leader at Nuclear Power Safety Physics School of Engineering Sciences – Not Attending
- 7) Dr. Alexander Stanculescu – Director Nuclear Science and Engineering Division (INL)**
- 8) Massimo Salvatores (Executive Committee International Member) -**

IV. National Meetings

- **2011 Annual Meeting**
 - i. Review of Division Rep Meeting & Session Summaries**
- **Over 100 papers submitted to RPD sessions**, about ~15 Reject Unless Revised, practically all accepted after further revised/reviewed but a few withdrawals (93 presentations expected).
- **Also featuring the panel** Current Issues in LWR Core Design and Reactor Engineering Support—**Panel (Tue AM): David and Moussa**
- Reactor Physics General (I and II): 14 papers
- Reactor Analysis Methods (I and II): 13 papers
- . Reactor Physics Design, Validation, and Operating Experience (I and II): 12 papers.
- Nuclear Data Covariance: Evaluation, Processing and Application-(I and II): by **Luiz Leal and Gerardo Aliberti** 15 + 2 papers to MCD session
- Advances in Nuclear Reactor Kinetics (I and II) by P. Ravetto, D. Chandler, Trent Primm and Akio Yamamoto: 15 papers
- Advances in Small and Medium Sized Reactor Designs, **Y. Shatilla : 7 papers**
- Design and Analysis for Plutonium and Minor Actinides Transmutation (I to IV) by M. DeHart, I. Maldonado and F. Franceschini: **24 papers**

2008 W	2009 A	2009 W	2010 A	2010 W	2011 A
38	47	50	39	58	107
			(27 St)	(36 St)	(50 St)
			(287)	(400 T)	(435)

So:

- 1) RPD provided 13% of Total in 2010 A and W up to 25% in 2011 A**
- 2) Special Session contribution was 30% and 37% in 2010 A and W up to 53% in 2011 A**

3) Somewhat increasing trend in papers for RPD over the last years (nuclear renaissance-related/more students/researchers?)

4) Some fortunate coincidences and cosponsoring/contributions from other divisions

Note: It would be interesting to track geographical trends or other categories

There has been a general increase in papers for this whole conference but also something specific to RPD to bring papers to record high, and within RPD the contribution of the special session is very substantial. **Need to keep that up! (it will be more difficult in post-fukushima)**

Bottom-line main reason: special sessions

ii. Best paper and judges (Blair Bromley)

- 2011 Winter Meeting

iii. Reports on special sessions

1) Current Activities in Reactor Physics Methods Validation Based on Experimental Measurements Organizers Mark D. DeHart - N. T. "Jim" Gulliford (OECD/NEA)

2) Reactor Physics Design and Analysis for Compact Power Systems for Terrestrial and Space Applications - Organizers: Blair P. Bromley (AECL), Co-organizers: Shannon M. Bragg-Sitton and John D. Bess (INL), Pabel V. Tsvetkov (Texas A&M) Sponsoring Divisions: Reactor Physics Division -RPD (primary sponsor) and Aerospace Nuclear Science and Technology -ANST (co-sponsor)

3) Model adaptation and data assimilation for reactor core calculations – Organizers Aldo Dall Osso (AREVA) Co-Organizer: Hany Abdel-Khalik (NCSU)

4) Tutorial on VESTA by Wim Haeck (IRSN)

(Panel/Session on Fukushima – Yamamoto?)

iv. Report on standing RPD panel
(Any panel for the Winter meeting?)

v. Paper review, deadlines, Chairs
Only ~ 35 papers in the system – Please help to spread the word

Drop-dead deadline will be first week of July or so

- 2012 Annual Meeting
 - vi. Proposal/Approval of special sessions

1) Experiences and Challenges in RERTR Core Redesign - Organizers: Mark DeHart and Sean Morrell (INL)

In 1978, the international community established the Reduced Enrichment for Research and Test Reactors (RERTR) program. Its mission was to develop technology necessary to enable the conversion of civilian facilities using high enriched uranium (HEU) to low enriched uranium (LEU) fuels and targets with a U-235 enrichment of less than 20%. To date, over 40 research reactors have been converted from HEU to LEU fuels. However, a significant number of reactors remain to be converted, pending completion of fuel type testing. Validation of new analysis methods for updated designs remains a key issue; new fuel designs introduce new uncertainties that must be addressed in core modeling methods. Hence, this session has been developed to provide a forum for exchange of information related to RERTR core redesign. We are seeking papers describing experiences from facilities that have completed the conversion process together with papers describing technical challenges for cores that have not yet been converted. We are interested in all aspects of core physics, including kinetics analysis and improved thermal/hydraulic modeling requirements needed to address changes in fuel element design and core power distributions.

2) : Initial Experience with ENDF/B-VII.1 – Organizers Skip Kahler and Richard Mc Knight

Potential Co-Sponsors: Nuclear Criticality Safety, Radiation Protection and Shielding

Session summary:

Version VII.1 of the United States' Evaluated Nuclear Data File (ENDF/B-VII.1) is scheduled for public release at the end of 2011, following an extensive verification and validation effort by members of the Cross Section Evaluation Working Group (CSEWG). This is the first upgrade to the ENDF database since ENDF/B-VII.0 was released in 2006. In addition to dozens of new and revised neutron cross section evaluated file revisions, a significant component of the new release is the inclusion of covariance data for more than 100 of the 418 evaluations. Papers describing the content of the revised file, the processing of these data into multi-group and continuous energy application libraries or sensitivity files, and the performance of the resulting calculations with these new evaluations will be solicited and are expected to be of general interest to the broader technical community.

- V. Report on Topical Meetings
 - M&C 2011 (**Piero Ravetto**)
 - Update on PHYSOR 2012
 - Other update/reports

- VI. Other Business
 - a. Presentations on the RPD website
We need a better (automated) way for the authors to upload the presentations.
Provide a dedicated space on the website.

 - b. Chairs Recruitment for the standing session?

 - c. Other: anybody involved in the special SMR session in DC?

- VII. Adjourn

Attachment #8**A BRIEF HISTORY OF ANS-19 STANDARDS**

ANS-19 was created in 1972 under the auspices of the American Nuclear Society and in accordance with the requirements for technical standardization set forth by the American National Standards Institute (ANSI). ANS-19 is part of a broad standards program that covers most technical areas of nuclear reactor technology.

ANS-19, Physics of Reactor Design, is an active organization and operates under the Consensus Committee N17 which in turn reports to the ANS Standards Board. The purpose of ANS-19 was to develop standards for reactor design as the field of nuclear technology in the 1970s had reached a certain level of maturity.

The founding membership of ANS-19 included well-known names in reactor physics that came from national labs, universities, reactor vendors, nuclear utilities and independent consultants.

Paul Greebler (General Electric) was the first chairman of ANS-19. It was during Greebler's leadership that the following new standards were initiated (asterisks indicate active standards and names in bold indicate current Working Group chairs):

*ANS-19.1, "Nuclear Data Sets for Reactor Design Calculations" – First published in 1975 under Working Group Chair Robert Dannels; **Robert Little**

*ANS-19.2, "A Glossary of Reactor Physics Terms" – Published in 1978 for trial use under Working Group Chair Darrell Newman, and dropped a few years later

*ANS-19.3, "The Determination of Neutron Reaction Rate Distributions and Reactivity of Nuclear Reactors" – First published in 1975 under Working Group Chair Abraham Weitzberg; **Benjamin Rouben**

NOTE: The title of the last revision (2011) of ANS-19.3 is "Steady State Neutronic Methods for Power Reactor Analysis" – 2011 **Benjamin Rouben**

*ANS-19.3.4, "Determination of Thermal Energy Generation Rate in Nuclear Reactors" – First published in 1976 under Working Group Chair Paul Greebler; **Dimitrios Cokinos**, Acting Chair

*ANS-19.4, "Guide for Acquisition and Documentation of Reference Power Reactor Physics Measurements for Nuclear Analysis Verification" – First published in 1976 under Working Group Chair Harry Graves; **Dimitrios Cokinos**, Acting Chair

*ANS-19.5, "Requirements for Reference Reactor Physics Measurements" – First published in 1978 under Working Group Chair Phillip Hemmig; **Dimitrios Cokinos**, Acting Chair

George Minton succeeded Paul ^{er}Gumbler as Chairman of ANS-19 from 1977 to 1980.

Abraham Weitzberg succeeded George Minton from 1980 to 1987. The following standards projects were initiated under Weitzberg's leadership:

ANS-19.6, "PWR Physics Measurement Programs for Startup and Surveillance" – Initiated under Working Group Chair Bernie Palowitch as a proposed standard in the early 1980s but never brought to completion; dropped shortly after initiation

ANS-19.7, "Doppler Coefficient in Light Water Reactors" – Initiated as a proposed standard under Working Group Chair Edward Knuckles in the early 1980s but never brought to completion. It was dropped in 1987.

*ANS-19.6.1, "Reload Startup Physics Tests for Pressurized Water Reactors" – First published in 1985 under Working Group Chair Charles Rombough; **Charles Rombough**

Dimitrios Cokinos succeeded Abraham Weitzberg as Chairman of ANS-19 in 1988. The standards listed below were initiated. In 1989 an existing standard (ANS-5.1) was transferred to ANS-19 from Consensus Committee NUPPSCO.

*ANS-5.1, "Decay Heat Power in Light Water Reactors" – First published in 1979 under Working Group Chair Virgil Schrock; **Ian Gauld**

ANS-19.8, "Fission Chain Yields" – Working Group Chair **William Wilson**; work under development; Initiated in 1991

ANS-19.9, "Delayed Neutrons" – Working Group Chair **Michaele Brady-Rapp**; work under development; Initiated in 1991

The following two standards have been initiated in 1991 and 1986, respectively, have been approved and are in actively used existence since the year of their completion:

*ANS-19.10, "Pressure Vessel Fluence in the Pressure Vessel of Light Water Reactors" – First published in 2009 under Working Group Chair **Lambros Lois**

*ANS-19.11, "Moderator Coefficient of Reactivity in Pressurized Water Reactors" – First published in 1997 under Working Group Chair Russell Mosteller; **Robert St. Clair**

A new standard was initiated in 2005

ANS-19.12, "Nuclear Data for the Production of Radioisotopes" – Acting Working Group Chair **Robert Schenter**; work under development.

Attachment #9**REACTOR PHYSICS STANDARDS REPORT
AND CALL FOR VOLUNTEERS****JUNE 2011**

Members of the ANS-19 Committee, "Standards for Reactor Design", and its Working Groups have been involved in various activities related to the update and revision of existing standards, developing new standards and responding to inquiries submitted to ANS by standards' users. A brief summary of activities in each of the currently on-going projects is given below.

ANS-19.1 - Nuclear Data Sets for Reactor Design Calculations. This standard has been undergoing a major revision and expansion to reflect the state of the art of nuclear data sets. A draft is expected during this year.

ANS-19.3- "Steady State Neutronics Methods for Power Reactor Analysis". A complete revision of this standard has been completed and balloted by ANS-19. All comments have been addressed and the standard is now in the process of review and voting by N-17 the consensus committee (the parent organization of ANS-19). It is expected that within the next three months it will receive the approval of the ANS Standards Board and the American National Standards Institute (ANSI).

ANS-19.6.1- "Reload Startup Physics Tests For PWRs". The revised version of this standard has generated some questions by members of N-17 and those comments are now being addressed by the Working Group.

ANS 19.11 - "Calculation and Measurement of the Moderator Temperature Coefficient of Reactivity for Pressurized Water Reactors". This just-revised standard is now in the process of being reviewed by the members of ANS-19.

ANS 5.1 - "Decay Heat Power in LWRs". This standard is currently being revised. Specific changes in the current revision will include (a) improvements to the treatment for neutron capture by fission products, (b) inclusion of decay heat power from all actinides, and (c) an improved uncertainty analysis method.

ANS-19.9 - "Delayed Neutron Parameters for LWRs". This proposed standard is in the process of development.

International Standards. In addition to the Decay Heat standard which has been submitted earlier for adoption by the International Standards Organization (ISO), four additional ANS-19 standards have been submitted and are now being reviewed by the ISO for possible adoption as ISO standards. These are: ANS-19.1, ANS-19.3, ANS-19.6.1 and ANS-19-12, Nuclear Data for Radioisotope Production.

CALL FOR VOLUNTEERS

ANS-19 is seeking qualified people to work on the revision of the following standards:

- **ANS-19.3.4 – Determination of the Thermal Energy Deposition Rates in Nuclear Reactors.** Required knowledge: Atomic Physics, Nuclear Physics and Reactor Physics
- **ANS-19.4 - Reference Power Reactor Physics Measurements for Nuclear Analysis Verification.** Required experience: 3D power reactor simulation, analysis and benchmarking; core follow calculations; code verification and validation
- **ANS-19.5 – Requirements for Reference Reactor Physics Measurements.** Individuals are needed to work on identifying and documenting high quality measured data obtained from critical and subcritical experiments carried out at various institutions to date.

D. Cokinos, Chair
Reactor Physics Standards Committee

Attachment #10

**REACTOR PHYSICS HONORS & AWARDS
BRIEF REPORT**

June 2011

ANS FELLOW AWARD

RPD members are invited to nominate candidates worthy of elevation to the ANS Fellow status. The candidate must be an ANS member for at least the past five years. Five sponsors, geographically dispersed, are needed to submit letters of recommendation for their candidate, with one sponsor being the principal nominator. Selection of new ANS Fellows is made twice a year. More details can be found at the ans.org web site.

EUGENE P. WIGNER REACTOR PHYSICIST AWARD

Nominations are invited for candidates for the prestigious Wigner Award. This award, in its 21st year of its existence, has been established in 1990 with Professor Wigner being the inaugural recipient, to recognize significant individual contributions to the field of reactor physics. Three letters of recommendation by individuals familiar with the achievements of their candidate must be submitted. The candidate need not be an ANS member or even a U.S. citizen. Details for this yearly, whenever possible, award may be found at the ANS web site, ans.org. Deadline for submission of nominations is April 1st.

D. Cokinos, Chair
Reactor Physics Honors & Awards Committee.

Attachment #11

AMERICAN NUCLEAR SOCIETY BOARD OF DIRECTORS
MAPS PATH TO THE FUTURE
New Direction Pushes Society Forward Into
Enhanced Role in Nuclear Community

La Grange Park, IL (June 26, 2011) – The Board of Directors of the American Nuclear Society (ANS) has unveiled sweeping new initiatives and mandates to develop a clear path that will create a more powerful organization, ANS President Joe Colvin announced today. The changes were unveiled at the Society’s Annual meeting in Hollywood, Florida, and create the platform to transform the Society in order to assure that it meets the organization’s next set of challenges.

In making the announcement Colvin said, “During my presidency the Board has considered a host of organizational changes designed to push the Society forward. Over months of detailed discussions, many options were considered and debated. The final plans approved by the Board will deliver exceptional value back not only to our members, but to the nuclear science and technology community as a whole. I thank everyone who worked so passionately on this cause, and congratulate them on the decisions that were reached.”

The broad actions approved by the Board are:

- A mandate to develop a strategic plan for a new information technology system to be integrated in the Society’s operations
- A plan to establish the Center for Nuclear Society and Technology Information
- An endorsement the ANS Campaign Action Plan and a directive to provide appropriate staffing to implement it
- A mandate directing the Society’s Membership Committee, with the Membership & Marketing Department, to make recommendations for increasing membership and improving member services
- A resolution to remain at the Chicago headquarters
- A directive to form three working groups to make recommendations about creation of three additional ANS Centers

- A directive to the Planning Committee to consider other ideas to achieve the goals identified in ANS Strategic Plan, and
- A directive to review the ANS administrative structure to determine whether changes are appropriate or necessary

“These initiatives and mandates will significantly enhance the role of the Society in the U.S. and international nuclear communities. The Board and I firmly believe that our members will see changes that they will appreciate as responsive. We’re eager to continue to move ANS forward to ensure we meet the needs of our membership and continue to advance our science,” continued Colvin. “I am pleased that the Board had the vision to face the challenges to the Society and to take the action necessary to meet them.”

Established in 1954, ANS is a professional organization of engineers and scientists devoted to the peaceful applications of nuclear science and technology. Its 11,500 members come from diverse technical backgrounds covering the full range of engineering disciplines as well as the physical and biological sciences. They are advancing the application of these technologies to improve the lives of the world community through national and international enterprise within government, academia, research laboratories and private industry.

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