



# Radiation Protection and Shielding Division (RPSD)

## Spring 2014 Newsletter

### Contents

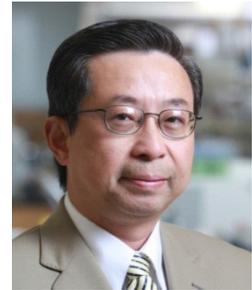
Message from the Chair .....	2
Attention to ANS National Meeting RPSD Paper Reviewers .....	4
Call for Nominations for Honors and Awards .....	4
Newsletter Contributions Needed .....	4
2013 ANS Winter Meeting RPSD Student Paper Awards.....	5
Final Full Paper Reviews Completing for 2014 PHYSOR Japan Conference .....	5
2013 RPSD Professional Excellence Award .....	6
2013 RPSD Outstanding Service Award .....	6
2013 RPSD Professional Service Award.....	6
Computational Medical Physics Working Group Sessions: 2014 Winter Meeting .....	6
RPSD – 2013 Division Officers and Staff .....	8

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Vice-Chair of RPSD (2013-2014)  
Georgia Institute of Technology

## Message from the Chair

Dear RPSD Members:

Out the window I see a snow coated backyard and the Mohawk River in the morning of this first day of March in 2014. I cannot help wondering what icy winter seasons meant to people who might depend on the Erie Canal for transportation 200 years ago in Upstate New York. It has been a snowy and slippery winter for sure, not just in the northeast, but also for southern cities where many of our members reside (Atlanta and Knoxville come to mind). Like the federal government shutdown last fall, there are always things that are beyond our control. Luckily they tend to be temporary. I know for a fact that the turnips will soon blossom in my backyard, followed by gorgeous hiking seasons in the Adirondacks. Since we moved here 20 years ago, I am constantly amazed by the nature's magic power in making us forgive.



This is my 2nd and the last writing assignment as RPSD chair. I thought of three small things that we do have control with and that will have a lasting effect.

As mentioned in the previous newsletter, our priority as a Division is "honors and awards." Having nearly 1400 members, RPSD makes up an impressively large portion of the ANS community. It is our obligation to identify and recognize members who have made important contributions to the profession as we know it today. In my role as the head of nuclear engineering program at RPI from 2011- 2013, I had the privilege of putting together a dozen nomination packages for my faculty colleagues. I must admit that, almost in every case, I would discover that the accomplishments reflected in the supporting letters exceeded my expectations, even for colleagues I thought I knew well. I have come to the conclusion that we tend to underestimate or neglect how good our colleagues really are. For a division like ours, we ought to maintain a pool of individuals who are to be awarded EVERY YEAR. One letter writer says it the best: "He would be honored by the Award, and the Society would be honored as well by having him as the 2014 awardee." So what are you waiting for? In this issue, you will find the "Call for Nominations." Send your colleague name(s) to Arzu ([alpanfa@westinghouse.com](mailto:alpanfa@westinghouse.com)) today!

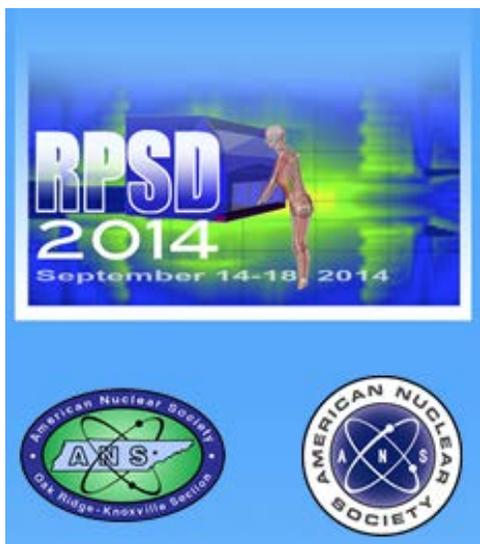
In this issue you will also find "The Call for Papers for RPSD 2014" (Note that the paper submission deadline has been pushed back to April 7, 2014). We only meet once every 4 years in the U.S. This is the opportunity to demonstrate why we exist as a technical division. So why don't you come and share with us what interest you each day at work? Why don't you volunteer to organize a session? Perhaps most importantly, why don't you invite a young colleague and a student to attend?

The third and last point I would like to share is about Innovations. Frankly, I have been disappointed for some time by the lack of exciting ideas or events that happen in the RPSD community. Do you know that the CAM and CAF phantoms actually existed at the same time or prior to the well-known ORNL stylized phantoms (check out Computational Medical Physics Working Group (CMPWG) [website](#) under "phantoms")? Do you know you can run a Monte Carlo calculation for brachytherapy dose planning in 2 seconds? What does exascale computing mean to radiation protection and shielding? Have you heard of CUDA or MIC lately? What about "compressed sensing"? As a researcher, when was the last time you literally lost sleep thinking of "the next big thing"? I invite you to share about your thoughts on this and other points I made. If you see me at the June ANS Annual Meeting in Reno or the RPSD Topical in Knoxville, I would love to know that you have read my messages. I hope you will enjoy this issue of the newsletter. As a Division, we have got a lot to do this year!

*George Xu*

X George Xu, Chair of RPSD (2013-2014), Professor, Nuclear Engineering Program (<http://www.rpi.edu/dept/ne>)  
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## CALL for Papers: RPSD 2014 hosted by Oak Ridge/Knoxville ANS



**The RPSD 2014 Conference**, which will be held at the Knoxville Hilton Downtown in September 2014, explores the scientific, technological and engineering issues associated with particle and ionizing radiation shielding in its broadest context, including nuclear energy systems, accelerator facilities, space and other radiation environments. It is one of the premier international radiation shielding events, regularly drawing hundreds of the world's top scientists and engineers.

Lawrence Townsend will serve as the General Chair, Irina Popova as Assistant General Chair, and Bernadette Kirk will serve as Honorary Chair. The Oak Ridge/Knoxville section of the American Nuclear Society (ANS) will host RPSD 2014, the topical meeting of the Radiation Protection & Shielding Division.

**Authors should submit summaries, up to 4 pages in length (PDF) in English via the conference website (<http://rpsd2014.org>).** Each summary should clearly state the objectives, methodology, results and conclusion of the submission. Authors will be given the opportunity to have their summary forwarded to Nuclear Technology for consideration. Authors of selected summaries accepted by Nuclear Technology will be invited to publish a full journal article in a special issue of Nuclear Technology following the meeting.

### Summaries due:

Notification to authors:

Final summaries due:

Early registration:

Invitation to submit full paper to Nuclear Technology:

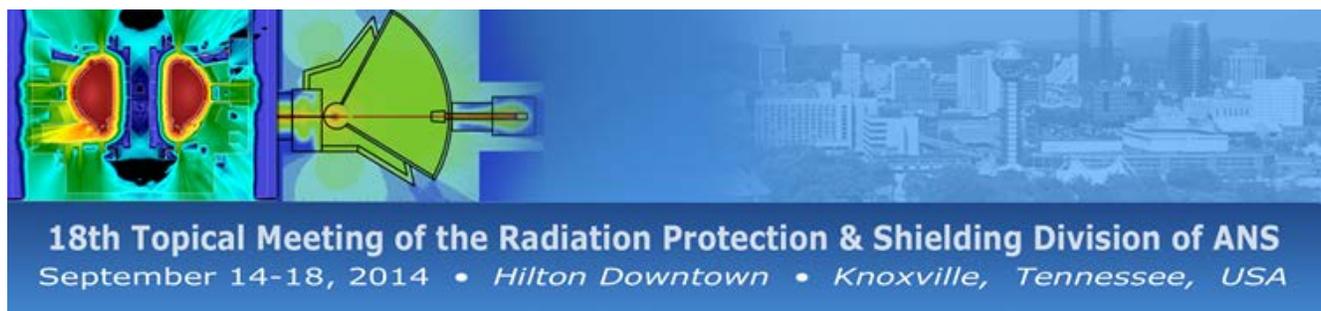
**April 30, 2014**

June 1, 2014

July 1, 2014

July 1, 2014

October 3, 2014



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## **Attention to ANS National Meeting RPSD Paper Reviewers**

When performing paper reviews in the electronic paper review system, please nominate papers for the RPSD Best Professional Paper Award by checking the box on the top right corner of the review page listed as “Best Paper.” Your nominations will help us select three outstanding papers. The outstanding papers will be judged during the presentations and a best paper will be awarded.

We greatly appreciate your help in assisting us to choose outstanding papers!!

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## **Call for Nominations for Honors and Awards**

We would like to encourage our members to nominate their peers to the following RPSD awards – to submit, please email to Prof. Glenn Sjoden at [sjoden@gatech.edu](mailto:sjoden@gatech.edu):

### **Rockwell Award**

The Lifetime Achievement award, also referred to as the Rockwell Award, is based on long-term contributions in research, development of technology, or education in radiation measurement, protection, shielding, and dosimetry. It is expected that most recipients will have been long-time active members of the American Nuclear Society. Moreover, most recipients will be authors of publications that made significant contributions to the science of radiation protection and shielding.

### **Professional Excellence Award**

The basis for this award would usually be a major contribution to the state of the art, an important publication, a major technical achievement, or a sustained record of significant accomplishment and technical excellence.

### **Service Recognition Award**

This award is in recognition of outstanding past or current service to the Society and/or Division by a member of the Division. This award may be characterized as a distinguished service award or outstanding service award.

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## ***Newsletter Contributions Needed***

The next newsletter is published in the Fall of 2014. If you have news items of interest to RPSD members, please send such contributions Prof. Glenn Sjoden ([sjoden@gatech.edu](mailto:sjoden@gatech.edu)), by October 1, 2014.

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## 2013 ANS Winter Meeting RPSD Student Paper Awards

A Geant4 Implementation of a Novel Single-Event Monte Carlo Method for Electron Dose Calculations, **D. A. Dixon**, A. K. Prinja (*Univ of New Mexico*), B. C. Franke (*SNL*)

Implementation, Benchmarking, and Application of R2S-ACT: An Open-Source, Mesh-Based, Rigorous 2-Step Activation Workflow, **Elliott D. Biondo**, Eric Relson, Andrew Davis, Paul P. H. Wilson

Optimization of Thin Polymeric Films in Portal Monitors Using Genetic Algorithms, **M. J. Urffer**, A. Mabe, R. Uppal, D. Penumadu, L. F. Miller (*Univ of Tennessee*)

*Note: The RPSD Student Paper Award is given to up to 3 students at each ANS National Meeting. Any paper that is submitted by a student, who is the primary author of the paper at the time of the submittal, and who presents the paper at an RPSD session of an ANS National Meeting is judged for this award. A monetary award of \$100 and a certificate is given to each recipient.*

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## Final Full Paper Reviews Completing for 2014 PHYSOR Japan Conference

The ANS Reactor Physics Topical Meeting is returning to Japan after 18 years. It will be held in Kyoto, which is one of the most historical and beautiful cities in Japan. The technical program will meet the high standards of recent PHYSOR meetings [Interlaken 2008, Pittsburgh 2010 and Knoxville 2012], including timely and relevant special topics. Students will be actively involved in all technical events and activities. Exciting workshops and technical tours will be also offered. Full paper reviews are reaching completion, and hotel reservations are now available.



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### **2013 RPSD Professional Excellence Award**

**Prof. Lawrence W. Townsend;** for his outstanding research activities including extensive publications in radiation protection dosimetry and particle transport methods related to the space radiation environments

### **2013 RPSD Outstanding Service Award**

**Dr. Raymond T. Klann;** in recognition of his outstanding services to the American Nuclear Society (ANS) as the chair of the Radiation Protection and Shielding Division (RPSD), and as a member of the ANS National Program Committee.

### **2013 RPSD Professional Service Award**

**Dr. Arzu Alpan;** in recognition of her outstanding services to the American Nuclear Society (ANS) as the chair of the Radiation Protection and Shielding Division (RPSD) as well as the chair of the RPSD Honors and Awards Committee.

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## **Computational Medical Physics Working Group Sessions: 2014 Winter Meeting** ANS Winter Meeting, November 9-13, 2014, Disneyland Hotel, Anaheim, CA

### **Tutorial: Geant4**

General features of the Geant4 toolkit will be covered including an introduction to its design, a discussion of particle transport, geometry and physics options, and GUI and visualization options. The recent implementation of multi-threading and its applications will be covered, as well as advanced topics such as variance reduction techniques and physics customization. This one-day tutorial will be delivered by members of the SLAC Geant4 team in the form of lectures and demonstrations of various aspects of the toolkit.

**Deterministic Computational Methods for Radiation Transport and  
Dosimetry in Medical Physics and Radiation Shielding**

This session focuses on the state-of-the-art fast calculation methods of radiation transport and dosimetry in medical physics and radiation shielding. In the fields of medical physics and radiation shielding, fast and accurate particle transport simulations are highly needed, which would result in better image quality, real-time patient dose estimation, economic system design etc. Papers on various computational methods, either deterministic or hybrid stochastic/deterministic methods, are all acceptable. Advanced transport theory and code development for medical physics and radiation shielding, such as 3D discrete ordinates (Sn), 3D methods-of-characteristics (MOC), and hybrid Monte Carlo, are particularly encouraged to apply.

**Fukushima Revisited**

On March 11, 2011 the Great East Japan Earthquake occurred and resulted in a colossal tsunami in the pacific side of the littoral region of the northwest of Japan. The tsunami destroyed many regions and also devastated the Tokyo Electric Power Company (TEPCO) Fukushima Daiichi nuclear power plant, which was situated on the coast.

The combination of the earthquake and the ensuing tsunami at the nuclear power plant had devastating consequences, which represented the greatest challenges any nuclear power plant has ever encountered besides Chernobyl.

This session focuses at the (a) analysis of the nature of the accident, (b) management of the aftermath of the accident, (c) localized atmospheric, resident water, and marine release of radionuclides, (d) global impact of the atmospheric and marine release of radionuclides, and (e) estimation of radiation absorbed doses to the local population and the impact on the environment, including to the local flora and fauna of the region. We encourage participants to present in any area related to the accident and provide an insight into its present and future impact, and management of the nuclear power plant.

## RPSD – 2013 Division Officers and Staff



**X. George Xu, Chair**

Professor and Head, Nuclear Engineering,  
Rensselaer Polytechnic Institute, Troy, NY



**Glenn E. Sjoden, Vice Chair**

Professor, Nuclear, Radiological and Medical  
Physics Program, Georgia Institute of  
Technology



**Joel M. Risner, Secretary**

Research and Development Staff Member,  
Radiation Transport Group, Reactor and  
Nuclear Systems Division, Oak Ridge National  
Laboratory, Oak Ridge, TN



**Shaheen A. Dewji, Treasurer**

PhD Candidate, Nuclear & Radiological  
Engineering Program, Georgia Institute of  
Technology, Atlanta, Georgia and Metz,  
France



**Peter F. Caracappa**  
**Executive Committee**

Radiation Safety Officer and Lecturer,  
Rensselaer Polytechnic Institute



**Michael T. Wenner**  
**Executive Committee**

Senior Engineer, Westinghouse Electric  
Company LLC, Cranberry Township,



**Arkady Serikov**

**Executive Committee-Non US**  
Staff Research Scientist, Karlsruhe Institute of  
Technology (KIT), Germany



**Margaret K. Sudderth**

**Executive Committee-Student**  
Student, Georgia Institute of Technology

# Radiation Protection & Shielding Division

## 2013-2014 RSPD Officers

2014	X. George Xu	Chair
2014	Glenn E. Sjoden	Vice Chair
2014	Joel M. Risner	Secretary
2014	Shaheen Azim Dewji	Treasurer

## Members

2015	Eric A. Burgett	2016	Peter F. Caracappa
2015	Shaheen Azim Dewji	2014	Steven J. Nathan
2014	Douglas E. Peplow	2015	Irina I. Popova
2014	Joel M. Risner	2014	Arkady Serikov
2014	Erik F. Shores	2014	Glenn E. Sjoden
2014	Margaret K. Sudderth	2016	Michael T. Wenner
2014	X. George Xu		

## Staff Liaison

Bonnifer Ballard

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Stephen P. Schultz

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Nolan E. Hertel