



Your FCWMD Leadership Team

We all thank you for being a member of the ANS FCWMD and we look forward to meeting and working with you. Please don't hesitate to reach out to us with suggestions or if you'd like to get involved.

Officers

Andrew G. Sowder – Chair

Jean-Francois (Jef) Lucchini – Vice Chair

Maryanne E. Stasko – Secretary/Treasurer

Jared A. Johnson – Technical Program

Kathryn D. Huff – Immediate Past Chair

Executive Committee (Terms Expiring)

Sven O. Bader (2018)

Stephanie H. Bruffey
(2020)

Amanda Casella (2019)

Steven L. Krahn (2018)

Christina Legett (2019)

Patricia D. Paviet (2018)

Fiona E. Rayment (2020)

Everett L. Redmond II
(2020)

Nicholas V. Smith (2020)

Ruth F. Weiner (2019)

Jinsuo Zhang (2019)

Visit our Website

fcwmd.ans.org

Contact us

fcwmd.ans.org/contact-us

A Message from the Immediate Past Chair

It has been an honor in the last few years to serve FCWMD as Secretary-Treasurer, Vice-Chair, and most recently as Chair. This year has been an especially busy one, as this newsletter will surely reflect. We have selected a full slate of award recipients, inducted new executive committee members, generated myriad technical sessions for the national meetings, and co-sponsored very successful topical conferences.

One of the most exciting highlights of this year was the Nuclear Grand Challenges activity. Led by past ANS President Andy Klein, this activity identified division-level and national-level Grand Challenges to guide our activities, to inspire research and development, and eventually to distinguish impactful contributions the field.

The FCWMD Division Grand Challenges selection process involved a bottom up approach that relied heavily on ideas and inspiration from the grassroots of our expert technical division membership. You asked yourselves “What core accomplishment in this field could change the future of our world?” and then you let us know!

Ultimately FCWMD received approximately 50 grand challenge suggestions which spoke volumes about the clever ideas and relevant interests of our membership. The FCWMD Executive Committee and its ad-hoc Grand Challenges Committee reviewed, thematically combined, and down-selected from among your many suggestions. I would like to share with you the three final FCWMD grand challenges that we have submitted for consideration as ANS National Level Grand Challenges. They follow below.

1. Establish used nuclear fuel recycling associated with the "most promising" fuel cycles that are economically competitive with current electric production (e.g., traditional nuclear energy, natural gas, coal, renewable energy, etc.).
2. Leverage the findings of the U.S. Department of Energy's (USDOE) Evaluation and Screening Study to reconsider the U.S. approach to the whole nuclear fuel cycle, and publicly establish the "most promising" nuclear fuel cycles and address some of the stretched "truths" about some fuel cycles (e.g., thorium fuel cycle being simpler, safer, and more secure to implement).
3. Establish a logical incremental timeline toward a pilot and full-scale recycling facility (including consolidation, dry and wet storage, dry and wet transfer/repackaging facilities, etc.) for current reactors, and transition to future reactors from the "most promising" fuel cycles.

These three Division Grand Challenges and their more detailed descriptions will be posted on our website at fcwmd.ans.org.

Past President Andy Klein announced the national-level Nuclear Grand Challenges on at the Annual Meeting, June 12, 2017, in San Francisco, CA. I invite you to check the ANS website to find out which grand challenge suggested by FCWMD made it to the top nine ANS Nuclear Grand Challenges that need to be resolved by 2030: <http://www.ans.org/challenges/>

Sincerely,
Kathryn Huff

FCWMD Immediate Past Chair



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2017 J. Randall Scholarship

Kathryn A. Mummah, University of Wisconsin

Katie Mummah is an incoming graduate student at the University of Wisconsin-Madison. Her research will be conducted in the CNERG group under Professor Paul Wilson, likely working on the Cyclus fuel cycle simulator. She plans to be involved in FCWMD.



Did you know?

This award is in honor of Dr. John D. Randall. It is awarded yearly to a "student pursuing graduate studies in the areas of science and engineering related to the nuclear fuel cycle and radioactive waste management." Dr. Randall was the Deputy Commission and the Executive Director of the Low-Level Radioactive Waste Program for the state of New York, and was a professor of nuclear engineering at Texas A&M, where he directed the Nuclear Science Center from 1958 to 1983. He was a fellow of the ANS and a recipient of the Society's Exceptional Service Award. During 1991-1992, Dr. Randall served as national chairman of the Society's FCWMD and its Honors & Awards Committee.

FCWMD- Sponsored Scholarships

Educating and supporting the development of the future workforce is critical to the continued growth of nuclear science and technology. Each year, the ANS awards numerous scholarships to college undergraduates and graduate students pursuing nuclear-related degrees. An important activity of the Fuel Cycle and Waste Management Division is sponsoring scholarships to acknowledge the contributions of our young members to the field.

Currently, FCWMD is sponsoring two scholarships:

•The J. Randall Scholarship

Periodicity: Annually

Presented: Usually at the ANS National Annual Meeting

Nomination Deadline: February 1

•The Michael Lineberry Memorial Scholarship

This scholarship is to be established in memory of Michael Lineberry who passed away last year. Dr. Lineberry had previously served as Treasurer of ANS, and was a key member of the FCWMD.

Information on the FCWMD Scholarships can be found on the FCWMD website, under the "Scholarships" tab.

Supporting ANS scholarships

To help educate and train the next generation of the nuclear workforce, ANS members are encouraged to donate to the Society's numerous scholarships. A description of each scholarship and a convenient online donation form, which allows donors to designate their contributions to support specific awards, are accessible at www.ans.org/honors/scholarships/.

The 2016 John D. Randall Scholarship recipient was Gordon M. Petersen, from the University of Tennessee—Knoxville. For a complete list of past recipients of the John D. Randall Scholarship, please visit: <http://www.ans.org/honors/scholarships/recipients/>.

October 29 - November 2, 2017
Marriott Wardman Park
Washington, DC

2017 ANS Winter meeting

Fifteen FCWMD proposed sessions ...

1. Molten Salt Processing – Online processing Redox (**Katy Huff and Charles Forsberg**)
2. Yucca – Technical Assessments (**Mary Lou Dunzik-Gougar and Jim Lewis**)
3. Used Fuel Management Status (**Steve Nesbit and Ruth Weiner**)
4. Fuel Cycle Analysis (**Katy Huff**)
5. Technical Grand Challenges for Fuel Cycle and Waste Management (**Sven Bader**)
6. Progress in DOE's Nuclear Technology Research and Development Program (**Jack Law**)
7. Medical/Industrial Isotope recovery from Recycling of UNF (**Sven Bader**)
8. Updates on Transportation Activities for UNF/SNF (**Sven Bader**)
9. Fuel Cycle and Waste Management: General (**Jared Johnson**)
10. Access to R&D HOT Cells - Why we need them, current and future status and key challenges (**Fiona Rayment**)
11. Commercializing New Reactor Technologies - Fuel Cycle Implications and Challenges (**Steve Krahn and Andrew Sowder**)
12. Blue Ribbon Commission Assessments - 5yrs Late (**Steve Skutnik**)
13. The Waste Isolation Pilot Plant (**Jean-Francois (Jef) Lucchini**)
14. Addressing the Challenge of Advanced Reactor Commercialization (**Andrew Sowder**) (co-sponsor: OPD)
15. Challenges Related to Integrating the Back End of the Fuel Cycle (**Bob Einziger**)

... for you to attend!

Visit: http://www.ans.org/meetings/m_149

How to Propose Conference Sessions

Jared A. Johnson of Oak Ridge National Laboratory is our Program Chair, and he will be welcome to take your suggestions. Any member can propose, organize or chair a session at an ANS meeting. Just follow the steps below! You have a great idea but don't want to chair the session? That's OK; we probably have another member willing to help out.

1. Have a title, and write a 100-word description about the intended session/topic. Specify if it will be a panel or paper session.
2. Submit the summary at the Program Committee meeting or send it to anyone on the leadership team to represent it for you. Sessions are decided on a year in advance. During the upcoming ANS Winter meeting, we will choose sessions for the 2018 Winter meeting in Orlando, FL.
3. Solicit experts to submit summaries by the deadline (usually about six months in advance) of the meeting in which the session will occur.

Did you know?

Among the 17 ANS Divisions that propose sessions at the 2017 Annual meeting in San Francisco, CA, your FCWM Division offered 11 sessions and a total of 48 papers were presented.

This is more than any other division!

Our last two national meetings were also very prolific: 12 sessions and 33 papers at the 2016 Winter meeting, 10 sessions and 58 papers at the 2016 Annual meeting

Way to go, FCWMD!

2017 FCWMD Lifetime Achievement Award

Dr. Ruth F. Weiner, Boston Government Services



The most recent experience of my career is my management and development of the risk assessment program and code RADTRAN. I have directed the RADTRAN program and code development since 2003, at Sandia National Laboratories from 2003 until 2014, and since then under the BGS contract for EM-33. I was responsible for design of the graphical user interface RadCat and development, of the RADTRAN/RadCat downloadable bundle, for design of the initial RADTRAN website, for addition of the dynamic air dispersion model and the loss of lead shielding (LOS) model, for the upgrade to the resuspension model, and for a new, more accurate ingestion dose model INGEST. The RADTRAN team included four Sandia staff, two contractor programmers, and between two and six summer interns. In addition I was responsible for training contractors and government staff, for managing the RADTRAN budget. Under my direction the RADTRAN user base expanded from 40 people to about 500. I also designed and since 2002 have taught a course in the Nuclear Engineering Department at the University of Michigan: NERS 585: Storage and Transportation of Radioactive Materials. I also wrote the chapters on risk assessment for K.B. Sorenson, editor, Safe and Secure Transport and Storage of Radioactive Materials and for NUREG 2125.

From 2000 through 2002 (on leave from SNL) I performed the RADTRAN analyses of transportation impacts for the Yucca Mountain FEIS (DOE/FEIS-0250, Chapter 6 and Appendix J). Before this, at Sandia and for two years earlier for the Environmental Evaluation Group of New Mexico, I worked on analyses of chemical reactions in the then proposed Waste Isolation Pilot Plant (WIPP) and had primary responsibility for the two appendices to the Compliance Certification Application that dealt with chemistry.

My full time academic career began in 1967 as Assistant Professor of Chemistry at Colorado Women's College in Denver, continued in 1971 as (the first) Chairman of the Chemistry Department at Florida International University in Miami, FL, and continued until 1993 as (tenured) Professor of Environmental Studies at Western Washington University, Bellingham, WA (three years as Dean of the College). Courses I taught were initially physical chemistry courses, and later focused on air pollution and energy resources. Research projects I supervised (both at WWU and SNL), books, and other publications are listed below. In addition I did consulting work on incinerator emissions, low level waste disposal, environmental impact assessment, and decision analysis.

I have been quite active as a volunteer in first, environmental activities and later with the American Nuclear Society (I was elected a Fellow of the Society in 2004). While a volunteer for the environmental movement; I helped write the Colorado Clean Air Act, the Colorado SEPA, the EIS section of the 1982 Nuclear Waste Policy Act, the Washington State Initiative 383 -- the basis for the 1980 LLW Policy Act.

My doctorate in chemistry was conferred by the Johns Hopkins University in 1962. My dissertation was in radiochemistry: radiation damage in amino acids.

Did you know?

This award was established in 2014 by the Fuel Cycle and Waste Management Division to recognize individuals who have made major lifetime contributions that significantly advanced the scientific, engineering, societal, or regulatory aspects of the nuclear fuel cycle and/or the nuclear waste management mission.

The award is a plaque given at the opening or President's plenary session. An article detailing the achievement will be published in RadWaste Solutions, and a blog post commemorating the achievement will be posted on the FCWMD website or ANS Nuclear Cafe. The highlights of the award ceremony including the picture with ANS president will be advertised in Nuclear News.



The 2016 FCWMD Lifetime Achievement Award Recipient was Bernard Boullis, of the Commissariat à l'Energie Atomique et aux Energies Alternatives, France. For a complete list of past recipients, please visit: <http://www.ans.org/honors/recipients/va-lifetime>.

2017 FCWMD Significant Contribution Award

Dr. Robert E. Einziger, US Nuclear Waste Technical Review Board



Did you know?

This award was established in 2014 by the Fuel Cycle and Waste Management Division to recognize individuals or teams for a successful accomplishment that significantly advanced the scientific, engineering, societal, or regulatory aspects of the nuclear fuel cycle and/or the nuclear waste management. Awards may be given to an individual or collectively to a team for success on a single project, activity, contribution, or sustained initiative related to the nuclear fuel cycle and/or nuclear waste management.

The award will be a plaque given at the opening or President's plenary session. An article detailing the achievement will be published in RadWaste Solutions, and a blog post commemorating the achievement will be posted on the FCWMD website or the ANS Nuclear Cafe.

Dr. Einziger studied the behavior of LWR SNF in dry storage and repository when exposed to air and inert atmospheres. He conducted the only sets of whole rod experiments in the world to determine the behavior of rods under prototypic and excursion conditions. He showed: 1) cladding could withstand significant creep strain, 2) SNF and unirradiated UO_2 oxidize differently with actinides stabilizing SNF against oxidation, 3) oxidation of breached SNF is not expected to be a problem in dry storage, 4) low moisture levels have little effect on the oxidation rate, 5) the relationship of fuel oxidation and cladding unzipping using the only available data, which he measured, for cladding splitting, incubation and propagation rates for breach extension, 6) hydrides can be reoriented under dry storage conditions, and 7) high temperature excursions for short period of time can be beneficial to storage behavior. Dr. Einziger's work form the major database on the SNF behavior in air supporting the NRC temperature limits, NRC ISG on fuel oxidation and cladding splitting and have been cited extensively in analyzing and describing the expected behavior of spent fuel during dry storage, transportation, and disposal.

Dr. Einziger has been a member of ANS for ~33 years, and was on the executive committee of the FCWMD. He organized and chaired many sessions at ANS meetings.

Dr. Einziger has an international reputation. He was the lead for the IAEA TECDOCs on damaged fuel, and integration of the backend of the fuel cycle. He has been invited to talk in Japan, Korea, and Germany. He has provided technical consultation on dry storage and transportation to staff in Germany, England, Spain, South Korea, Japan, Canada, Egypt, and other countries.

The 2016 FCWMD Significant Contribution Award Recipient was Robert Jubin, of Oak Ridge National Laboratory. For a complete list of past recipients, please visit: <http://www.ans.org/honors/recipients/va-significant>.



2017 FCWMD Distinguished Service Award



Dr. Charles W. Forsberg,
Massachusetts Institute of Technology

Did you know?

This award was established in 2014 by the Fuel Cycle and Waste Management Division to recognize the outstanding participation in the leadership of the Division or in public outreach activities representing the Division. An award plaque is presented at the FCWMD Executive Committee meeting, and the award will be advertised at the Nuclear News and/or RadWaste, and in a blog on the FCWMD website or the ANS Nuclear Café.



Your Assistance is Requested!

A team of researchers at Virginia Commonwealth University (VCU) under the direction of Dr. Sama Bilbao y León is working on a DOE NEUP sponsored research project that seeks to better understand public perceptions related to used nuclear fuel and nuclear waste disposal. As part of this research, the opinions of experts in the areas of the nuclear fuel cycle and waste management are needed. These opinions will allow for the sentiments of the general public to be related to actual used nuclear fuel management and disposal options. If you would like to assist, we have a voluntary ~45 minute survey to characterize the particulars of several proposed fuel cycles.

Please send an email to bjgullekson@vcu.edu by July 15 if you would like to participate, and thank you in advance for your help!

Welcome to our new Executive Officers!

Stephanie H. Bruffey,
Oak Ridge National Laboratory



Everett L. Redmond II,
Nuclear Energy Institute



Nicholas V. Smith,
Southern Company Services



Fiona E. Rayment,
National Nuclear Laboratory, UK

Outgoing members of the Executive Committee, and Board Liaison

Jeffery R. Brault, Past Chair,
Heather J. McLean Chichester,
Steven E. Skutnik,
Terry A. Todd,
Man Sung Yim,
Eugene S. Grechek, Past Board Liaison.

Thank you for your service!



ANS Student Conference 2018

April 5-7, 2018

**University of Florida
Gainesville, FL**



**American Nuclear Society
Student Conference 2018**

Sponsorship & Exhibitor Packet



The ANS Student Conference is an annual event where hundreds of students within nuclear science and technology gather to present research, network, and participate in dozens of other activities relevant to the field. The 2018 ANS Student Conference will be held from April 5-7 of 2018 within the newly renovated J. Wayne Reitz Union located on the University of Florida's Gainesville campus.

The theme of the 2018 Student Conference is "Nuclear Equality in Policy, Energy Access, & Within the Engineering Community". In addition to several technical activities and presentation of research, attendees will also have the unique opportunity of participating in a variety of workshops, panels, and special events that center around equality in energy policy, equal energy access, and being a successful engineer in an increasingly diverse nuclear community.

Visit: www.ansstudentconference2018.com/

April 5-7, 2018 · University of Florida · Gainesville, Florida

Participate to the upcoming ANS meetings!



FCWMD MISSION

The Fuel Cycle and Waste Management Division (FCWMD) is devoted to all aspects of the nuclear fuel cycle including waste management, worldwide. Division specific areas of interest and involvement include uranium conversion and enrichment; fuel fabrication, management (in-core and ex-core) and recycle; transportation; safeguards; high-level, low-level and mixed waste management and disposal; public policy and program management; decontamination and decommissioning environmental restoration; and excess weapons materials disposition.

