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Award Nominations

An important activity of the Fuel Cycle and Waste Management Division is sponsoring awards to acknowledge the contributions of members to the field. To this end, FCWMD recently established four new division awards in 2014. Additional details can be found at fcwmd.ans.org/awards.html along with nomination forms. These awards each have an annual nomination deadline of March 1. The 2015 deadline has now passed, but we are now accepting nominations for next year, so please start considering possible nominees!

Significant Contribution to the FCWMD Mission

The [Fuel Cycle And Waste Management Significant Contribution Award](#) [1] recognizes “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.

Lifetime Achievement Award

The [Fuel Cycle and Waste Management Division Lifetime Achievement Award](#) [2] recognizes “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.”

Distinguished Service on Behalf of the FCWMD Mission

The [Fuel Cycle and Waste Management Award for Distinguished Service on Behalf of the FCWMD Mission](#) [3] recognizes “outstanding participation in the leadership of the Division or in public outreach activities representing the division.”

This award for distinguished service is intended for active members of the FCWMD and will, accordingly, be presented at the FCWMD Committee Meeting within the ANS National Meeting.

Outstanding Published Work

The [FCWMD Award for Outstanding Published Work](#) [4] recognizes “individuals or teams for a combination of best full-length paper and oral presentation in a FCWMD sponsored topical meeting/session.” In addition to other benefits, this distinction includes a monetary award of \$250 to be presented at the FCWMD Program Committee Meeting.



US House passes low-dose radiation bill

From World Nuclear News
[20 January 2015:](#)

The US Department of Energy (DOE) and National Academy of Sciences have been directed to work together to assess the current status of US and international research on low-dose radiation and to formulate a long-term research agenda under a bill approved by the US House of Representatives.

The Low Dose Radiation Research Act of 2015 (HR 35) directs the two organizations to carry out a research program "to enhance the scientific understanding of and reduce uncertainties associated with the effects of exposure to low dose radiation in order to inform improved risk management methods." The study is to be completed within 18 months.

The researchers must identify current scientific challenges to understanding the long-term effects of ionizing radiation; assess the status of current low dose research in the US and elsewhere; formulate overall scientific goals for the future of US low-dose radiation research; and recommend a long-term strategic research agenda to address and overcome the identified scientific challenges. The US Secretary of Energy must then deliver a five-year research plan in response to the study's findings and recommendations.

<http://www.world-nuclear-news.org/RS-US-House-passes-low-dose-radiation-bill-2001158.html>

Response by Guillermo Daniel DelCul:

Although everyone agrees that high levels of radiation can be harmful, there is considerable dispute about whether exposure to low levels of radiation increases health risks or causes actual harm. At present, many in the scientific community and most of the regulatory community adhere to the Linear No-Threshold (LNT) hypothesis of radiation carcinogenesis, which predicts the number of excess fatal cancers that will result from any amount of radiation. Others in the scientific community point to considerable evidence that contradicts this hypothesis—data that indicate no increase in cancer incidence up to a dose at a particular threshold.

The predicted effects of exposure to low dose radiation has significant practical consequences as it relates to day to day routine medical procedures such x-ray, tomography, cardiovascular stress tests, routine exposures that pilots and flight attendants receive while flying at high altitudes, living in naturally occurring high background areas, normal exposures by workers in the nuclear industry, etc. It is also vitally important for executing proper response during nuclear accidents like the ones experienced in Fukushima where a large number of people had to suffer prolonged cruel living conditions on top of the trauma of death and desolation caused by the tsunami causing high emotional distress, severe clinical depression and even suicide.

Those responsible for setting the standards should be prudent and conservative. But well-



intended or not, “prudence” based on potentially bad or incomplete science can have serious consequences as Fukushima has shown. Doctors and patients will make decisions on potentially life-saving medical procedures that entail low-levels of radiation based on perceived risks that may or may not be realistic.

Until the actual health effects, or the lack of health effects, for exposure to low levels of radiation are fully understood and communicated to the entire scientific community and to the decision makers; the public at large and many professionals will remain fearful of any amount of radiation. The mandated study to better understand and reduce uncertainties associated with low levels of radiation is highly needed.

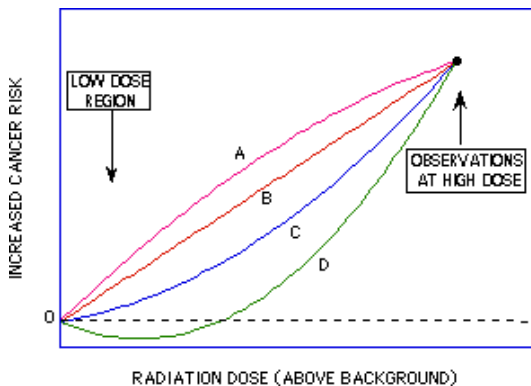


Figure: Alternative assumptions for the extrapolation of the cancer risk vs. radiation dose to low-dose levels, given a known risk at a high dose: supra-linearity (A), linear (B), linear-quadratic (C) and hormesis (D). *Energy, Guide to the Nuclear Wall Chart, Lawrence Berkeley National Laboratory, U. S. Department of. 2000. <http://www.lbl.gov/abc/wallchart/chapters/appendix/appendix.html>*

Website Upgrade

Thanks to the good folks at ANS Headquarters, the FCWMD website (fcwmd.ans.org) has had a significant upgrade.

Tech-savvy FCWMD members will be pleased that the website renders responsively on mobile platforms. Simultaneously, the structure of the site has been preserved during this upgrade, so long-time members of FCWMD will be pleased to find documents and information where members have come to expect that content.



Figure: The responsive, Wordpress-based website upgrade incorporates official ANS branding guidelines.

FCWMD is very grateful to Toni Bishop, David W. Regalado, and the rest of ANS Headquarters for suggesting and facilitating this upgrade. We hope all of our members will enjoy exploring the new website and hope to hear your feedback about it! Please email secretary-treasurer Katy Huff (katyhuff@gmail.com) with any comments and suggestions about the website performance, its layout, or its content.



2015 International High Level Radioactive Waste Management (IHLRWM) Conference

Charleston, SC, USA
April 12-16, 2015



General Chair:

Lake Barrett (L. Barrett Consulting, LLC)

Program Chairs:

Andrew Sowder (EPRI)
Ruth Weiner (SNL)

The IHLRWM conference is a forum for the discussion of the scientific, technical, social and regulatory aspects of the “back end” of the nuclear fuel cycle. While the call for papers is now closed, registration remains open. As paraphrased from their website:

This year’s theme, “Real World Solutions for Achieving Disposal of Used Fuel and HLW through Integrated Management” is intended to counter the popular perception that used fuel and HLW management is an intractable problem by highlighting solutions that are being implemented internationally. This forward-looking narrative requires active participation from industry, government, academia, policy-makers, and the interested public. In addition, student participation is strongly encouraged as the conference anticipates special focus on the historical context for the current state of international used fuel and HLW management.

ANS Annual Meeting in San Antonio, TX



This year in San Antonio, TX, FCWMD would like to encourage all of its members to attend the division meetings and sponsored

sessions that occur before and during the annual ANS meeting. The executive and program committee meetings that take place on Sunday are essential to division activities. All conference attendees are welcome to attend these meetings, so we hope you’ll participate and bring others along.

A number of technical sessions sponsored by FCWMD will appear in the program. Additionally, two sessions dedicated to the use and development of the Cyclus tool will also occur.

On behalf of the ANS Fuel Cycle and Waste Management Division, we look forward to seeing you at these great events in San Antonio, TX.



Cyclus User's Tutorial

From the Cyclus Development Team



Cyclus is an advanced and flexible fuel cycle simulator capable of modeling the long-term impacts of different nuclear fuel cycle options. A tutorial at the ANS Annual Meeting in San Antonio will demonstrate the fundamental concepts of Cyclus and guide participants through the process of designing and analyzing a typical nuclear fuel cycle.

No programming skills are needed to be a Cyclus user. The creation of specific fuel cycle scenarios is facilitated by a drag-and-drop graphical user interface. Similarly, a data exploration environment is available to interactively investigate impacts of resulting facility deployments and material flows.

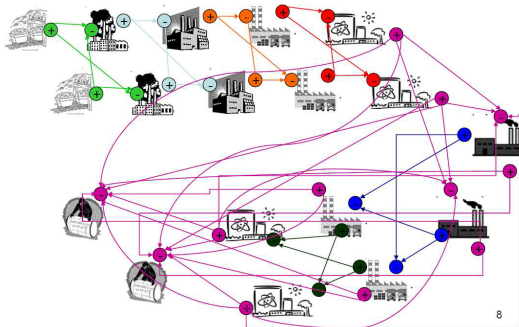
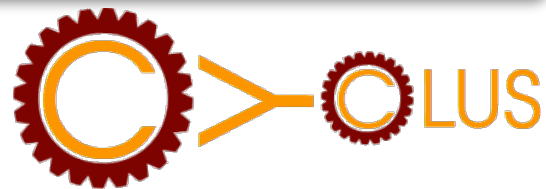


Figure 1: Cyclus flexibly supports complex fuel cycle simulations [5].

Cyclus and is freely available. Participants should bring a laptop computer for the installation of Cyclus. Participants are also advised to install Cyclus prior to the tutorial by visiting www.fuelcycle.org for instructions.



Cyclus Archetype Developer's Tutorial

From the Cyclus Development Team

Cyclus allows users to arrange models of individual fuel cycle facilities into innovative fuel cycle configurations. Individual facility models, known as "archetypes," can be extended to incorporate different behavior for both the physical processes or the interactions with other facilities, using freely available tools.

A hands-on developer tutorial at the ANS Annual Meeting in San Antonio will introduce potential archetype developers to the necessary steps for the implementation of a new archetype, either by altering an existing archetype or starting from a blank archetype skeleton. The tutorial will also demonstrate how developers can integrate their archetype with the graphical user interface for both scenario definition and output exploration, whether for themselves or other users, and describe how to distribute new archetypes as part of the Cyclus community.

Participants should bring a laptop computer for the installation of Cyclus. Participants are also advised to install Cyclus prior to the tutorial by visiting www.fuelcycle.org for instructions.



Other Upcoming Meetings

There are many upcoming meetings in 2015 potentially of interest to FCWMD. Those include:

Advances in Nuclear Fuel Management 2015

Hilton Head, SC

March 29 - April 1, 2015

<http://anfm2015.org/>



General Chair:

Bill Herwig (Supervisor, Design Engineering, SCE&G)

Program Chairs:

Atul Karve (Engineering Manager, GEH Global Nuclear Fuel)

Ivan Maldonado (Associate Professor, University of Tennessee)

Global 2015

Paris, FRANCE

September 20-26, 2015

<https://www.sfen.fr/GLOBAL>



General Chair:

Christophe Béhar (CEA)

Program Chair:

Bernard Boullis (CEA)

New Member Bios

To help new members become integrated into the Division, we've begun inviting all new members of the division to submit a biosketch introducing themselves. Keep your eye out for these new members:

Sebastien Lalancette

Some years ago, some mineral exploration activities took place in my area, searching for uranium ore. A group of doctors who were concerned about the quality of the environment and the health of the population threatened to leave the area in the event of a uranium mine installing in the region.

A large demonstration ensued and the project was thus nipped in the bud. It made me want to learn more about the subject.

Beyond my engineering background, I am constantly in search of new knowledge. That's why when I saw the online course Introduction to nuclear Technology, I did not hesitate to follow it.

I bought a book from ANS website and after a while when I received an ANS card asking me to join them, I said why not? My nuclear-related knowledge is limited, but I know enough to understand the benefits and necessity of using the resource. I would even say that deciding not to exploit it, hence making a cross on a whole branch of science, in the name of fear and ignorance would be a social disaster.



I have six years of industrial electrical experience in electrical engineering for the mining industry. You can see my linkedin profile at the following address.

<http://ca.linkedin.com/in/lalancette/>

Newsletter Prepared by
Katy Huff
FCWMD Secretary-Treasurer

Will Zywiec

Will Zywiec (B.S., 2013, Nuclear Engineering, Rensselaer Polytechnic Institute; M.S.E., 2017 (Expected), Systems Engineering, Johns Hopkins University) is currently a radiological characterization analyst in the Nuclear Operations Directorate, Lawrence Livermore National Laboratory (LLNL).

His areas of expertise include project management, legacy waste disposal, and systems modeling. Prior to graduating from RPI, Will spent 6 years in the Navy as a submarine mechanic and nuclear reactor plant supervisor. He has more than 8 years of national security-related work experience.

References

- [1] FCWMD Significant Contribution Award.
http://fcwmd.ans.org/docs/award_sig_contrib.pdf
- [2] FCWMD Lifetime Achievement Award.
http://fcwmd.ans.org/docs/award_lifetime.pdf
- [3] FCWMD Distinguished Service Award
http://fcwmd.ans.org/docs/award_dist_service.pdf
- [4] FCWMD Outstanding Published Work Award
http://fcwmd.ans.org/docs/award_best_paper.pdf
- [5] K. M Oliver. GENIUSv2: software design and mathematical formulations for multi-region discrete nuclear fuel cycle simulation and analysis. Master's thesis, UNIVERSITY OF WISCONSIN, 2009.



American Nuclear Society
Fuel Cycle and Waste Management Division

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