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American Nuclear Society
Trinity Section

DINNER MEETING ANNOUNCEMENT

"Coordination of Efforts Between Restart, Experimentation and Modeling for the Transient Test Reactor"

Speaker: **Mark D. DeHart, PhD**, Deputy Director for Reactor Physics Modeling and Simulation, Nuclear Science and Technology Directorate, Idaho National Laboratory

Abstract: please see next page.

Biography: please see next page.

Place: **Courtyard by Marriott, Santa Fe**
3347 Cerrillos Road, Santa Fe, NM (505-473-2800)

Directions: From Albuquerque, take I-25 North approximately 55 miles to Exit 278 (Cerrillos Road). Hotel is 3 miles from the exit on the left-hand side of Cerrillos Road at Richards Avenue.

Date: **October 21, 2016**

Time: **6:00** Social Hour with Cash Bar
7:00 Buffet Dinner (beef fajitas and chicken green chili enchiladas)
7:45 Speaker

Cost: *$35 per person (pre-paid by web sign-up in advance);*
$40 per person (not pre-paid, at the door);
$15 for students and children

We strongly encourage you to sign up and pay for this event by 17 Oct using the ANS Trinity PayPal payment account. Visit the "Calendar" page of our web site (http://local.ans.org/trinity/calendar.html) and select the appropriate payment button. You may use any credit card and do NOT need to have your own PayPal account to make the payment.

RSVP: If you do not use on-line payment, please RSVP no later than 17 Oct to:
Markku Koskelo: mkoskelo@aquilagroup.com (505-338-8083) or
Kimberly Klain: kclark@lanl.gov (505-665-1349)

RSVP must be received by 17 Oct in order to give final numbers to the caterers. While we strongly encourage everyone to use on-line payment to sign up and prepay, an RSVP is a commitment to attend/pay at the door. We cannot afford "no shows" after the final count is given to the caterers, as the Section is partially subsidizing the cost of this event. If you cancel after 17 Oct, you will still be responsible for paying.

"Coordination of Efforts Between Restart, Experimentation and Modeling for the Transient Test Reactor"

Mark D. DeHart, PhD, Deputy Director for Reactor Physics Modeling and Simulation, Nuclear Science and Technology Directorate, Idaho National Laboratory

Abstract

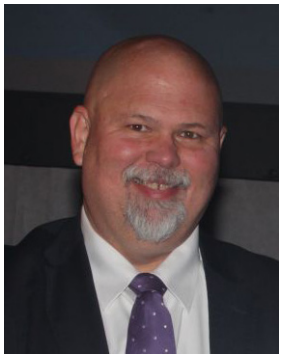
The Transient Reactor Test Facility (TREAT) is an air-cooled, graphite moderated, thermal spectrum test nuclear reactor at Idaho National Laboratory (INL) designed to test reactor fuels and structural materials. Constructed in 1958, and operated from 1959 until 1994, TREAT was built to conduct transient reactor tests where the test material is subjected to neutron pulses that can simulate conditions ranging from mild transients to reactor accidents. The US Department of Energy (DOE) has decided to resume a program of transient testing, and is investing about $75 million to restart the TREAT facility by 2018. The renewed interest in TREAT was sparked by the 2011 Fukushima Daiichi nuclear disaster, which prompted the shutdown of Japan's and Germany's nuclear plants. The first transient experiments to be performed at TREAT will be for new accident tolerant fuel designs for nuclear reactors.

The current schedule has initial critical testing beginning in December 2017, with startup physics experiments commencing in January 2018. These tests will include both low-power and high-power steady state and transient runs, with the goal of providing full core data that can be used for computer code validation. The first new experiment vessel design will also undergo in-core testing in early 2018 to ensure it meets performance requirements. Physics testing is expected to run through May of that year.

INL is also involved in the development of multi-physics three-dimensional transient modeling capabilities, using the MAMMOTH multi-physics reactor analysis application. MAMMOTH simulation capabilities are currently being evaluated based on historical experiments completed 20-50 years ago. MAMMOTH is also being used to assist in the design of the experiment vessel mentioned earlier.

Operations, experiment design, and modeling and simulation efforts will thus converge in early 2017—less than 18 months away (yikes!). This talk will give an overview of the various activities and discuss how they will complement each other in returning TREAT to a new era of transient testing.

Biography



Dr. Mark DeHart is a senior reactor physicist at INL, leading R&D and analysis supporting Transient Reactor Test Facility (TREAT) and Advanced Test Reactor (ATR) missions. He joined INL in 2010 after 17 years at Oak Ridge National Laboratory, where he led reactor physics methods development within the SCALE code system, the comprehensive modeling and simulation suite for nuclear safety analysis and design. He is currently the Deputy Director for Reactor Physics Modeling and Simulation in the INL Nuclear Science and Technology Directorate. Dr. DeHart is also the PI and project manager for development of advanced modeling and simulation capabilities to support restart and operation of TREAT, under the DOE/NE Advanced Modeling and Simulation program (NEAMS). The TREAT reactor is a major component of DOE's Accident Tolerant Fuel program developed in response to the Fukushima accident. He holds Bachelor's, Master's and PhD degrees in Nuclear Engineering from Texas A&M University, is the immediate past chair of the Idaho Section of ANS, and was recently elected Fellow of the American Nuclear Society.