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American Nuclear Society
Trinity Section

ZOOM MEETING ANNOUNCEMENT

https://us02web.zoom.us/j/83665207104?pwd=S0FpUVZlQTZnWFBVOXFscHZpcy9zUT09

"Lightning Talks #4"

Background: Because of the constraints that the COVID-19 pandemic continues to place on in-person gatherings, Trinity Section is hosting the fourth in our series of "virtual dinner meeting with speakers." Of course, dinner and libations are whatever you choose to provide at your individual locations, but at least we can offer some professional interaction in the form of "lightning talks" and an opportunity for discussion.

Each of these talks is targeted for about 15 minutes or so, including a short Q&A period. At the end, there will be a more general opportunity for member discussion.

Abstracts: please see next page.

Directions: This meeting will be hosted on Zoom. The sign-in link will be posted on the Calendar page of our web site (http://local.ans.org/trinity/calendar.html).

Date: **Tuesday, February 23, 2021**

Time: **7:00pm (MST)** Speakers and discussion

Cost/Menu: Whatever you choose to provide at your individual locations.

And you don't even need to sign up from our web site or pay with PayPal.

RSVP: No need to tell us ahead of time. However, if you have ideas for speakers and topics of interest for either another lightning talk session or for an in-person dinner meeting with speaker when we're able to accommodate that in the future, or if you are willing to present a lightning talk about your own current work, please be in touch with us through:

Chris Perfetti: cperfetti@unm.edu (505-277-1945) or
Travis Trahan: travistrahan@gmail.com (505-695-5078).

"Experiments with the Dragon Machine"

Richard (Dick) Malenfant,
Los Alamos National Laboratory, Retired

Abstract: The gun-type nuclear weapon used at Hiroshima, Little Boy, was unique. It was never tested prior to use on August 6, 1945. The concept of the implosion weapon used at Nagasaki on August 9, 1945, was tested at Trinity Site. The closest thing to a test of Little Boy was a series of experiments conducted at Omega Site in Los Alamos Canyon in January, 1945 using a machine known as The Dragon. The details of the work done by the team headed by Otto Frisch will be described. The results of the experiments with the Dragon Machine eventually led to the development of super-prompt-critical burst reactors including Godiva IV.

"Multiscale Modeling of Materials for Fusion Energy"

Dr. Mary Alice Cusentino,
Computational Materials and Data Science, Sandia National Laboratories

Abstract: One of the most challenging aspects of designing a viable fusion reactor is developing materials that can withstand the harsh conditions within the reactor. High fluxes of multiple plasma species along with large thermal heat loads can lead to damage of the plasma-facing components (PFCs). Experiments have shown a variety of different types of material degradation of PFCs including bubbles, blistering, and nanoscale fuzz. Fundamental understanding of how this type of damage emerges will be critical in designing better materials for fusion reactors. Modeling plays a key role in understanding the mechanisms that result in the experimentally observed material damage. However, the physical processes relevant to material damage occur across orders of magnitude in time and length scales. To fully understand the material degradation of PFCs, multiscale modeling from the atomistic scale up to the experimental scale is necessary. This talk will discuss the multiscale modeling of PFCs with a focus on atomistic modeling and how machine learning is being used to improve these models. SNL is managed and operated by NTESS under DOE NNSA contract DE-NA0003525.