



**Trinity Section  
American Nuclear Society**

P. O. Box 5367, Albuquerque, NM 87185-5367  
<http://local.ans.org/trinity/>

**SPECIAL SOCIAL MEETING ANNOUNCEMENT**

Join ANS Trinity Section for an informal social evening of  
FREE pizza and a talk by one of our "alumni."

**"Accelerator-Based Neutron Generator to Drive Sub-Critical  
Medical Isotope Production System"**

Speaker: Ross Radel, PhD, President - Phoenix Nuclear Labs

- Place:** Time Out Pizzeria, Los Alamos, NM (<http://timeout4pizza.com/>)  
1350 Central Ave, #101, Los Alamos, NM 87544, (505) 662-7261
- Directions:** Next door to Bradbury Science Museum.
- Date:** Tuesday, June 16, 2015
- Time:** 5:30-7:30 pm  
Informal pizza dinner, followed by a presentation from Dr. Radel, with time for discussion and socializing.
- Cost:** *FREE pizza and soft drinks will be provided by Trinity Section.  
Please consider joining Trinity Section and paying membership dues (\$15 / year).  
Please consider making a tax-exempt donation to our student program.*
- RSVP:** Please RSVP **by June 14** to help us plan the logistics.  
Use the Doodle Poll (<http://doodle.com/9a596ti7a5nmr7nk>) to RSVP, or contact:  
Kimberly Klain: [kclark@lanl.gov](mailto:kclark@lanl.gov), (505) 667-5301

Please visit our web site (<http://local.ans.org/trinity/>) for additional Section information.

**Abstract:** The presentation will focus on the technology behind a new gas target neutron generator recently developed by Phoenix Nuclear Labs (PNL). This neutron generator has achieved a D-D fusion neutron yield of  $3e11$  n/s by combining an electron-cyclotron resonance (ECR) ion source, a 300kV DC accelerator, and a gaseous deuterium target. This state-of-the-art neutron generator technology is essential for many applications of critical global importance including neutron radiography, medical isotope production, detection of explosives and nuclear material, materials characterization, and others. The presentation will touch on all of these applications, but will focus on two: neutron radiography and medical isotope production. For medical isotope production, the PNL neutron generator will be used to drive an aqueous LEU subcritical assembly (developed by SHINE Medical Technologies) that produces fission product isotopes such as Mo-99. An overview and status report of the medical isotope production project will be provided.

**Biography:** Dr. Radel is the President of Phoenix Nuclear Labs (PNL) and holds a PhD in Nuclear Engineering from the University of Wisconsin-Madison. He has authored or co-authored three patents and numerous technical papers. His research at the UW focused on the development of pulsed fusion-based neutron generators for detecting clandestine material, including highly enriched uranium. Dr. Radel then worked at Sandia National Laboratories, where he developed dynamic systems models for the space-based fission reactors. He also developed and built advanced power conversion prototypes for both lunar and terrestrial applications. Dr. Radel has been with PNL since 2010, where he leads a team of 35 scientists, engineers, and support staff.