



# NUKE NEWS

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## ANS WINTER CONFERENCE

by Nicholas Yap

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A few weeks ago, a group of over 20 UF students and faculty embarked on a voyage that was well worth the two hour drive and five hour flight. The group flew out to San Diego for the ANS Winter Conference, which took place at the Town and Country Hotel from November 11-15. The first night began with the Presidential Dinner and Technology Expo, where a range of companies, national labs, and universities showcased their prospects in the nuclear field. Among those present were AREVA, EXCEL, ORNL, UC Berkeley, Westinghouse, and many more. The next day began with a variety of technical sessions. The sessions encompassed topics from criticality safety to Fukushima Daiichi to nuclear applications in aerospace technology. Many of the UF students at the conference were student assistants at these sessions, which continued throughout the conference. On Tuesday, some of the students paid a visit to San Diego's beautiful Pacific Beach. That night, students and faculty from UF, Texas A&M, NC State, and the University of Tennessee gathered at the Southeastern Reception—a social event at the hotel—for dinner and drinks. All in all, the conference was a great way for the students to meet prospective employers and learn about current issues facing the nuclear field. And San Diego itself wasn't that bad, either.



## Nuclear Fun Fact by Jonathon Wyers

The Hanford B reactor was built by the engineering company DuPont as part of the Manhattan Project for the purpose of producing plutonium. Plutonium production was a major goal of the Manhattan Project. Fissile material was in short supply and was needed in order to develop nuclear weaponry. The plutonium from Hanford was later used in the “Fat Man” bomb, which was dropped on Nagasaki.

Eugene Wigner was the principal designer of this reactor. The reactor’s initial design was simple, consisting of 1,500 tubes of fuel placed in a circular array 28 feet in diameter, encased within a rectangular block of graphite. This design was close to what was eventually built, with one important difference: George Graves, an engineer from DuPont, suggested making space for extra tubes in the corners of the reactor, should more fuel need to be added to the reactor. This would make provision for a reactor consisting of a square array of 2,004 tubes.

The reactor was first brought to criticality in late 1944. However after the first few hours of operation, for reasons unknown, the reactor shut itself down. The plutonium project appeared to be in peril! Then, after a few hours the reactor powered back up again. And then after some time, the reactor shut back down. Based on the timing of these events, Dr. John Wheeler, a physicist with the Manhattan Project who had been tasked to “look for things under the bed”, hypothesized that perhaps one of the fission products of the reactor decayed into a daughter isotope that was a neutron poison. After examining the chart of nuclides in the hallway across from his office, he found that the decay rates of iodine-135 and xenon-135 fit the situation perfectly. The additional 504 tubes of fuel were added to the reactor shortly afterward, increasing the reactivity of the reactor and overriding the effects of xenon’s excessive appetite for neutrons. This “xenon and iodine business” let the Hanford reactor continue toward completion of its mission and continues to serve today as an important lesson in reactor design and operation.

“The First Nuclear Era: The Life and Times of A Technological Fixer” by Alvin Weinberg  
 “53- That Xenon and Iodine Business”. Interview with John Wheeler. <http://www.webofstories.com/play/9430>

## Upcoming Dates and Events

### ANS Meetings (5:30 pm, NSC 227)

- January 9, 2013
- January 23, 2013
- February 6, 2013
- February 20, 2013
- March 20, 2013
- April 3, 2013
- April 17, 2013

### Westinghouse Fuel Facility Tour

- January 10, 2013

### UF Graduate School Application

- January 15, 2013

### ANS Scholarships Due

- February 1, 2013



ANS/WiN members at the WiN Christmas party in December.



ANS members at the ANS Winter Conference in San Diego, CA.



## Announcements

**Crystal River Power Plant Tour:** Kent Hippler and the External Events Committee are planning a tour of the Crystal River Power Plant in early spring. If you're interested in attending, RSVP to [jkenthippler@ufl.edu](mailto:jkenthippler@ufl.edu).

**Westinghouse Fuel Facility Tour:** Sarah Sarnoski and the Internal Events Committee are planning a tour of a Westinghouse fuel facility in SC to take place in early spring. More details will be provided closer to the time. For more information, contact [sesarno@ufl.edu](mailto:sesarno@ufl.edu).

**ANS on Facebook:** Join the ANS at UF group on Facebook to stay updated on all ANS at UF's activities and events. Dr. Baciak has also created a Facebook page for the Nuclear Engineering Program at UF to update students and alumni on the NE Program at UF.

**Go Gators.  
Go Nuclear.**

## About ANS @ UF

*The American Nuclear Society Student Chapter at the University of Florida is an organization of Nuclear and Radiological engineering students dedicated to the promotion of nuclear science and technology for the benefit of humanity. This chapter is instrumental in informing the public of everyday radiological applications.*

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If you would like to join ANS or have questions or comments, please contact Chelsea T. Collins, Secretary, at [ufl.ans.secretary@gmail.com](mailto:ufl.ans.secretary@gmail.com).

