

Department of Physics & Astronomy

PHYSICS NEWS FLASH

Dr. Papenbrock Wins Outstanding Junior Investigator Award

April 11 2007

Assistant Professor of Physics Thomas Papenbrock has won an Outstanding Junior Investigator (OJI) award from the Department of Energy (DOE). His proposal, "Structure of Rare Isotopes," will be funded for a total of \$270,000 over three years.

"I am more than happy about this news," Dr. Papenbrock said in response to the announcement.

The DOE's OJI program in nuclear physics, now in its eighth year, identifies exceptionally talented nuclear physicists early in their careers and supports the development of their research programs. One requirement is that their proposed research efforts make important contributions to the country's nuclear physics program.

Dr. Papenbrock is part of UTK's nuclear physics theory group and also holds a joint appointment at Oak Ridge National Laboratory. His work focuses on nuclei—the bundles of tiny particles at the center of every atom. Among his specific interests are nuclear structure and quantum many-body theory, which investigates how systems comprising several interacting particles actually interact with one another. One important challenge in mapping out the nuclear landscape is the understanding of rare isotopes—variations of natural elements that exist only briefly (fractions of a second, even) before they decay. Dr. Papenbrock's OJI award will support his work on developing a more accurate mass model for these short-lived isotopes. Progress in this direction will tell us more about the strong force that binds protons and neutrons into nuclei, and the limits of nuclear stability. A better understanding of rare isotopes is also essential to gain further insight into element abundances, the origin of heavy elements, and stellar explosions. Potential applications might be found in the fields of energy production, waste management, and national security.

Thomas Papenbrock earned the Ph.D. in physics at the University of Heidelberg in 1996. He was a post-doc at the Institute for Nuclear Theory at the University of Washington before coming to Tennessee on an ORNL Wigner Fellowship in 2000. Since joining the UTK faculty in 2004, he has taught courses in nuclear physics and numerical methods in physics (for graduate students), and the elements of physics (for undergraduates).

