

Spring 2019 Colloquium

Department of Physics & Astronomy, TAMU-Commerce

Apr 25, Thursday, 4-5 PM in Science Building 127

(coffee and cookies will be served at 3:50 PM)

Nuclear physics

From effective field theories to atomic nuclei

Dr. Thomas Papenbrock

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Dr. Papenbrock earned a Diploma (1994) and a Ph.D. degree (1996) in Physics at the University of Heidelberg/Germany. His Ph.D. research topic was on quantum chaos. He was converted to a nuclear physicist while working as a post-doc at the institute for Nuclear Theory in Seattle, WA, and became a staff at Oak Ridge National Laboratory in 2000. In 2004, Dr. Papenbrock began his appointment as an assistant professor at the University of Tennessee - Knoxville, where he is currently doing research in nuclear theory. More information about Dr. Papenbrock and his research can be found at <http://web.utk.edu/~tpapenbr/default.html>

Abstract

Ideas from effective field theory and the renormalization group, and advances in computing have revolutionized our understanding of atomic nuclei and our abilities to compute interesting nuclei and relevant nuclear properties. This talk gives an overview of recent advances in the field. It presents details about predictions for the structure of the rare doubly-magic isotopes ^{78}Ni and ^{100}Sn , the solution of a long-standing puzzle on ‘quenched’ beta decays in atomic nuclei, and the advent of quantum computing in nuclear theory.