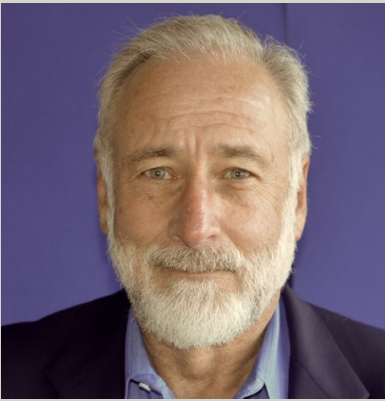


UNL Department of Physics and Astronomy presents:
The Life and Death of the Free Neutron

PRESENTED BY
GEOFF GREENE,
**University of
Tennessee**



THURSDAY
APRIL 14
4:00 PM
IN JH 136

Refreshments will be
served in the JH 1st
Floor Vending Area at
3:30

ABSTRACT

The decay of the free neutron is the simplest example of nuclear beta decay and, as such, is the archetype for a wide variety of Weak Interaction processes. These include familiar radioactivity, Big Bang Nucleosynthesis, and energy production in the sun. Additionally, The precise value of the free neutron lifetime, along with other data, can be used to test the consistency of the Standard Model. Remarkably, the value of neutron lifetime can also help determine the atmospheric composition of Venus. Given the breadth of physics which it addresses, it is disconcerting to note that, at the present time, measurements of the neutron lifetime by different methods are inconsistent. In this talk, I will discuss the physics of neutron decay and will review the various strategies for the experimental determination of the neutron lifetime. I will discuss some of the experimental challenges and will attempt to provide some illumination of the current discrepant situation. Finally, I will briefly discuss future prospects.