

**Tuesday,  
Jan. 28th  
At 3:45 pm**



Microscopic Approaches to Understanding Multinucleon Transfer

**Abstract:**

In the unending search for superheavy elements and neutron-rich nuclei one is faced with many reaction processes which must be considered. The straightforward path of fusing two large nuclei together is ever promising, but one must deal with vanishing production cross sections as they stray further from stability. The reaction channel that steals the show from fusion in this case is quasifission, a fully damped process in which incoming nuclei collide and remain together for some time before coming apart again, never quite losing their dinuclear identity. Quasifission itself is, however, another promising reaction to produce neutron-rich nuclei thanks to its long contact times and the transfer that comes along with it. During such a collision the incoming fragments transfer particles and energy, undergoing equilibration processes before going their separate ways. For a complete picture of how to produce new nuclei, understanding of both fusion and quasifission is vital. In an effort to characterize and explain these reactions, we study nuclear collisions using microscopic mean-field methods and various extensions for systems that span the chart of nuclides. This talk will focus on various results investigating multinucleon transfer processes for a variety of systems and look forward to what we're lacking in our theoretical description of nuclear reactions.

**Cyclotron  
Colloquium**

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**Kyle  
Godbey**

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**PhD  
Candidate**

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**Vanderbilt  
University**

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**CYCLOTRON  
INSTITUTE**

Room 228

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Refreshments will be  
served at 3:30 pm



**TEXAS A&M**  
UNIVERSITY