Math and Stat Colloquium

Thursday, April 12

3:30pm AgSc 234

Refreshments will be served in the Lund Hall Foyer at 3:00pm

Speaker:

Clif Drumm

Sandia National Laboratory,

Albuquerque, NM

"Effective Preconditioning of a Finite-Elements Model of the Neutron Transport Equation"

Abstract: Transport theory provides a mathematical description of the motion of particles through a host medium. The basic equation describing this process is a linear integro-differential equation for the phase space particle density in physical space, velocity space and time. The theory has many applications including nuclear reactor design, radiation shielding and medical radiation physics. The focus of this talk will be to describe the various numerical methods used to solve the transport equation: finite elements for the spatial dependence, collocation and spherical harmonics for the angular dependence, and preconditioning methods and challenges for iterative methods.