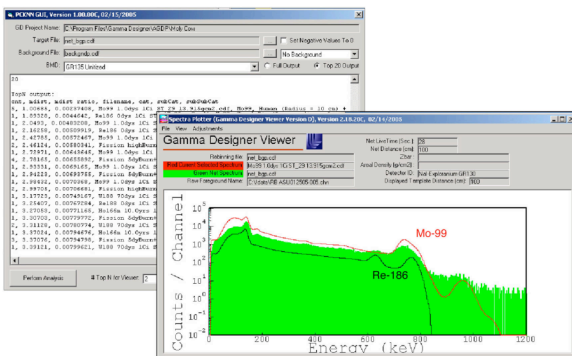# Physics Department Seminar

## Friday February 24th, 2006

## 11:00am in PhSc 105

# "Identifying Threatening Radioactive Material Crossing Our Borders"



Results from a spectral analysis of an item in transit.

## Mr. Thomas Gosnell

### Radiation Physicist
### Lawrence Livermore National Laboratory

Abstract:

Since 9/11, thousands of radiation detectors have been placed with first responders to detect illicit nuclear materials. About two million benign radiation sources enter the U.S. annually including medical, industrial, and naturally occurring radioactive materials (NORM).

A recent Los Alamos study determined that currently available instruments made correct identifications in less than 1/3 of the cases for commonly encountered sources.

We are pursuing a concept to significantly improve on that record. We are developing an improved source characterization algorithm using a novel approach that will provide rapid, accurate automated analysis of radiation data in the field. This novel approach will be discussed and demonstrated in its present form. We will also discuss inadequacies in the present state of our algorithm and describe continuing research to address them.

A packing case is for the presence of nuclear material using a commercial, hand-held, low-resolution gamma-ray detector, commonly employed by first responders.