UNIVERSITY of ROCHESTER

Research in Nuclear Science (Chemistry & Physics)

Nuclear Science Group Lab

The **Nuclear Science Research Group (NSRG)** at the Departments of Chemistry and Physics conducts radio-chemical and nuclear physics research in several areas:

1. Tritium transport on metal surfaces & in lattices

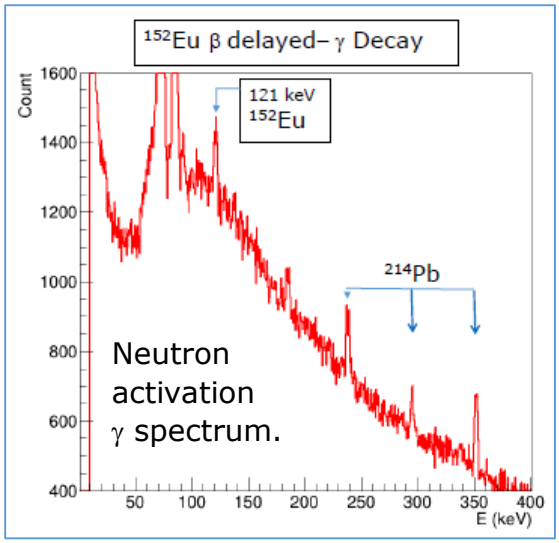
Tritium is generated in nuclear reactors, used as fuel in fusion reactors, and has industrial applications. Tritium migration through lattices and surface chemistry is studied with

→ Thermal desorption from surface/bulk

→ Surface removal by ion sputtering.

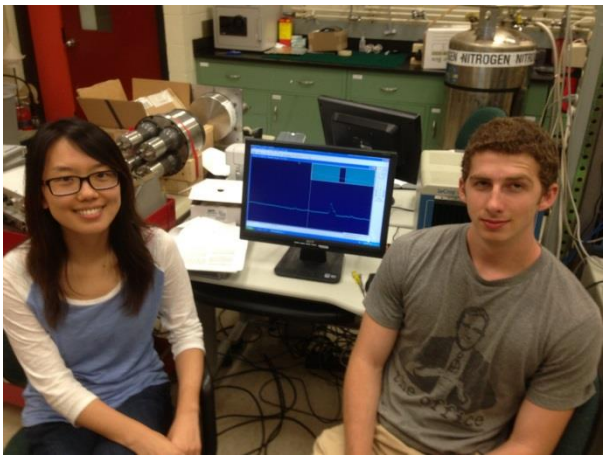
2. **Laser-Ion Acceleration for Nuclear Science (LIANS) and Nuclear Activation**

LIANS is a novel technique to accelerate ions to energies sufficient to induce nuclear reactions in target samples. Nuclear reactions are studied using the UR Omega/EP laser facility. Neutrons from such reactions can be captured again and transmute select target materials such as Eu isotopes. These are then identified by their β-delayed γ emission detected with high-resolution HPGe detectors.



3. High-resolution γ-spectroscopy in Nuclear Forensics Applications.

The isotopic composition of materials can be used to trace the origin and prior exposure of materials. The method has been used to identify early UR experiments with radioactivity in the 1940s and 1950s.



If interested in a research affiliation with the NSRG (UG, MS, PhD) contact Prof. W. Udo Schröder, 466 Hutchison Hall (275-8263) schroeder@chem.rochester.edu .