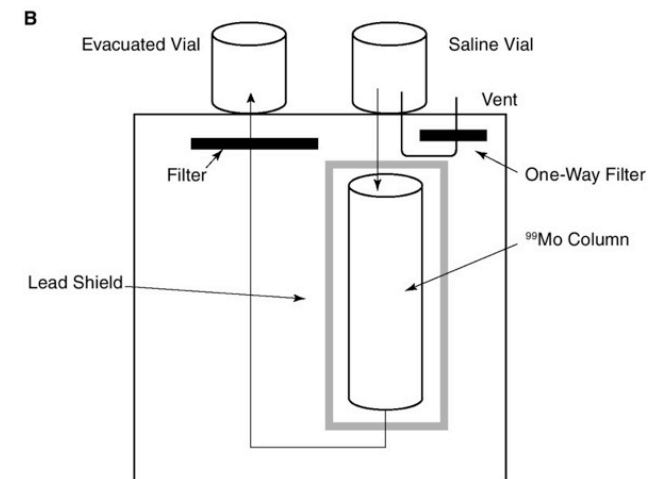


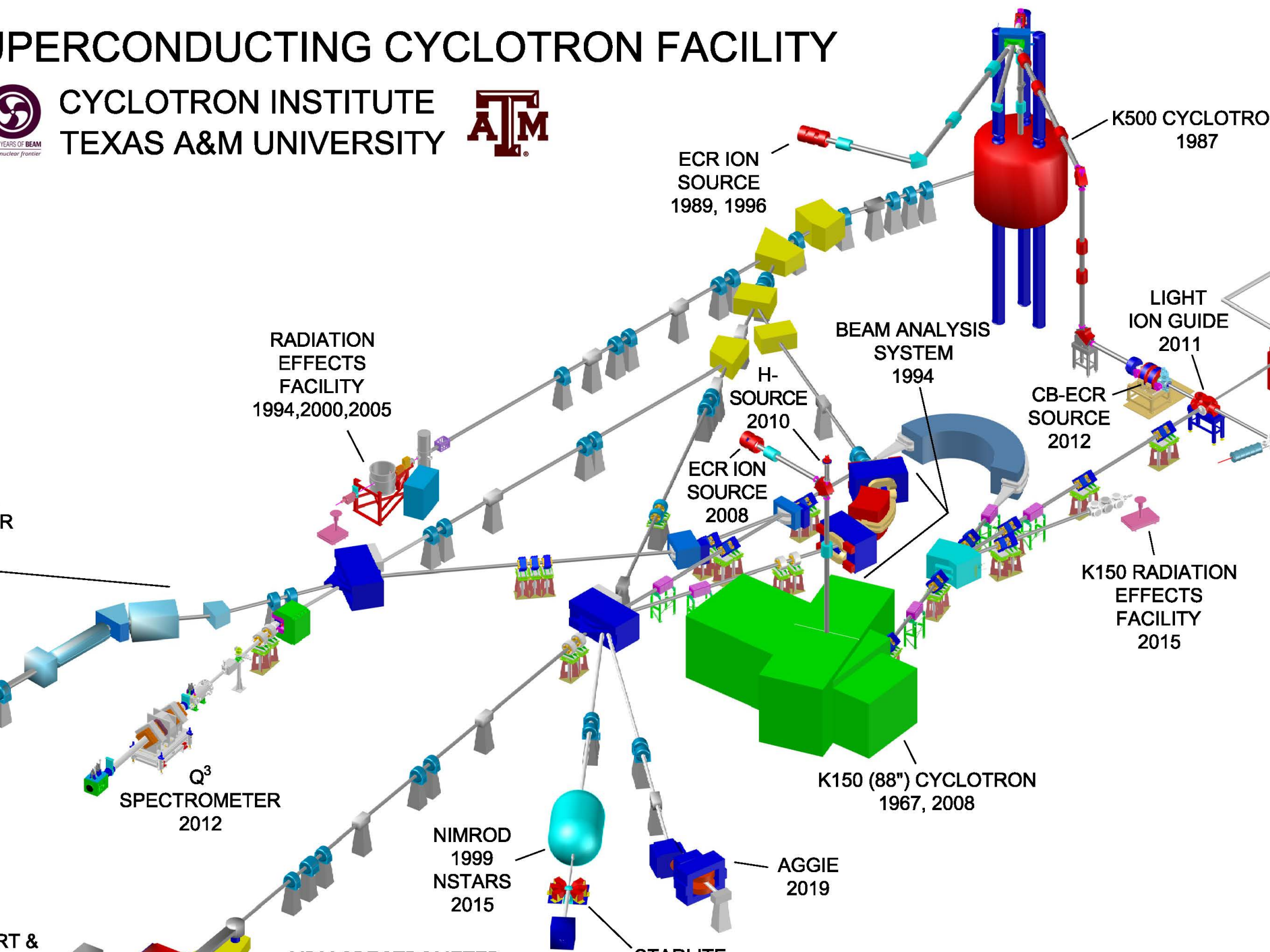
Texas A&M Cyclotron Institute and CENTAUR as generators of nuclear talent



UPERCONDUCTING CYCLOTRON FACILITY



CYCLOTRON INSTITUTE
TEXAS A&M UNIVERSITY



Objectives:

Basic research relevant
to stockpile stewardship

Train workforce to
support DOE/NNSA labs

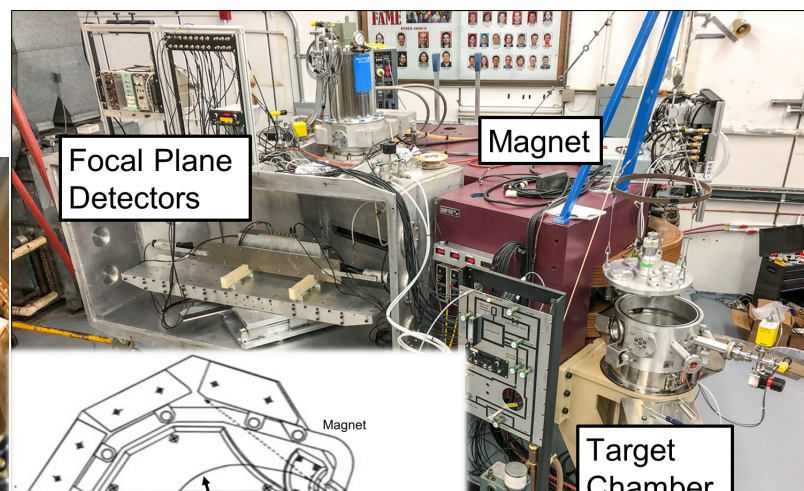
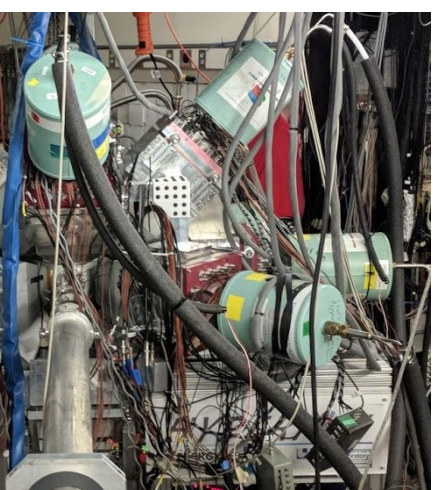
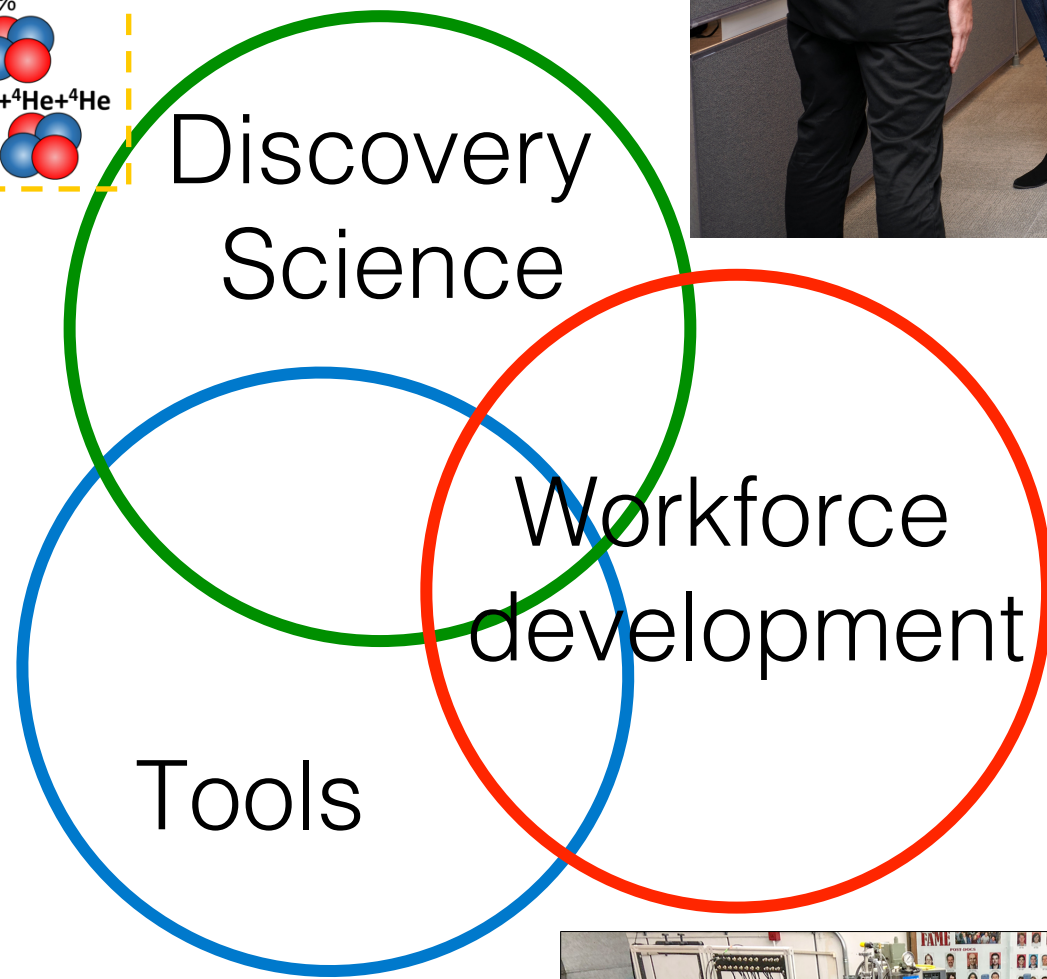
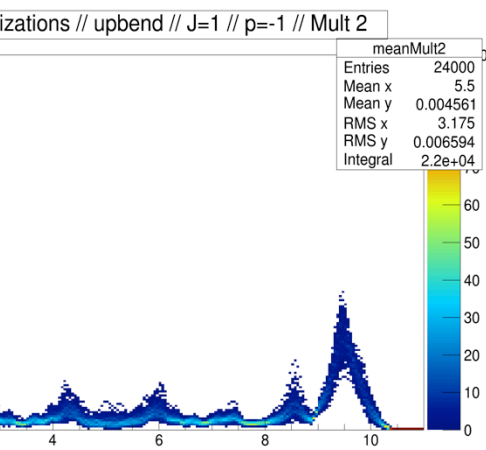
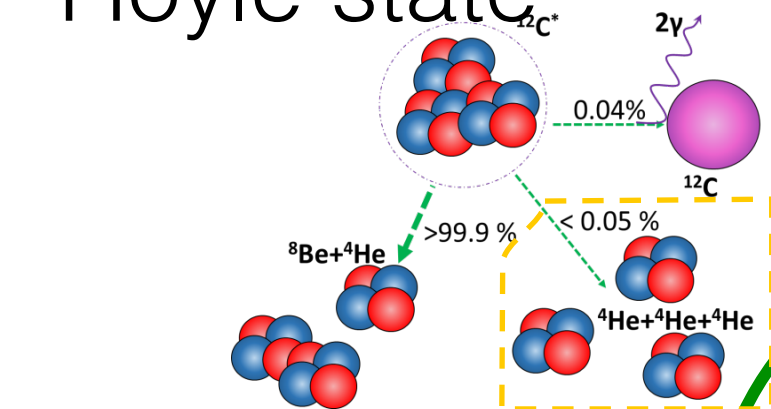
Partnership use
of university accelerators

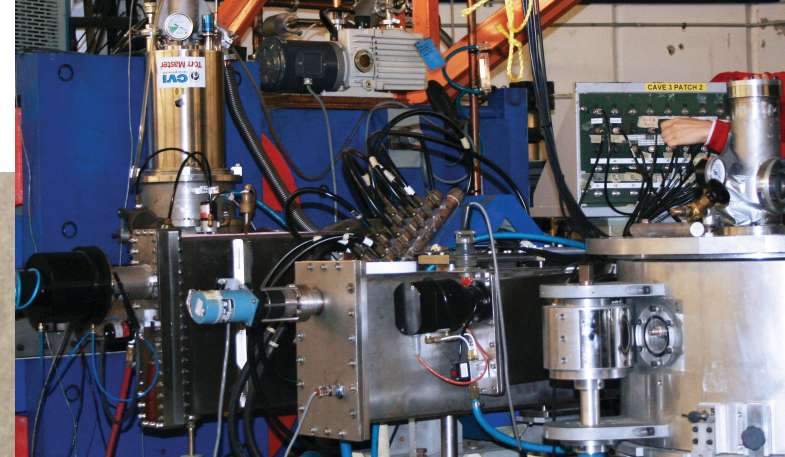
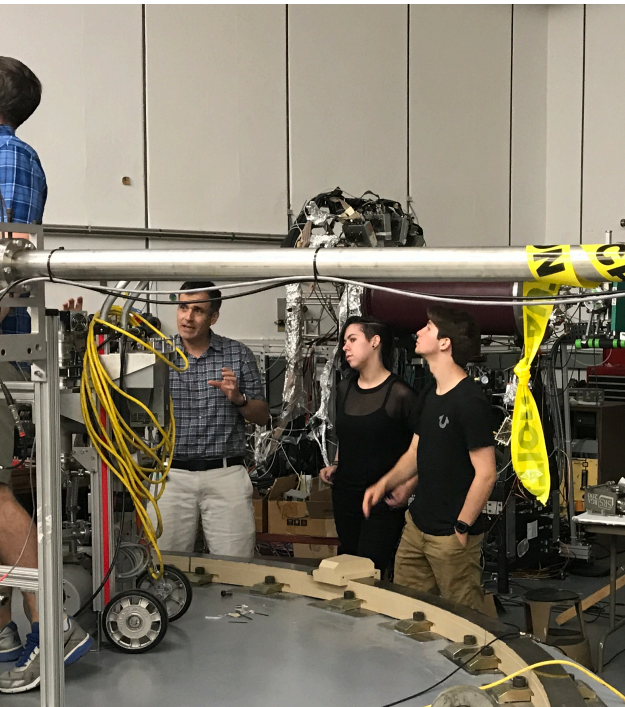
Mission:
Provide the research
experience necessary
develop the next
generation of leaders
in stewardship science in
the area of low-energy nuclear
science in support of the
workforce and research
needs relevant to the
NNSA mission.

NSA Stewardship Science Academic Alliances Center excellence in Low Energy Nuclear Science

Academic Partners:

Florida State University
Louisiana State University
Texas A&M University
University of Notre Dame
University of Washington
Washington University in St. Louis
NSA Lab Collaborators
Graduate Students
Post-doctoral Researchers





research

Technical skills

Creative problem solving

Scientific communication skills

Dealing with frustrations / perseverance

Self confidence

Time management

Project planning

Working within a collaboration

Leadership development

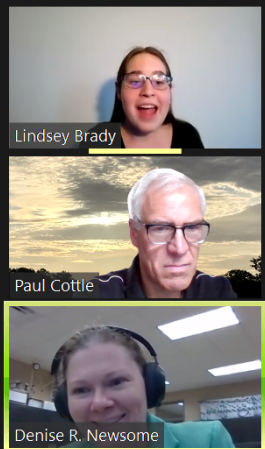
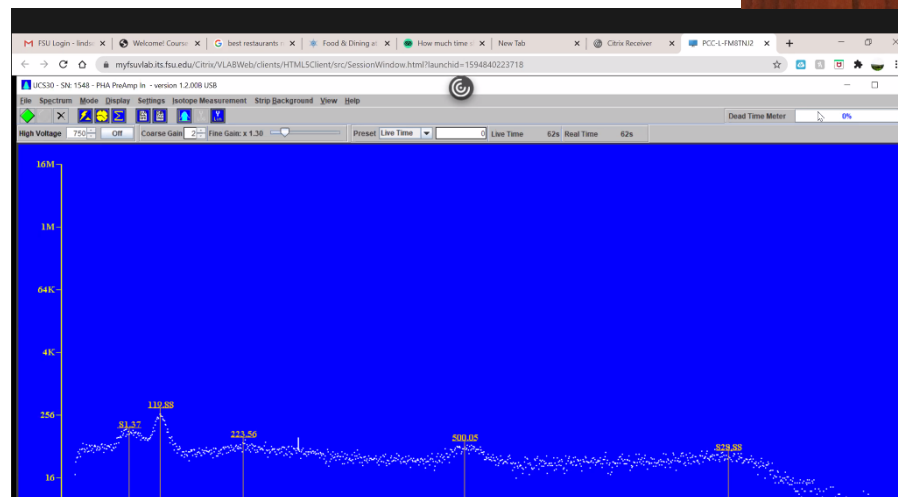
Nuclear Physics Summer Camp

High School Students

FSU+Local High School Physics Teachers

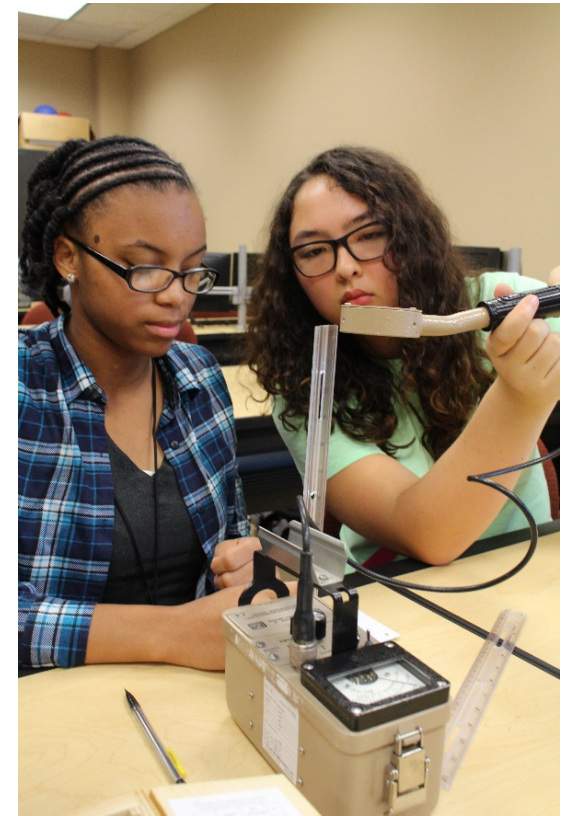
Summer 2018, 2019, 2020
(Virtual)

Expansion to other sites



visit to nuclear cardiology facility at
local hospital

- Campus-wide radiation hunt
 - Tour of Fox Laboratory
- Tour of National High Magnetic



Inaugural Nuclear Medicine and Science Camp.
July 23-27, 2018, Panama City, FL campus of FSU

supported by CENTAUR and Florida State University



Teacher Workshop at WUStL

4 High School Teachers (Chemistry & Physics)

5 day long program

Intro Lectures

Hands On Activity

September 2019



and Chem HS teachers <http://www.slapt.org>

clear teachin" is on the WU-STL campus. (Limit to 12 in first year)
Tony Thomas (retired – after 30 years – HS teacher) will be converted
FUAR will provide: wall charts and some equipment that the teachers
now from WU.

PROGRAM (9:00-1:30)

1. Lecture over treats (lgs, 9:00-10:20)

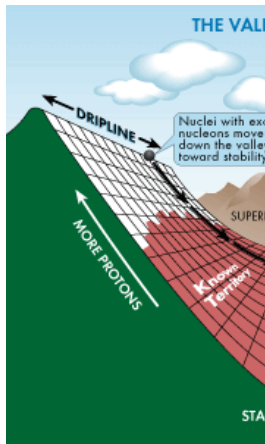
2. Build scintillator detector and test with our sources
(including ^{22}Na) and K-salt (TT, 10:30 – 12:20)

25mm dia x 40 mm long BaF_2 - from old PET → SiPM → WU-amp ← bi
supply

an the WU amp, which will be provided, teachers will assemble the scintill
and test.

1-511 coincidence will be shown with two of the manufactured detectors.
To use in HS, HS will have to provide oscilloscope and K-salt source.

3. Lunch Lecture – Nuclear science in St. Louis (lgs, 12:30-1:30):
Manhattan project (Mallinckrodt U processing) to PET to isotope production
p-therapy.)





NUCLEAR ASTROPHYSICS



Star - these giant burning things in the sky



Nucleus - the center of an atom

LO program

2004 ~12 students /yr

ely from PUI

individual research projects

ured educational activities

ulty lectures

educational field trips

reach activity

up experiment

chine shop class

ific communication

ter presentations

l presentations

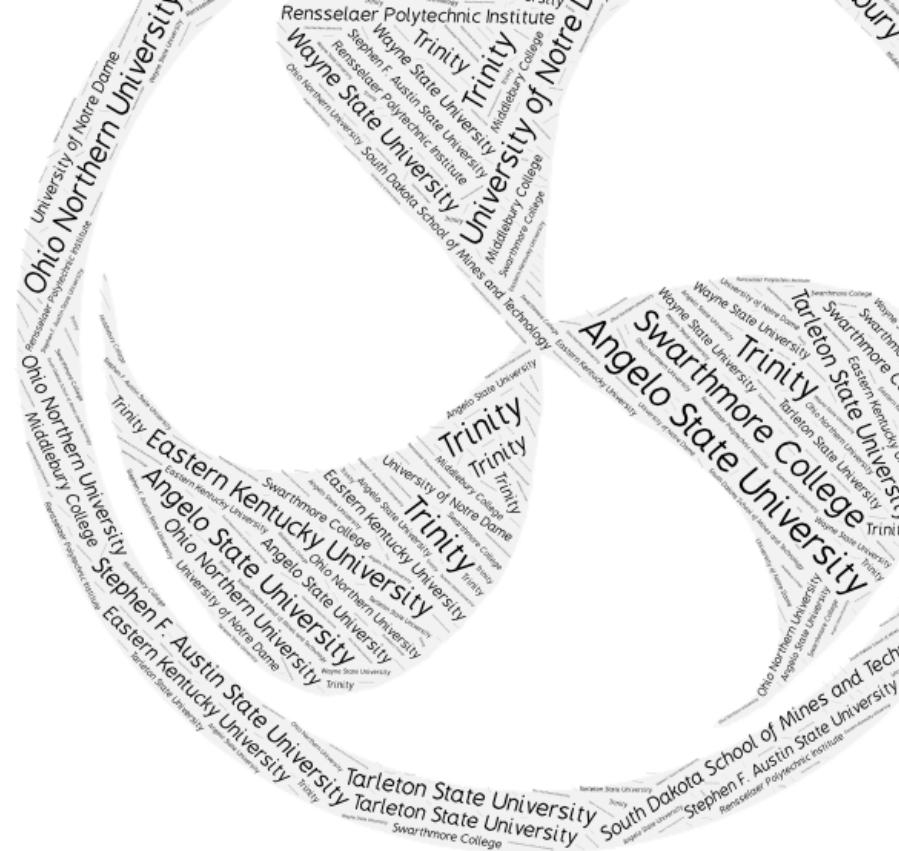
ten presentation

ssional Development

eer day

ch discussions

events



Street Science





Kassie
Marble



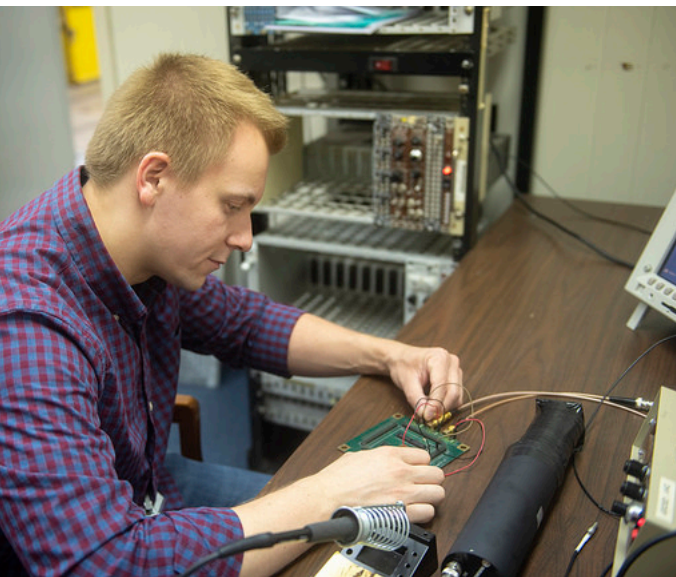
Division of Nuclear Physics of American Physical Society
Washington, DC



Scientific Advisory Committee

Planned Workshops (Dates TBD)

Neutron Detectors, with UTK & ORNL
Target making, with ANL
Optical Models



CENTAUR Group Meetings

Zoom meetings so far (April, June, July)
 10 students/postdocs present, ~10
 1 hour for Discussion
 4 attendees, on average

Presenter	
Ibrahim Abdurrahman	Fission of ^{236}U
Dustin Scriven	Recent Results from Neutron Detector Testing
Jesus Perello	Comparison of ToF vs Unfolding Methods for (d,n) reactions with CATRiNA
Thomas Onyango	Coarse Graining of Transport Calculations for Nuclear Collisions at Fermi Energies
Elizabeth Rubino	FSU Fission Overview

