

Planned LBNL Work

Short term (~ first year):

- 1) (^3He , t/d) benchmark experiments.
 - feasibility tests of new surrogate reactions.
 - use even-Z targets (U, Pu) to access odd-Z nuclei (Np, Am).
 - first experiment complete $^{238}\text{U}(^3\text{He},t)$, analysis ongoing.
 - compare with known $^{237}\text{Np}(n,f)$ data.
- 2) ($\alpha, \alpha'f$) measurements on Pu targets.
 - first experiment $^{242}\text{Pu}(\alpha, \alpha'f)$ to deduce $^{241}\text{Pu}(n,f)$ planned.
 - ^{241}Pu is difficult target ($T_{1/2}=14$ years)
 - of interest to both AFCI and defense-program

Longer term (out years and beyond):

Program of measurements including other important n-induced cross sections such as $^{239}\text{Pu}(n,2n)$ and $^{241}\text{Am}(n,\gamma)$.

We will be guided by advice on the most important cross sections.

What this collaboration needs

- 1) People**
 - **Healthy number of post-docs and students**
- 2) Prioritized list of most important AFC reactions**
 - **What reactions needed to what accuracy?**
- 3) Upgraded experimental capabilities**
 - **Gammas**
 - **LEPS (low energy gammas in actinides)**
 - **Ge detectors (increased efficiency)**
 - **Electrons**
 - **Si array (conversion electrons)**
 - **88-Inch Cyclotron**
 - **7 day/week operations**
 - **Accelerator maintenance and upgrades**