



The thermal neutron cross section for  $^{40}\text{Ca}(n,\alpha)^{37}\text{Ar}$  is poorly understood, but has great potential utility for nuclear explosion monitoring because  $^{37}\text{Ar}$  is a medium-lived isotope that can be detected several hundred days after an explosion occurs.

Goal: How much does the elemental composition of rock and the presence of thermal neutrons impact the predicted yield of  $^{37}\text{Ar}$ .

