

(α ,n) neutron yield calculations with NeuCBOT, the Neutron Calculator Based On TALYS

Tuesday, 9 November 2021 16:25 (25 minutes)

NeuCBOT, the Neutron Calculator Based On TALYS, is a tool for calculating (α ,n) neutron yields for arbitrary materials, given some activity of α -emitting contaminants. It combines stopping power calculations from SRIM with (α ,n) cross section libraries calculated with TALYS to determine the neutron yield of materials with user-specified composition and contamination levels. Decay information for contaminants can be specified by the user, or they can be retrieved from their ENSDF files. NeuCBOT was created for the purpose of predicting (α ,n) yields for materials used in low-background experiments, when experimental (α ,n) cross sections are either unknown or highly uncertain; instead, NeuCBOT relies on TALYS's models. This talk will describe the NeuCBOT software, benchmark its performance, and discuss future plans and inputs that may improve its accuracy.

Primary author: WESTERDALE, Shawn (Princeton University)

Presenter: WESTERDALE, Shawn (Princeton University)

Session Classification: Session 2