CARIBU Cover Foil – SRIM Studies

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ABSTRACT

For the CARIBU Project, a 1 Ci ^{252}Cf source deposit is placed in front of a He filled gas stopper cell from which the fission fragments may be selected for use as beams from the ATLAS accelerator. To reduce the likelihood of Cf migration due to self-sputtering, a cover foil is placed directly in front of the ^{252}Cf source holder. The extreme radiation environment experienced by this foil results in foil damage or rupture. Testing of several foil candidate materials using both heavy ion beams and alpha particles have been employed in an attempt to predict foil lifetimes. Here we are using SRIM in an effort to simulate displacements (or vacancy production) as well as sputtering effects to narrow down choices for this cover foil. Results of investigations on Al, C (graphene), Ni and Au will be presented.

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