



Contribution ID: 36

Type: Poster

## Recirculating electron beam photo-converter for rare isotope production

*Tuesday, 10 December 2019 17:00 (2 hours)*

The TRIUMF 30-75 MeV electron linac has the potential to provide cw beams of up to 0.5 MW to the ARIEL photo-fission facility for rare isotope science. Due to the cooling requirements, the use of a thick Bremsstrahlung target for electron to photon conversion is a difficult technical challenge in this intensity regime. Here, we present a different concept in which electrons are injected into a small storage ring where they make multiple passes through a thin internal photo-conversion target, exploiting an optimized energy range for production of gamma rays used for photonuclear reactions inside of a secondary target. The remaining energy is then deposited in a central core absorber, which can be independently cooled. We discuss design requirements and propose a set of design parameters for the Fixed Field Alternating Gradient (FFAG) ring. Using particle simulation models, we estimate various beam properties, and electron loss control.

**Primary author:** LAXDAL, Aurelia (TRIUMF)

**Co-authors:** KUNZ, Peter (TRIUMF); LAXDAL, Robert (TRIUMF); Dr PLANCHE, Thomas (TRIUMF)

**Presenter:** LAXDAL, Aurelia (TRIUMF)

**Session Classification:** Poster session