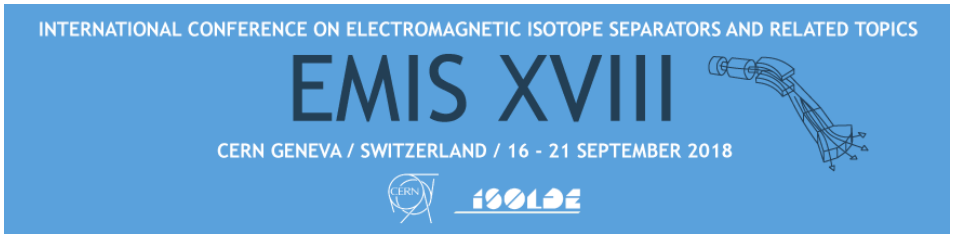

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Target materials for the ARIEL era at TRIUMF

Monday, 17 September 2018 18:17 (1 minute)

The Advanced Rare IsotopE Laboratory (ARIEL) is under construction at TRIUMF. ARIEL will add an additional two ISOL target stations, one will accept a 100 kW electron driver beam the other a 50 kW proton beam. These target stations are in addition to the two that are currently operated at TRIUMF's ISAC facility. Once ARIEL is fully operational an estimated 9000 Radioactive Ion Beam hours will be available to experimental users at TRIUMF each year.
To meet the demands of the ARIEL era, a fourfold increase in target material production is required. Additionally, a target material development program is needed to optimize the target materials for photofission at the target station for the electron driver beam.
Tests have been performed using a modified methodology to accelerate the current uranium carbide target material production. The resultant target material has been characterized by XRD and SEM. From these analyses, we have found that the composition and morphology of the target material obtained with the new methodology are in agreement with those of the targets used on-line. Additional tests are ongoing, with a planned on-line test at the end of this year. The latest results from these developments will be presented.
Micro-structured uranium carbide pellets are planned to be developed for the photofission target material. Lanthanum carbide pellets were produced to investigate production methods, the next step is to perform tests with uranium carbide to characterize the resultant material. The development plan will be outlined together with the results from the pellet tests with lanthanum carbide.

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