

ThuPE33

Background Reduction in the CARIBU ECR Charge Breeder

Richard Vondrasek, Richard Pardo, Guy Savard, Robert Scott

*Argonne Tandem Linac Accelerator System (ATLAS), Argonne National Laboratory, Lemont, Illinois,
USA*

Corresponding Author: Richard Vondrasek, e-mail address: vondrasek@anl.gov

An ECR charge breeder, as part of the Californium Rare Ion Breeder Upgrade (CARIBU) program at Argonne National Laboratory, has been providing beams of highly charged ions to the ATLAS facility for the past several years. The charge breeding efficiency and high charge state production of the source are at the forefront of ECR charge breeders, but its overall performance as part of the accelerator system has been limited by a pervasive stable ion background typically on the order of 10^6 to 10^7 pps even in the cleanest regions of the M/q spectrum. Various steps have been taken to reduce the level of background contamination including precision cleaning with CO_2 ice particles and coating of the plasma chamber with high purity aluminum. The results of these procedures as well as possible further improvements will be discussed.

This work was supported by the U.S. Department of Energy, Office of Nuclear Physics, under Contract No. DE-AC02-06CH11357. This research used resources of ANL's ATLAS facility, which is a DOE Office of Science User Facility.