



Contribution ID: 61

Type: **Poster (by default)**

RF Frequency Combining for the ATLAS ECR Ion Sources

The ECR2 and ECR3 ion sources at the Argonne Tandem Linac Accelerator System (ATLAS) operate with two microwave frequencies, improving their performance over single frequency operation. A typical method for transmitting both microwave frequencies is by having two separate frequency generators with their own corresponding amplifiers. These amplifiers transmit their microwaves into the ion source using separate waveguides. Another method that is investigated is to combine the low power microwave frequencies with a splitter/combiner and input the combined signals into the high-power amplifier, where the combined signal is amplified and transmitted down a single waveguide into the ion source. These different methods for delivering microwave power with multiple frequencies are compared, focusing on the average charge state and the intensities of each of the charge states for an oxygen plasma produced by the ECR2 ion source.

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.

Funding Agency

U.S. Department of Energy

Email Address

jmclain@anl.gov

I have read the Code of Conduct to attend ICIS2023.

Yes

Presenter if not the submitter of this abstract

Primary author: MCLAIN, Jake (Argonne National Laboratory)

Co-authors: VONDRASEK, Richard (Argonne National Laboratory); SCOTT, Robert (Argonne National Laboratory)

Presenter: MCLAIN, Jake (Argonne National Laboratory)

Session Classification: Tuesday

Track Classification: Production of High Intensity Ion Beams