



Contribution ID: 512 Contribution code: TUPM010

Type: **Poster Presentation**

Novel multi-beam front end for LANSCE accelerator facility

Tuesday, 9 May 2023 16:30 (2 hours)

The LANSCE accelerator facility has been in operation for 50 years performing important scientific support for national security. The unique feature of the LANSCE accelerator facility is multi-beam operation, delivering beams to five experimental areas. To reduce long-term operational risks and to realize future beam performance goals in support of the laboratory missions, we develop a novel high-brightness Front End injector. Proposed injector includes two independent low-energy transports for H⁺ and H⁻ ions merging beams at the entrance of a single RFQ. These beamlines also perform preliminary beam bunching before RFQ. The challenge of the present project is associated with simultaneous acceleration of protons and H⁻ ions with multiple beam flavors in a single RFQ, which has never been done before. Proposed injector must provide better than existing beam parameters while beam intensity is supposed to be increased by a factor of two and injection energy is reduced from 750 keV to 100 keV. The paper discusses details of beam physics design and presents injector parameters.

Funding Agency

Footnotes

I have read and accept the Privacy Policy Statement

Yes

Primary author: BATYGIN, Yuri (Los Alamos National Laboratory)

Co-authors: DIMITROV, Dimitre (Los Alamos National Laboratory); GORELOV, Dmitry (Los Alamos National Laboratory); HENESTROZA, Enrique (Los Alamos National Laboratory); DALE, Gregory (Los Alamos National Laboratory); DRAGANIC, Ilija (Los Alamos National Laboratory); LYLES, John (Los Alamos National Laboratory); BARRAZA, Juan (Los Alamos National Laboratory); BISHOFBERGER, Kip (Los Alamos National Laboratory); KURENNOY, Sergey (Los Alamos National Laboratory)

Presenter: BATYGIN, Yuri (Los Alamos National Laboratory)

Session Classification: Tuesday Poster Session

Track Classification: MC4: Hadron Accelerators: MC4.A08: Linear Accelerators