

Simultaneous acceleration of proton and H-minus beams in RFQ

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The Los Alamos Neutron Science Center (LANSCE) accelerator complex delivers both protons (p) and negative hydrogen ions (H-) and provides various beam patterns simultaneously to multiple users. The LANSCE linac front end is still based on Cockcroft-Walton voltage generators that bring proton and H- beams to 750 keV. An upgrade of the front end to a modern, RFQ-based version is now under consideration. The most promising upgrade option is based on acceleration of two continuous beams, p and H-, injected simultaneously into a single RFQ, which has never been done before. We use an existing CST model of a proton RFQ to model simultaneous acceleration of proton and H- beams as a proof of principle for such an RFQ operation.

Footnotes

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