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Recent Work

Title
Characterization of emittance in high intensity H- ion sources

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The ion source and Low-Energy Transport (LEBT) system that will provide H\textsuperscript{+} ion beams to the Spallation Neutron Source (SNS)** Front End and the accelerator chain have been developed into a mature unit that fully satisfies the operational requirements through the commissioning and early operating phases of SNS. Compared to the early R&D version, many features of the ion source have been improved, and reliable operation at 6% duty factor has been achieved producing beam currents in the 35-mA range and above. LEBT operation proved that the purely electrostatic focusing principle is well suited to inject the ion beam into the RFQ accelerator, including the steering and pre-chopping functions. This paper will discuss the latest design features of the ion source and LEBT, give performance data for the integrated system, and report on commissioning results obtained with the SNS RFQ and Medium-Energy Beam Transport (MEBT) system. Perspectives for further improvements will be outlined in concluding remarks.

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