

# Simulation and experiment study of proton generated by residual gas stripping in CSNS

*Monday 26 August 2024 16:00 (2 hours)*

The CSNS consists of an H- linac as injector, the interaction of the residual gas with H- particles will strip the electrons to produce associated protons within the LEBT, which follow the H- into the subsequent accelerating structure. In order to avoid the adverse effects of proton loss on the device, the feasibility of employing a bump for associated proton separation at the MEBT was investigated firstly using multiparticle tracking simulations. Beam experiment was carried out in the existing CSNS MEBT device, in which the transverse profile signals of the associated protons were observed. Intensity of the associated proton with and without the bump separation are compared downstream the DTL, which proves bump separation is an effective method for the removal of associated protons. The simulation and experimental results can provide scheme references for solving the associated proton problem faced in CSNS-II.

## Footnotes

## Funding Agency

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