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# Measurements and Simulations of the Beam Extraction from the ESS Proton Source

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The proton source and LEBT will be delivered to ESS in November 2017 by INFN-LNS. In order to prepare for the commissioning of this system at ESS, understanding the beam dynamics of the beam extraction and transport at low energy is important. The ion source and LEBT were commissioned at INFN-LNS in 2016-17 with measurements of the beam current, fractions of different ion species ($H^+$, $H_2^+$, and $H_3^+$), and emittance. In this paper we compare IBSimu simulations with these measured data. The goal is to reproduce different beam distributions at the exit of the ion source, which will help to optimize the beam optics and transmission to match the RFQ acceptance.

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