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## An electrostatic ion beam transport system for intense proton source

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The Ion Source Group has undertaken a R&D project of a compact low energy injector. The project is the development of an intense proton source and low energy beam (LEBT) for a transportable neutron source. The specific characteristics of the injector are low power consumption, compact and low beam emittance. An electrostatic low energy beam transport with a double Einzel-Lens setup is used to deliver 30 keV H<sup>+</sup> beam to the entrance of a 2.5 MeV RFQ. A 2.45 GHz ECR ion source was adopted to provide 15 emA H<sup>+</sup>, H<sub>2</sub><sup>+</sup> and H<sub>3</sub><sup>+</sup> beams with a duty factor of 3 %. The fabrication, assembly and beam commissioning have been completed at IMP. The injector composed the 2.45 GHz ECR ion source and its LEBT was very compact, with a length of 900 mm. The beam current at the LEBT exit was about 16 mA with a pulse length of 300 μs and a repetition frequency of 50 Hz. In this paper, the studies of beam intensities, beam transmission efficiency in LEBT, beam emittance and mismatch factor are presented and discussed.

### Footnotes

### Funding Agency

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Yes

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