

P4.1075 Recent progress of the development of an experimental arc-driven negative hydrogen ion source

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See full abstract here

<http://ocs.ciemat.es/EPS2019ABS/pdf/P4.1075.pdf>

An experimental negative hydrogen ion source has been developed for the preparation of a negative-ion-based neutral beam injector for HL-2M. This ion source is driven by filament-arc discharge with multi-cusp magnetic field and external filter field. The plasma chamber has a rectangular cross section with inner dimensions of 240 mm in width, 266 mm in length and 560 mm in height. The four-grid accelerator has 168 apertures and the extraction area is 130×412 mm². Two Cs ovens were installed onto the ion source to enhance the production of negative hydrogen ions by seeding Cs. In the preliminary experiment, the negative hydrogen ion beam reached 470 mA at extraction voltage of 3 kV. Improvements on the arc efficiency, Cs oven and accelerator are still in progress.

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