

Abstract Submitted
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Behavior of Negative Hydrogen Ion and its Beam by Bias and Beam Extraction Voltages¹ HARUHISA NAKANO, KATSUYOSHI TSUMORI, MASASHI KISAKI, KATSUNORI IKEDA, SHAOFEI GENG, KENICHI NAGAOKA, MASAKI OSAKABE, YASUHIKO TAKEIRI, OSAMU KANEKO, National Institute for Fusion Science, GIANLUIGI SERIANNI, PIERO AGOSTINETTI, EMANUELE SARTORI, MATTEO BROMBIN, Istituto Gas Ionizzati del CNR, CHRISTIAN WIMMER, Max-Planck-Institut für Plasmaphysik — Negative hydrogen ion (H⁻) dynamics from production to beam extraction in H⁻ source for fusion have not been enough understood in cesium-seeded negative-hydrogen-ion sources. This dynamics understanding contributes constructions of higher performance ion sources. The H⁻ is produced on and emitted from plasma grid electrode (PG) which is boundary electrode between source plasma and beam. The H⁻ density in the vicinity of the PG decreased with bias voltage (between PG and arc chamber) by suppression of H⁻ emission and/or yield. The H⁻ density decrement was observed in H⁻ beam extraction phase and penetrated to 30 mm depth from PG. The depth and H⁻ beam current decreased with bias voltage. One of the possibilities which explain it is extracted H⁻ coming from space in the vicinity of the PG. An object made of ceramic was inserted above the PG aperture. The H⁻ beam intensity decreased if the object was set 9 mm from PG. This does not conflict with the possibility.

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