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(POS-66) Experimental investigation of 1 inch End-Hall Ion Source for surface processing applications

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End-Hall Ion Source (EHIS) is a gridless device that combines a magnetic field B with an electric field E , in a $E \times B$ configuration, to generate and sustain a high-density plasma and to extract and accelerate a broad ion beam. The source can operate in a wide range of discharge voltage, such as 50 –500 V, for a discharge current in the 1 A magnitude order. In this work, we presents an experimental investigation of a 1 inch EHIS produced by Plasmionique Inc. This source can operate in two different modes, namely: i) low voltage –high current mode, typically 50 V –1 A, suitable for Ion Beam Cleaning applications and ii) moderate to high voltages –high current mode, typically [100, 500] V –1 A, suitable for Ion Beam Assisted Deposition and Ion Beam Sputtering applications. The experimental investigation focuses on source's current-voltage characteristics, ion energy distribution function, beam divergence and beam total current.

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