



Canadian Association
of Physicists

Association canadienne
des physiciens et physiciennes

Contribution ID: 3523

Type: **Poster (Non-Student) / Affiche (Non-étudiant(e))**

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

Tuesday 7 June 2022 17:32 (2 minutes)

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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Session Classification: DPP Poster Session & Student Poster Competition (4) | Session d'affiches DPP et concours d'affiches étudiantes (4)

Track Classification: Symposia Day (Tues. June 7) / Journée de symposiums (mardi, le 7 juin): Symposia Day (DPP) - Plasma Physics Symposium