



Canadian Association
of Physicists

Association canadienne
des physiciens et physiciennes

Contribution ID: 98

Type: **Oral not-in-competition (Graduate Student) / Orale non-compétitive (Étudiant(e) du 2e ou 3e cycle)**

Spatial and time-resolved characterization of HiPIMS spokes

Tuesday 9 June 2020 15:55 (5 minutes)

Plasma instabilities known as spokes have long been known to exist in ExB devices such as magnetrons and Hall Thrusters. The study of these spokes gives important insight into the ionization efficiencies and transport processes in these devices. However, spokes instabilities vary on small time scales, making characterization difficult. In this study we present results from the combined measurements of a highspeed camera, time-resolved Langmuir probe and floating probe array, for the characterization of spokes in a high-power impulse magnetron sputtering system. Spoke location and mode was determined by highspeed camera and compared to measurements from probes, the oscillating floating potentials was used to estimate the velocity of the spokes. Finally, Langmuir analysis was performed on the time-resolved Langmuir probe measurement to provide information on the evolution of plasma characteristics during the pulsed discharge.

Authors: Mr CHANG, Alex (University of Saskatchewan); Mr JOEL, Moreno (University of Saskatchewan); Prof. COUEDEL, Lénaïc (University of Saskatchewan); Prof. BRADLEY, Michael (University of Saskatchewan)

Presenter: Mr CHANG, Alex (University of Saskatchewan)

Session Classification: DPP-1 : Plasma Physics Symposium

Track Classification: Plasma Physics / Physique des plasmas (DPP)