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Plasma sheath model in the presence of field-induced electron emission JIBA DAHAL, VENKATTRAMAN AYYASWAMY, Univ of California - Merced — Microplasma become the active area of research in the last decades because of its several applications in physics including nanomaterial synthesis, electronics, lighting, biomedicine, and metamaterials for controlling electromagnetic waves. More recently, field emission electrons from the field emission and their interaction with micro discharge due to high electric fields has shown to affect both pre and post breakdown. In this context, the current work focuses on the development of self-consistent sheath model. Microdischarges are driven by the field emission of electrons from the cathode which has been shown to play a role similar to secondary electron emission. This self-consistent sheath model using electric field and electron emission uniquely interplay between plasma and electrode to provide some insights into the current-voltage characteristics of microplasmas with an additional emission mechanism from the cathode. The results obtained from the model are evaluated and compare with PIC-MCC results

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