

## **PIC Modeling of collisional skin depth in rf-driven atmospheric pressure plasmas\***

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Atmospheric pressure plasmas have application in plasma processing and plasma lighting. One common technique for creating these plasmas is to use rf to drive a discharge in a gas column. A main unexplained feature of these discharges is a radial contraction of the plasma, believed to depend in part on the depth to which the rf wave penetrates the gas column. We present collisional particle-in-cell (PIC) simulations of such a system, specifically looking at how the collisions modify the plasma skin depth for these parameters and geometries. We also present comparison of the PIC results with results from a fluid model to help understand the applicability of particle modeling in this domain.

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