

Abstract Submitted
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Match Design for VHF Atmospheric Plasmas¹ BRANDON BYRNS, STEVEN SHANNON, North Carolina State University — Atmospheric pressure discharges driven at very high frequencies have demonstrated the potential for unique heating modes and plasma formation in a wide range of gases at high pressure. One of the challenges in designing these systems is the matching network needed to couple power from the generator to the discharge. In this talk, we present matching network design considerations for VHF atmospheric plasmas including tune space, stability, and efficiency. We will present both modeled and experimental data from a source driven at 162MHz at 1atm pressure using a plurality of gasses including air, N₂, CO₂, He, and Ar. These cases will be used to demonstrate the interaction of the matching system with the plasma load, and how this can influence plasma conditions at specific process set points.

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