

Abstract Submitted
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Characterization of RF-driven Plasma Filaments in a Plasma Globe CYPRIAN CZARNOCKI, MICHAEL BURIN, CSU San Marcos, STEWART ZWEBEN, MICHAEL CAMPANELL, PPPL — Filamentary structures have been observed in many types of plasma discharges, such as in DC sparks and AC dielectric barrier discharges (DBDs). Recent progress has been made in characterizing these structures, though their exact physical origin remains unclear. Commercial plasma globes (or plasma balls) are RF discharges in a primarily neon gas mixture near atmospheric pressures that clearly display filamentation. Recent work has provided the first characterization of plasma globe filaments [Campanell *et al*, Physics of Plasmas 2010]. We have extended this initial work to investigate in greater detail the voltage dependence of filamentation, and also include observations on the role of filament flaring, branching, and system hysteresis. Our preliminary results using a custom apparatus will be presented.

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