

Abstract Submitted
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Long-lived laboratory plasmas sustained by a free-space microwave beam REMINGTON REID, US AFRL — The Air Force Research Laboratory is developing a laboratory experiment to study the free-space interaction of microwave beams with low temperature, low density plasmas. A 10 kW, 4.5 GHz beam is passed through a vacuum chamber outfitted with pressure windows that are transparent to 4.5 GHz radiation. The pressure windows are approximately 1m in diameter, allowing for minimal interaction between the beam and the chamber. The entire experiment is housed inside an anechoic chamber to minimize reflections. Plasmas generated by the beam have been observed to be stable for more than 10s. A series of optical and microwave diagnostics are being developed to measure the plasma properties, and to quantify the interaction of the plasma and the background neutral gas.

Remington Reid
US AFRL

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