

Abstract Submitted  
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**Investigation of atmospheric pressure streamer discharges for methane reforming** M.V. PACHUILO, F. STEFANI, L.A. ROSOCHA, L.L. RAJA, University of Texas — Hydrogen has several valuable uses in transportation: it can lower the coefficient of variation under lean burn conditions in internal combustion engines, and it is essential for the operation of fuel cells. Currently hydrogen can only be produced efficiently by reducing fossil fuels in large facilities. However, on-board production is desirable to reduce the infrastructure associated with storing and distributing hydrogen. Plasma dry reforming processes are viable candidates for onboard production. Our current work investigates the fundamental behavior of a single streamer discharge in methane. The electron temperature, and active species generation are determined through time resolved spectroscopy. This work will hopefully accelerate the development of non-thermal plasma based devices that include: dielectric barrier discharges, pulsed corona discharges, and other atmospheric-pressure plasma devices.

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