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NO Formation and Consumption Mechanisms in a Plasma Filament DAVID BURNETTE, IVAN SHKURENKOV, IGOR ADAMOVICH, WALTER LEMPert, The Ohio State University, CHASZEYKA NON-EQUILIBRIUM THERMODYNAMICS LABORATORY TEAM — Laser-induced fluorescence measurements have been performed on nitric oxide, oxygen atoms, and nitrogen atoms in low temperature, diffuse plasma filaments of air and air/fuel mixtures. The results have been compared to a one-dimensional numerical model and show that NO is rapidly formed in air as a result of excited species within the plasma and is consumed quickly by the reverse Zel'dovich mechanism. The evolution of the nitric oxide concentration in hydrogen and ethylene fuels is presented and the possibility of additional NO formation channels is discussed.

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