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Experimental observations on the characteristics of an anode spot onset[1] EDWARD BARNAT, Sandia National Laboratories, BRETT SCHEINER, SCOTT BAALRUD, University of Iowa, BEN YEE, MATT HOPKINS, Sandia National Laboratories — Experimental observations of the characteristic features of anode spot onset and stabilization in response to a stepped voltage applied to an anode immersed in a low pressure (100 mTorr) helium afterglow are reported in this poster presentation. These observations include spatial and temporal evolution of metastable species measured by planar Laser induced fluorescence (PLIF), electron densities as measured laser-collision induced fluorescence (LCIF) and electric fields around and in the spot as measured by laser-induced fluorescence-dip (LIF-dip) spectroscopy. Oscillations observed during spot formation process are correlated to transient response of the host plasma induced by sudden loss of electron species by the spot. Experimental observations are compared with computational simulations and theory presented in a companion poster.

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