

Abstract Submitted  
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**Experimental Observation of the Stratified Electrothermal Instability on Dielectric-Coated Thick Aluminum** TREVOR HUTCHINSON, University of Nevada, Reno, THOMAS AWE, Sandia National Laboratories, BRUNO BAUER, University of Nevada, Reno, KEVIN YATES, University of New Mexico, EDMUND YU, WILLIAM YELTON, Sandia National Laboratories, STEPHAN FUELLING, University of Nevada, Reno — The first direct observation of the stratified electrothermal instability on the surface of thick metal is reported. Aluminum rods coated with 70  $\mu\text{m}$  Parylene-N were driven to 1 MA in approximately 100 ns, with the metal thicker than the skin depth. The dielectric coating suppressed plasma formation, prolonging the observability of discrete azimuthally-correlated stratified structures perpendicular to the current. Assuming blackbody emission, radiometric calculations indicate strata are temperature perturbations that grow exponentially with rate 0.04/ns in 3000 - 10,000 K aluminum.

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