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Investigation Particle Emission from Surface of Electrolyte in a DC Atmospheric Pressure Glow with Liquid Anode[1] YAO KOVACH, JOHN FOSTER, University of Michigan - Ann Arbor — Self-organization patterns observed on anode liquid surfaces in atmospheric pressure DC glow discharge represents both a mysterious and beautiful plasma physics phenomenon. The mechanisms underlying self-organization of plasmas in this context is still poorly understood. Recently, as observed with certain electrolytes under self-organization conditions, luminous particle emission from the liquid anode has been observed. High-speed camera analysis was used to map the 2D trajectories of these particles in order to analyze forces experienced by the particles during flight and to assess the initial launch velocity, which gives insight into the mechanism for launch. The composition and size range of the particles were analyzed by using a scanning electron microscope (SEM) and Energy-dispersive X-ray spectroscopy (EDX) diagnostics respectively. The particle temperature during its glowing trajectory was measured from an infrared (IR) camera as well. This work provides not only insight into injection particle dynamics but also the energetics associated with self-organization pattern formation.

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