Nanodynamics and High-Efficiency Lab for Propulsion and Power (NanoHelp Lab)

The core skills in NanoHELP group lie in thermal-fluid sciences and combustions, micro-/nano- technology, advanced manufacturings, 3-D printings, and state-of-the-art spectroscopies and diagnostics. The group mission is to develop high-efficiency, low-cost and sustainable power and propulsion devices, including fuel cells, electrolyzers, batteries, direct combustion engines, and electric thrusters. The research will be ranging from fundamental understanding to system optimization with a strong interdisciplinary program for the study of micro/nano-scale chemical reaction, heat/mass transport, fluid mechanics, novel materials, corrosion, degradation, surface/mechanical/chemical properties and MEMS/NEMS. The NANO Help Lab is equipped with; Inkjet printer for printing of functional electrodes, Eelectrolyzer electrochemical test stations, High-speed micro-scale visualization and electrolyzer electrochemical test system, Thermal spectroscopy, Small fumehood, Microohm metering, High-resolution visualization system, Fumehood with spray-gun system, 3D printers (not shown in the picture).