Rick Stroman

Alternative Energy Section
US Naval Research Labratory

Rick Stroman has been a member of the Alternative Energy Section at the US Naval Research Laboratory for 12 years. His work has included mechanical design of optical assemblies, thermal design and optimization for hydrogen fuel storage; integration of power systems into unmanned vehicles; and power system design, simulation and optimization. He was part of the team which set an unofficial flight endurance record of 48 h with the Ion Tiger unmanned aircraft. He received his BS in Physics and MS in Mechanical Engineering from the Pennsylvania State University, and a PhD in Mechanical Engineering from the University of Maryland.

Image to the right is The NRL Ion Tiger unmanned air vehicle, powered by a PEM fuel cell.

Selected Energy and Autonomy Research at the US Naval Research Laboratory

Abstract

Energy and autonomous vehicles are currently of prime interest to the US Navy, and that interest has spawned many research efforts at the Naval Research Laboratory (NRL). The NRL Alternative Energy section is developing ways to store, convert, and manage energy for autonomous vehicle and other “off grid” applications. Major efforts include fuel cell power systems for unmanned air and undersea vehicles, hydrogen storage, intelligent energy distribution, and energy planning/optimization. Highlighted research will include the development of a long endurance unmanned aircraft powered by a proton exchange membrane fuel cell, experiments with a cryogenic hydrogen fuel storage system, direct borohydride fuel cells for long endurance undersea propulsion, energy sharing among solar-powered autonomous ground vehicles, and an energy planning tools for soldiers hosted by a smartphone app. The technical discussion will be framed by the NRL mission and opportunities at NRL for recent graduates and faculty members.

Tuesday April 25th, 2017 | 2112 Learned Hall | 10:00 – 10:50AM