

# Plasma Physics Research Laboratories

		<p><b>Description:</b> The Plasma Physics Laboratories pursue basic experimental and theoretical research on plasmas having applications to lasers, high power switches, plasma diagnostics, power generation, combustion diagnostics, high energy density fuel storage, and plasma processing of thin films. The experimental devices available include a large-area ion gun</p>
		

research stand, a 200kV electron gun mated to a closed-cycle discharge system, a Fourier transform mass spectrometer, radio frequency plasma reactors for thin film studies, a Fourier transform mass spectrometer, a Bomen Fourier Transform optical spectrometer, and a microwave plasma diamond deposition system. Passive and active diagnostics include spectrometers, a microwave interferometer and tunable laser systems. Other smaller benchtop experiments are on electron drift velocities and particulate generation.

## Purpose:

Conduct experimental and theoretical research on applying non-equilibrium plasmas to aerospace science. Develop unique plasma processing techniques for: radiation hardened, wide bandgap power semiconductors; hypersonic ignition/flow field modification by non-equilibrium plasmas; plasma generation for high power microwave sources; large area ion beam deposition of aerospace materials; rugged MEMS and MOMS.

## Products:

Research results (reports, publications) Large area, thin film dielectrics  
Prototype MEMS

## Availability:

Primarily in-house research, U.S. Government agency use, DoD contractors and dual use/defense conversion use-limited on an as available basis.