

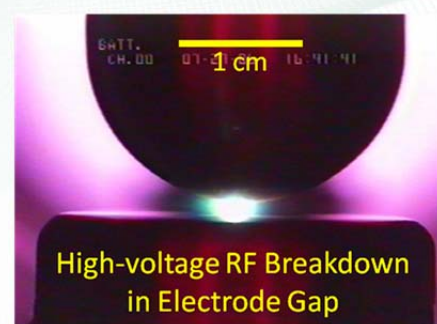
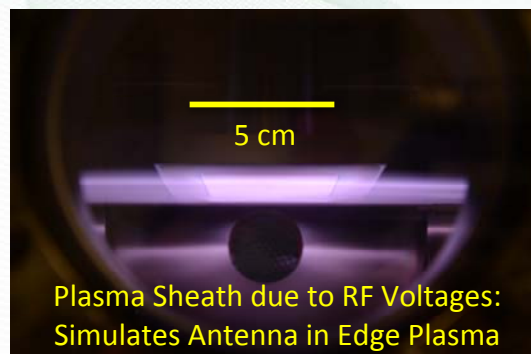
Plasma Applications Laboratory

Description

The Plasma Applications Laboratory is a multi-functional laboratory that is used for experiments involving plasmas and radio frequency (RF) technology. The work focuses on technology development for both magnetic fusion research and non-fusion research applications. Various vacuum and plasma chambers are used for plasma source development, material deposition, plasma diagnostic development, RF sheath physics, and fundamental physics studies of RF breakdown phenomena in magnetic field and plasma environments. RF power supplies, ranging from 10 kHz to 28 GHz with power levels to 20 kW, are used for making plasmas and testing hardware. Network analyzers in the range from 1 kHz to 20 GHz are used to characterize RF and microwave components used in a wide variety applications.

Applications

- High-voltage RF breakdown for fusion antenna applications
- Advanced laser-based spectroscopy development for RF electric field measurements
- Advanced optical diagnostic development for plasma characterization
- RF sheath physics and near-field antenna interactions
- Plasma source development for materials processing and isotope production
- Plasma enhanced chemical vapor deposition
- Antenna 3-D field measurement system for launcher development
- High-power wireless power transfer
- High-power RF calibration of sensors for industry
- RF system characterization for semiconductor processing
- Electric field breakdown in liquids
- Microwave radiometer calibration and development
- Microwave cavity development for cryogenic pellet mass determination
- Network/impedance analysis of RF and microwave components
- Vacuum component development and leak-checking
- Custom electronics prototype development



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