



Weakly Ionized Plasmas: New Developments and Potential Aerospace Applications

**Thursday,
April 10, 2014,
3:30P.M.**

**Lower Level
Auditorium,
Geddes Hall**

Refreshments served
at 3:00 p.m. in the
Geddes Hall
Coffee House

The talk discusses potential aerospace applications of weakly ionized, low temperature plasmas, from plasma-enhanced aerodynamics to novel antennas. The ability of plasmas to interact with air flow, combined with rapid individual control of multiple plasma elements, opens a possibility of on-demand aerodynamic control for optimization of aircraft performance in transient regimes and also for drag reduction. Plasma coupling with electromagnetic waves, together with wide tunability of plasma properties, enables applications to compact, electronically reconfigurable antennas.

The talk emphasizes exciting opportunities offered by two major recent advances. The ability to manipulate plasmas on a nanosecond time scale with novel power sources enables 2-3 orders of magnitude power savings and also highly selective atomic/molecular/combustion processes. New insight into plasma physics and the use of microfabrication techniques enable generation and control of plasmas in microcavities (down to just 1-5 micrometers), at near-atmospheric pressure, with the electron density 4-6 orders of magnitude higher than that in conventional plasma devices.



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If you are interested in meeting individually with Dr. Macheret, please contact Linda at 631-5431.