**Advanced Optical Diagnostics for Low Temperature Plasmas at PCRF**

A. Dogariu1,2

*1 Princeton University, Princeton, NJ, USA*

*2 Texas A&M University, College Station, TX, USA*

The talk will present recent developments and results using advanced optical diagnostics in Low Temperature Plasmas (LTP) at the Princeton Collaborative Research Facility (PCRF).[1] PCRF provides expertise and instrumentation for comprehensive characterization of LTPs with goal of advancing methods of predictive control of LTP.

Some of the collaborative research highlighted include measurements of neutrals densities (such as O, N) using femtosecond Two-Photon Laser Induced Florescence (fs-TALIF) and velocimetry using Femtosecond Laser Electronic Excitation Tagging (FLEET) in an arc jet plasma as well as in magnetized RF heated low density plasmas, imaging atomic species induced in a liquid by an impinging plasma jet via fs-TALIF, and mapping the spatial and temporal profile of the electric field in plasmas using E-FISH.

The Princeton Collaborative Research Facility was established under Contract No. DE-AC02-09CH11466 by the U.S. Department of Energy (DOE).

[1] https://pcrf.princeton.edu