

Plasma Physics Seminar

Physics & Astronomy Building (PAB) Room 4-330

Via Zoom: <https://ucla.zoom.us/j/92785449357?pwd=SVBTSko3bTdEUW03dzQwNks1Q2IKZz09>

Friday March 14th at 12:30 PM

Lunch will be served at 12:00 PM

Development of a spatially-resolved TALIF diagnostic for measurements of ground-state atomic hydrogen density, temperature, and velocity in linear plasma devices.

Kaden Loring (Stanford)

The fusion industry is heating up, but without a clear understanding of how to handle the extreme exhaust loads from future burning plasma devices, may soon find its progress frozen. Magnetic-confinement fusion relies on neutral buffering to mitigate damaging plasma-material interactions, creating a complex interplay of plasma, neutrals, and material-surfaces that must be modeled using coupled fluid-kinetic simulations like SOLPS-ITER. However, these models depend on poorly constrained parameters. At the Dutch Institute for Fundamental Energy Research (DIFFER), linear plasma devices such as Magnum-PSI and Upgraded Pilot-PSI serve as testbeds to refine these models. A newly developed 1D Two-photon Absorption Laser-Induced Fluorescence (TALIF) diagnostic enables spatially resolved measurements of atomic hydrogen density, temperature, and ion rotational velocity, helping to constrain collisional-radiative rates and radial electric fields. This seminar will discuss the development of TALIF at DIFFER and its early results.

