

Abstract Submitted
for the DPP07 Meeting of
The American Physical Society

The motional Stark effect with laser-induced fluorescence diagnostic ELIZABETH FOLEY, FRED LEVINTON, Nova Photonics, Inc. — Traditional motional Stark effect (MSE) diagnostics exploit the polarization properties of light generated from a neutral hydrogenic beam via collisionally-induced fluorescence (CIF). MSE uses this information to determine a spatially resolved profile of the magnetic field pitch angle in a magnetized plasma. The use of laser-induced fluorescence with MSE on a dedicated diagnostic neutral beam enables an MSE pitch angle measurement at fields as low as 0.001 T, which cannot be achieved by CIF systems. The LIF system also affords the option of very precisely measuring the magnetic field magnitude as well as direction. The MSE-LIF diagnostic is under development in our laboratory, where we have a diagnostic neutral beam system, a dye laser, and a helicon plasma source. This poster will present the latest results relating to MSE-LIF measurements in plasma, as well as an analysis of the relative utility of magnetic field magnitude vs pitch angle measurements for equilibrium reconstruction.

Elizabeth Foley
Nova Photonics, Inc.

Date submitted: 20 Jul 2007

Electronic form version 1.4