

Abstract Submitted
for the DPP07 Meeting of
The American Physical Society

The Motional Stark Effect Diagnostic on NSTX¹ FRED LEVINTON, HOWARD YUH, Nova Photonics, Inc. — This work describes the implementation and recent results from the MSE-CIF diagnostic on NSTX. Due to the low magnetic field on NSTX the MSE diagnostic requires a new approach for the viewing optics and spectral filter. This has been accomplished with a novel optical design that reduces the geometric Doppler broadening, and a high throughput, high resolution spectral filter to optimize signal-to-noise. This MSE diagnostic presently has 16 of a possible 19 sightlines operating, providing measurements of the magnetic field line pitch from the plasma center to near the outboard edge of the plasma. The system operates well at low magnetic field, ≥ 0.3 T, using collisionally induced fluorescence (CIF) from a deuterium heating beam operating at about ~ 90 keV. MSE data has been obtained in several regimes, including L-mode, H-mode, and reversed shear. The measurements reveal the development of both monotonic and reversed shear q-profiles depending on the discharge evolution. The presence of MHD is found to have a significant effect on the profile evolution and will be discussed.

¹This work supported by U.S. DOE contracts DE-FG02-99ER54520 and DE-AC02-76CH03073.

Fred Levinton
Nova Photonics, Inc.

Date submitted: 20 Jul 2007

Electronic form version 1.4