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The Motional Stark Effect Diagnostic for ITER[1] E.L. FOLEY, F.M. LEVINTON, H.Y. YUH, Nova Photonics, Inc — The United States has been tasked with the development and implementation of a Motional Stark Effect (MSE) system on ITER. In the harsh ITER environment, MSE is particularly susceptible to degradation, as it depends on polarimetry, and the polarization reflection properties of surfaces are highly sensitive to thin film effects due to plasma deposition and erosion of a first mirror. We propose a comprehensive approach to the challenges, one which incorporates a sophisticated calibration system for the polarization measurement and also a spectrometer-based system for measurement of the line spacing in the Stark spectrum. The high fields and high beam energy in ITER allow this spectral measurement to be made with good precision for determination of the magnetic field magnitude. Conceptual designs for the MSE system on ITER will be presented.

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