Abstract Submitted
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Design considerations for real-time MSE background subtraction on Alcator C-Mod[1] ROBERT MUMGAARD, MIT PSFC, STEVEN SCOTT, PPPL, WILLIAM ROWAN, IGOR BESPAMYATNOV, KEN LIAO, FRC UT, STEVE MCCLAIN, RUSSELL CHIPMAN, University of Arizona College of Optical Sciences — MSE measurements of the q-profile in Alcator C-Mod are difficult at high density and in H-mode plasmas due to increased partially-polarized background light in the MSE wavelength range. This background is highly variable both spatially and temporally, making traditional beam-on-beam-off background interpolation insufficient. A real-time background subtraction is proposed: spectral studies [See poster 18, Bespamyatnov] have identified a spectral region free of impurity lines adjacent to the MSE measurement region where the polarized background signal can be measured as a proxy for the MSE background signal. A polychromater design that utilizes multiple tunable narrow bandpass filters to simultaneously measure the MSE signal and partially polarized background is presented. Issues pertaining to design and calibration of this instrument and its relevance to diagnostic challenges on ITER are discussed.

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