Abstract Submitted
for the DPP08 Meeting of
The American Physical Society

ITER MSE Calibration System Investigation ALISSA MEZZACAPPA, Vassar College, FRED LEVINTON, ELIZABETH FOLEY, HOWARD YUH, Nova Photonics, BRIAN DALY, Vassar College, NOVA PHOTONICS TEAM
— The ITER MSE calibration system will stream information about primary mirror polarization properties which continuously evolve. Details for the system are investigated by reflecting linearly polarized light of known polarization on an aluminum or gold mirror at varying angles of incidence and tilt angle creating a three dimensional matrix. Reflected light then passes though a polarimeter. Mueller matrix algebra is used to reconstruct polarization previous to reflection. Mueller matrix algebra provides a one-to-one correlation between experimental and input quantities for measurements with no tilt. For measurements taken with a tilt angle our Mueller matrix algebra does not yet yield proper results. A linear relationship between tilt and calculated experimental values of polarization for the gold mirror specimen is found. Further work is required to understand the relationship of tilt to calculated polarization. Requirements for the calibration system may need to include a calibration beam capable of multiple solid angles to reconstruct the mirror properties at the solid angle of the heating beam.

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Date submitted: 15 Jul 2008 Electronic form version 1.4