Abstract Submitted
for the DPP09 Meeting of
The American Physical Society

In-Situ Removal of Beryllium and Carbon Deposits from ITER Diagnostic Mirrors and Windows Utilizing Nd:YAG Laser[1] JENNIFER ZELENTY, University of Chicago, CHARLES GENTILE, PPPL — Studies from the Joint European Torus (JET) indicate that plasma deposits such as beryllium and carbon will collect on ITER diagnostic mirrors and windows. The presence of such deposits will cause a decrease in reflectivity and light transmission on these diagnostic related surfaces. This investigation will determine the effectiveness of removing plasma deposits from diagnostic mirrors and windows using a 325W continuous wave (cw) Neodymium-doped Yttrium Aluminum Garnet (Nd:YAG) Laser. In this study, laser cleaning will be tested on single crystal molybdenum mirror substrates, the material proposed for ITER first mirrors. The mirrors will be coated with either beryllium or carbon deposits. The Nd:YAG laser, directed by a computer controlled laser scanner, will raster the mirror substrates, ablating the deposits on the surfaces. The reflectivity and polarization properties will be tested before and after to determine the efficacy of this laser cleaning technique. The results will be presented and discussed.

[1]Supported by DOE Contract: DE-AC02-09CH11466.

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Date submitted: 17 Jul 2009 Electronic form version 1.4