

Abstract Submitted  
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**Study on the Characteristics of Wire Grid Polarizer for Alcator C-Mod Motional Stark Effect Diagnostic**<sup>1</sup> JINSEOK KO, MIT Plasma Science and Fusion Center, STEVE SCOTT, Princeton Plasma Physics Laboratory — A wire grid polarizer (WGP) has been installed on the in-vessel optics module of the Motional Stark Effect (MSE) diagnostic system in Alcator C-Mod tokamak. The polarized light produced by this WGP can be utilized to measure the change in polarization angle by Faraday rotation through the diagnostic system when the tokamak is operated in its normal condition. Intensive WGP tests on the off-site optical table have been done to investigate the effect of non-normal incidence on the WGP which is indeed the situation inside the tokamak. A model has been developed to understand and simulate various effects of the WGP structure such as changes in angle-of-incidence and reflection/transmission coefficients due to the anti-reflection coating layer and the glass substrate. These analytic predictions and test results are compared with the tests in the tokamak where the in-vessel WGP is used.

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