Abstract Submitted
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Divertor Coil Design and Implementation on Pegasus[1] P.C. SHRIWISE, M.W. BONGARD, J.A. COLE, R.J. FONCK, B.A. KUJAK-FORD, B.T. LEWICKI, G.R. WINZ, University of Wisconsin-Madison — An upgraded divertor coil system is being commissioned on the Pegasus Toroidal Experiment in conjunction with power system upgrades in order to achieve higher β plasmas, reduce impurities, and possibly achieve H-mode operation. Design points for the divertor coil locations and estimates of their necessary current ratings were found using predictive equilibrium modeling based upon a 300 kA target plasma. This modeling represented existing Pegasus coil locations and current drive limits. The resultant design calls for 125 kA-turns from the divertor system to support the creation of a double null magnetic topology in plasmas with $I_p \leq 300$ kA. Initial experiments using this system will employ 900 V IGBT power supply modules to provide $I_{DIV} \leq 4$ kA. The resulting 20 kA-turn capability of the existing divertor coil will be augmented by a new coil providing additional A-turns in series. Induced vessel wall current modeling indicates the time response of a 28 turn augmentation coil remains fast compared to the poloidal field penetration rate through the vessel. First results operating the augmented system are shown.

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