

Abstract Submitted  
for the DPP06 Meeting of  
The American Physical Society

**Magnetic equilibria for X-Diverted plasmas** M. PEKKER, P. VALANJU, M. KOTSCHENREUTHER, J. WILEY, S. MAHAJAN, IFS, Univ. of Texas at Austin — The X-divertor has been proposed to solve heat exhaust problems for reactors beyond ITER. By generating an extra X-point downstream from the main X-point, the X-divertor greatly expands magnetic flux at the divertor plates. As a result, the heat is distributed over a larger area and the line length is greatly increased. We have developed coil sets for X-diverted magnetic equilibria for many devices (NSTX, PEGASUS, EAST, HL-2A, CREST, and a CTF). These demonstrate that the XD configuration can be created for highly shaped plasmas using moderate coil currents. For reactors, all coils can be placed behind 1 m of shielding. We have also shown that XD configurations are robust to modest plasma perturbations and VDEs; this is in contrast to the sensitivity of highly tilted divertor plates.

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Date submitted: 23 Jul 2006

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