

Abstract Submitted  
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**Simulation of Scrape-Off Layer Magnetic Field in W7-X** BEN ISRAELI, Columbia Univ, SAMUEL LAZERSON, STUART HUDSON, Princeton Plasma Physics Laboratory, TAMARA ANDREEVA, SERGEY BOZHENKOV, Max-Planck-Institut fur Plasmaphysik, W7-X TEAM — The impact of error fields on limiter and divertor operation in W7-X is studied with the field line tracing code FIELDLINES. Recent data have confirmed coil misalignment as a source of error fields in W7-X. Such fields may contribute to uneven heat loads on the limiters currently in place and on the planned divertor system. In this work, field line tracing and diffusion algorithms are applied to investigate the effect of error fields on scrape-off layer topology and the resulting limiter or divertor load distribution. Particle flux distribution is a predicted application of a diffusion model. This model considers a test particle with constant velocity parallel to the field executing Brownian motion perpendicular to the field. Behavior of this model is derived and benchmarked. A comparison is made between results with ideal W7-X coil geometry and with the measured error fields, indicating the degree of load deviation for both limiter and divertor configurations.

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