Abstract Submitted
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Effects of 2D and 3D Error Fields on the SAS Divertor Magnetic Topology[1] G.L. TREVISAN, ORAU, L.L. LAO, E.J. STRAIT, H.Y. GUO, W. WU, T.E. EVANS, General Atomics — The successful design of plasma-facing components in fusion experiments is of paramount importance in both the operation of future reactors and in the modification of operating machines. Indeed, the Small Angle Slot (SAS) divertor concept, proposed for application on the DIII-D experiment, combines a small incident angle at the plasma strike point with a progressively opening slot, so as to better control heat flux and erosion in high-performance tokamak plasmas. Uncertainty quantification of the error fields expected around the striking point provides additional useful information in both the design and the modeling phases of the new divertor, in part due to the particular geometric requirement of the striking flux surfaces. The presented work involves both 2D and 3D magnetic error field analysis on the SAS strike point carried out using the EFIT code for 2D equilibrium reconstruction, V3POST for vacuum 3D computations and the OMFIT integrated modeling framework for data analysis. An uncertainty in the magnetic probes signals is found to propagate non-linearly as an uncertainty in the striking point and angle, which can be quantified through statistical analysis to yield robust estimates.

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