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Effects of Magnetic Coil Misalignments on the SAS Divertor<sup>1</sup> G.L. TREVISAN, B.C. LYONS, Oak Ridge Associated Universities, L.L. LAO, T.E. EVANS, H.Y. GUO, Y. LIU, W. WU, General Atomics, D.M. ORLOV, University of California-San Diego, A. WINGEN, Oak Ridge National Laboratory — A new Small Angle Slot (SAS) divertor has recently been installed and tested in DIII-D, promising easier plasma detachment and lower target temperatures. Previous SAS analyses focused on the accuracy of the 2D reconstructed strike geometry and 3D "vacuum" analyses of RMPs on the lobes and on the strike point modulation. The present work introduces a kinetic EFIT 2D equilibrium reconstructed from a recent 2017 SAS experiment. The kinetic EFIT and its "vacuum" topology due to 3D error and perturbation fields are compared to the previous analyses based on a synthetic equilibrium, showing similar results. The magnetic lobes remain confined within the SAS and the toroidal modulation of the strike point position is only slightly affected. Further simulations of a possible shift of the toroidal field coil are carried out through 3D field-line tracing. The effects of such misalignments including plasma response on the SAS are discussed, together with the corresponding implications for the design of the next envisaged SAS upgrade.

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