

Abstract Submitted
for the DPP13 Meeting of
The American Physical Society

Extended MHD simulations for application to ITER disruption mitigation techniques¹ SIMON WOODRUFF, JAMES STUBER, SAM SCHETTERER, Woodruff Scientific Inc, ITER DISRUPTION MITIGATION COLLABORATION — Various disruption scenarios are modeled computationally by use of the CORSICA [1] and NIMROD [2] codes, following the work of Kruger [3] and Strauss [4] with the aim of providing starting-points for investigation of tokamak disruption mitigation techniques [5]. It is found that pressure-driven instabilities previously observed in simulations of DIII-D are verified, and that halo currents from vertical displacements are observed in simulations with implementation of resistive walls for ITER. We discuss implications and plans for simulations of disruption mitigation techniques. We outline validation activities for existing facilities.

[1] J. Crotinger, et al Proc. Sherwood, Austin, TX, USA (1994).

[2] C. Sovinec, et al Phys. Plasma, 10 (5),1727 2003.

[3] S. Kruger et al Phys. Plasmas, 12 (5) pp. 056113-056113-10 (2005).

[4] H. Strauss et al Comp. Phys. Com. 164(1-3) 40-45 (2004).

[5] L. Baylor et al VLT Conference Call (2013).

¹Work performed for USITER under DE-AC05-00OR22725 subcontract # 4000118643.

Simon Woodruff
Woodruff Scientific Inc

Date submitted: 15 Jul 2013

Electronic form version 1.4