## P2.1052 Fluid simulations of turbulence in stellarator geometries with BSTING

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see full abstract here http://ocs.ciemat.es/EPS2019ABS/pdf/P2.1052.pdf

The topology of the Wendelstein 7-X edge and scrape-off-layer exhibits stochastic fields, island chains, highly varying connection lengths, and a non-uniform curvature drive for plasma turbulence. These challenges have previously inhibited successful development of a plasma fluid turbulence simulation framework. The BSTING project [1] has extended BOUT++ [2] to stellarator geometries, thereby providing the first nonlinear fluid simulation framework for stellarator geometries. Here we outline recent developments in the BSTING project, including a newly implemented curvilinear grid system suitable for stellarator edge magnetic topology, and present simulations of plasma filaments in stellarator geometries. Simulations of filaments in non-uniform drive scenarios [3], and the effects of strongly-varying connection length will also be presented. The application of these methods to Wendelstein 7-X edge scenarios will also be discussed.

 B. Shanahan, B. Dudson, and P. Hill, Plasma Physics and Controlled Fusion 61, 025007 (2018).
B. D. Dudson, M. V. Umansky, X. Q. Xu, P. B. Snyder, and H. R. Wilson, Computer Physics Communications 180, 1467 (2009).

[3] B. Shanahan, B. Dudson, and P. Hill, Journal of Physics: Conference Series 1125, 012018 (2018).

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