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Turbulent energy transport and parallel heat flux in the SOL[1]
D.A. RUSSELL, J.R. MYRA, D.A. D'IPPOLITO, Lodestar Research Corporation, J-W. AHN, ORNL, R. MAQUEDA, Nova Photonics, D.P. LUNDBERG, D.P. STOTLER, S.J. ZWEBEN, PPPL, and the NSTX Team — We model the evolution of vorticity, density, temperature and zonal fluid momentum in the outboard midplane of a tokamak with our SOLT code. Our edge region supports the electron drift wave and interchange instabilities, while sheath losses are isolated in the SOL. Curvature- and grad-B-driven charge separation are included everywhere, enabling blob transport of strong fluctuations (δn/n$\sim$1) from the edge into the SOL. Gas-puff imaging (GPI) diagnostics on NSTX are compared with the corresponding *synthetic* GPI diagnostics from the SOLT simulations. Here we study cross-field energy transport and the resulting profile of parallel heat flux to the divertor, in the outboard midplane, and make comparisons with recent NSTX experiments in which variations of the SOL width were studied.

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