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Development of a Synthetic BES Diagnostic for Application to Gyrokinetic Simulations,* C. Holland, G.R. Tynan, *UCSD,* G.R. McKee, M.W. Shafer, *U. Wisc.*, J. Candy, R.E. Waltz, *GA,* and R.V. Bravenec, *U. Texas-Austin* – The validation of microturbulence simulations requires the use of synthetic diagnostics to allow "apples-to-apples" comparisons of predicted and measured turbulence characteristics. We report here on progress in the development of a synthetic beam emission spectroscopy (BES) diagnostic for use with the GYRO code, and results from its application to simulations of a steady L-mode DIII-D discharge. Comparisons of simulated and experimentally measured fluctuation amplitudes, frequency spectra, correlation times and lengths will be presented, as well as a comparison of zonal flow fields obtained by time-delay estimation. The impact of increased channel spot size due to finite neutral beam atom excitation lifetimes, and sensitivity of the results to uncertainties in equilibrium profile gradients is also discussed.

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