Abstract Submitted
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Validation of nonlinear ETG simulations against measurement of short-scale turbulence on NSTX[1] F.M. POLI, University of Warwick, Coventry CV4 7AL, UK, S. ETHIER, T.S. HAHM, W. WANG, W. GUTTENFELDER, S.M. KAYE, Y. REN, Princeton Plasma Physics Laboratory, PO Box 451, Princeton, NJ, 08543 — The comparison between density fluctuations measured with coherent scattering techniques and spectra from space resolved fluctuations computed from nonlinear gyro-kinetic codes are affected by a number of systematic errors and uncertainties. These include the scattering localization, the different wavenumber range covered, the simulation runtime, which mainly affect the slope of the k-spectrum. To bridge the gap between experiments and simulations, a synthetic diagnostic has been developed. Taking into account the beam propagation, the beam intensity profile at the location of scattering and the instrument transfer function, the synthetic high-k predicts the collection efficiency in the (k_r, k_θ) space. When simulated spectra are filtered by the synthetic high-k, a closer agreement with experiments is found. Results from nonlinear simulations run in different plasma configurations, including L-mode and H-mode, will be presented.

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