Characterization of transport dynamics from the self-consistent interaction between fluctuations and zonal flows in ITG gyro-kinetic simulations with the UCAN code D.E. NEWMAN, Univ. of Alaska Fairbanks, R. SANCHEZ, Oak Ridge National Laboratory, J.N. LEBOEUF, JNL Scientific, Casa Grande, AZ, V.K. DECYK , UCLA , Los Angeles, CA, B.A. CARRERAS, BACV Solutions, Oak Ridge, TN — In this poster, we will describe the application of several tools imported from the theory of non-Markovian, non-local stochastic processes to the characterization of the transport dynamics that emerge from the self-consistent interaction of fluctuations and zonal flows in ion-temperature-gradient (ITG) turbulence. The simulations have been performed using the delta-f, PIC gyrokinetic UCAN code. In order to fully understand the implications of the analysis, the results from the self-consistent case will be carefully compared with two additional ITG simulations performed with UCAN using identical parameters. First, one in which the feedback action on the fluctuations carried out by the zonal flows is artificially suppressed. Secondly, a case in which in addition to suppressing the zonal flows, an externally driven flows interacts with the fluctuations.

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