Abstract Submitted
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On the mechanism responsible for subdiffusive transport across poloidal zonal flows in gyro-kinetic simulations of tokamak ITG turbulence[1] RAUL SANCHEZ, Oak Ridge National Laboratory, DAVID NEWMAN, University of Alaska, JEAN-NOEL LEBOEUF, JNL Scientific, Inc., VIKTOR DECYK, UCLA — It has been recently found that radial transport ceases to behave diffusively in the presence of a radially-sheared poloidal zonal flow, becoming instead strongly subdiffusive [1]. The same behavior is observed in other simulations, suggesting that the mechanism responsible is rather general. In numerical simulations of 2D-turbulence, the change in character seems to be related to the selection by the sheared flow of a preferred sign of the axial vorticity (that of the sheared flow), further reinforced by the tilting of the turbulent eddies carried out by the shear [2]. In this contribution we look for evidence of the same mechanism in gyrokinetic simulations of tokamak ITG turbulence carried out by the UCAN code. The way in which these concepts must be modified to accommodate the toroidal geometry is discussed.

[1] R. Sanchez et al, Physical Review Letters **101**, 205002 (2008)
[2] D.E. Newman et al, in Proc. of the 35th EPS Conference on Plasma Physics, Hersonissos, 9-13 June 2008, ECA Vol. 32, p. 1.044 (2008)

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