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Non-diffusive Transport in a Simple Flux-driven Plasma Turbulence System[1] DOUGLAS OGATA, DAVID NEWMAN, Univ. of Alaska Fairbanks, RAUL SANCHEZ, Univ. Carlos III de Madrid — A simple 2D flux-driven drift-wave type plasma fluid turbulence model has been developed to demonstrate the affect on the overall transport due to the interplay between turbulent driven gradient relaxation and self-generated flows.The mixed overall transport characteristics in this system can then be captured through the non-diffusive transport framework.Super-diffusive transport has been observed as a consequence of the turbulent relaxation process triggered by the combination of a flux-driven background profile and a critical gradient.Sub-diffusive transport can arise from self-generated sheared poloidal flows due to the inhomogeneity in the geometry of the sources.The diffusive character exists in regimes where neither the super-diffusive nor the sub-diffusive element is dominant.With an externally applied sheared poloidal flow, once again the sub-diffusive character dominates.Finally, a relation between Lagrangian trajectories and a passive scalar advection will be shown, which provides a potential bridge between experimental transport measurements and analytical theory.

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