Abstract Submitted
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Slow dynamics at $Re = 10^8$ in turbulent Helium flows[1] JAVIER BURGUETE, University of Navarra, PHILIPPE ROCHE, Insitut Néel, CNRS, BERNARD ROUSSET, SBT - CEA Grenoble — The presence of slow dynamics is a recurrent feature of many turbulent flows. This behaviour can be created by instabilities of the mean flow or by other mechanisms [1,2]. In this work we analyze the behavior of a highly turbulent flow (maximum Reynolds number $Re = 10^8$, with a Reynolds based on the Taylor microscale $Re_\lambda = 2000$). The experimental cell consists on a closed cavity filled with liquid Helium (330 liters) close to the lambda point (between 1.8 and 2.5 K) where two inhomogeneous and strongly turbulent flows collide in a thin region. The cylindrical cavity has a diameter of 78cm and two impellers rotate in opposite directions with rotation frequencies up to 2Hz. The distance between the propellers is 70cm. Different experimental runs have been performed, both in the normal and superfluid phases. We have performed velocity measurements using home-made Pitot tubes. Here we would like to present preliminary results on this configuration. The analysis of the data series reveals that below the injection frequencies there are different dynamical regimes with time scales two orders of magnitude below the injection scale.

[1] A. de la Torre, J. Burguete, Phys Rev Lett 99 (2007) 054101.
[2] M. Lopez-Caballero, J. Burguete, Phys Rev Lett 110 (2013) 124501.

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