

Ferro-Turbulence (in a turbulent von Kármán flow)

B Dubrulle¹, S. Thalabard¹, B Saint-Michel¹, F Daviaud¹, E. Herbert² and P-P. Cortet³

¹Laboratoire SPHYNX, Service de Physique de l'État Condensé,
DSM, IRAMIS, CEA Saclay, CNRS URA 2464, 91191 Gif-sur-Yvette, France,

²LIED, Université Paris-Diderot, CNRS, France

³Laboratoire FAST, Université Paris-Sud, CNRS, France

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Presenting author email: berengere.dubrulle@cea.fr

We discuss whether the highly turbulent coherent states that are observed in experimental von Kármán turbulent flows can be explained from an equilibrium inviscid statistical mechanics perspective. We show some experimental evidence that inviscid theories may account for the properties of the von Kármán steady states. We use this to define the temperature of turbulent flow. We then reinterpret results about steady states stability and susceptibility to symmetry breaking using this temperature, and evidence an analogy with the Ising model. Critical exponents are measured, that agree with mean field predictions.