Abstract Submitted
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The formation of large-scale streams in two-dimensional turbulence[1] JAVIER JIMENEZ, Universidad Politecnica de Madrid — Following the suggestion from previous Monte–Carlo experiments (Jiménez, J. of Turbul., 2020), that dipoles are as important to the dynamics of decaying two-dimensional turbulence as individual vortex cores, it is found that the kinetic energy of this flow is carried by elongated streams formed by the concatenation of dipoles. Vortices separate into a family of small fast-moving cores, and another family of larger slowly moving ones, which can be described as 'frozen' into a slowly evolving 'crystal'. The kinematics of both families are very different, and only the former is self-similar. The latter is responsible for most of the kinetic energy of the flow, and its vortices form the dipoles and the streams. A mechanism is proposed for the growth of this slow component, and it is suggested that crystallisation drives the energy cascade towards larger scales

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