

## Turbulent Inverse cascade in quantum fluids of light

We study the turbulent dynamics of a 2D quantum fluid of exciton-polaritons, hybrid light-matter quasiparticles, by measuring the kinetic energy spectrum and the onset of vortex clustering. We demonstrate that the formation of clusters of quantum vortices is triggered by the increase of the incompressible kinetic energy per vortex, showing the tendency of the vortex-gas towards highly excited configurations despite the dissipative nature of our system. Our results lay the basis for the investigation of quantum turbulence in two-dimensional fluids of light.

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