Quantum turbulence

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Turbulence is a complex three dimensional, time-dependent, non linear phenomenon, in which a huge number of length scales are excited. The importance of understanding turbulence cannot be overestimated, as turbulent flows are ubiquitous in nature (from the blood flow to the atmosphere to the galaxy) and in engineering applications. Turbulence also exists in quantum fluids, such as superfluid helium (He3 and He4) and atomic Bose-Einstein condensates. In quantum fluids, turbulence takes a simpler form, due to quantum mechanical restrictions on the rotational motion. In this talk I shall describe recent experimental and theoretical work which has highlighted remarkable similarities between turbulence in ordinary fluids and this "quantum" turbulence.