

Quantum Turbulence

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Quantum turbulence, which can be seen in superfluid helium-4 (helium II) and superfluid helium-3B, behaves quite differently from the turbulence we see in ordinary fluids. Quantum turbulence in a superfluid takes the form of a tangle of quantized vortex lines with circulation h/m , where h is Planck's constant and m is the mass of the helium atom. When turbulence is set up in helium II (especially when generated by a towed grid) the early stages of the decay appear to be entirely classical but eventually quantum processes must take over. Theoretical and experimental work will be described to investigate this extraordinary situation. A particular problem is the decay of turbulence well below 1 K where there is no viscosity in the fluid.

