Emission of small vortex loops due to reconnections of quantized vortices in superfluid ^{4}He at low temperatures

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We present evidence for small vortex rings emitted upon vortex-vortex reconnections. In one experiment, pairs of charged vortex rings of nearly the same radius and direction of propagation collided resulting in creation of both smaller and larger vortex rings. In the second experiment, small vortex rings with large mean free path were frequently generated within a dense charged vortex tangle, but only at temperatures below 0.7 K, providing insight into the quantum regime of superfluid turbulence.

Section: VT - Vortices and turbulence

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