

Numerical simulations of the interaction between thermal quasiparticles and a three-dimensional vortex tangle in superfluid $^3\text{He-B}$

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We have developed a numerical method which enables us to simulate the interaction of a three dimensional vortex tangle of quantized vortices and thermal quasiparticles moving in the velocity field of the vortices. The method is based on an algorithm to solve stiff ordinary differential equations. We present results which refer to different vortex configurations. In particular, we show the dependence of the thermal conductivity on (i) the total circulation induced by a lattice of straight vortex lines, (ii) the vortex length density and curvature of a fully developed isotropic vortex tangle, (iii) Kelvin waves along a straight vortex line.