

QUANTIZED VORTEX STABILITY AND DYNAMICS IN SUPERFLUIDITY AND SUPERCONDUCTIVITY

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In this talk, I will review our recent work on quantized vortex stability and dynamics in Ginzburg-Landau-Schrodinger and nonlinear wave equations for modeling superfluidity and superconductivity as well as nonlinear optics. The reduced dynamic laws for quantized vortex interaction are reviewed and solved analytically in several cases. Direct numerical simulation results for Ginzburg-Landau-Schrodinger and nonlinear wave equations are reported for quantized vortex dynamics and they are compared with those from the reduced dynamics laws.

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