

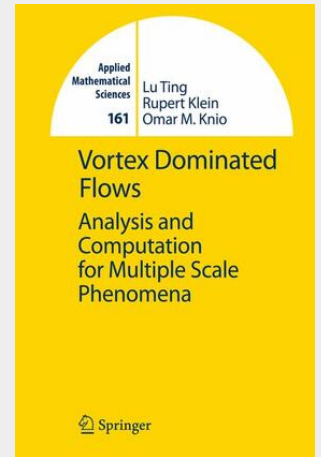
Ting / Knio / Klein

Vortex Dominated Flows

Analysis and Computation for Multiple Scale Phenomena

Addressed to both graduate students and researchers this monograph provides in-depth analyses of vortex dominated flows via matched and multiscale asymptotics, and it demonstrates how insight gained through these analyses can be exploited in the construction of robust, efficient, and accurate numerical techniques. The dynamics of slender vortex filaments is discussed in detail, including fundamental derivations, compressible core structure, weakly non-linear limit regimes, and associated numerical methods. Similarly, the volume covers asymptotic analysis and computational techniques for weakly compressible flows involving vortex generated sound and thermoacoustics.

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