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Autore	Lappa Marcello
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Layer; 1.7.3 Ekman Spiral; 1.7.4 Ekman Pumping; 1.7.5 The Stewartson Layer; Chapter 2 Rayleigh-B enard Convection with Rotation; 2.1 Rayleigh-B enard Convection with Rotation in Infinite Layers; 2.1.1 Linear Stability Analysis; 2.1.2 Asymptotic Analysis; 2.2 The Kuppers-Lortz Instability and Domain Chaos; 2.3 Patterns with Squares; 2.4 Typical Phenomena for Pr = 1 and Small Values of the Coriolis Number; 2.4.1 Spiral Defect Chaos and Chiral Symmetry; 2.4.2 The Interplay between the Busse Balloon and the KL Instability
2.5 The Low-Pr Hopf Bifurcation and Mixed States 2.5.1 Standing and Travelling Rolls; 2.5.2 Patterns with the Symmetry of Square and Hexagonal Lattices; 2.5.3 Other Asymptotic Analyses; 2.5.4 Nature and Topology of the Bifurcation Lines in the Space of Parameters (,Pr); 2.6 Laterally Confined Convection; 2.6.1 The First Bifurcation and Wall Modes; 2.6.2 The Second Bifurcation and Bulk Convection; 2.6.3 Square Patterns Driven by Nonlinear Interactions between Bulk and Wall Modes; 2.6.4 Square Patterns as a Nonlinear Combination of Bulk Fourier Eigenmodes; 2.6.5 Higher-Order Bifurcations
2.7 Centrifugal Effects 2.7.1 Stably Thermally Stratified Systems; 2.7.2 Interacting Thermogravitational and Centrifugally Driven Flows; 2.7.3 The Effect of the Centrifugal Force on Domain Chaos; 2.8 Turbulent Rotating RB Convection; 2.8.1 The Origin of the Large-scale Circulation; 2.8.2 Rotating Vortical Plumes; 2.8.3 Classification of Flow Regimes; 2.8.4 Suppression of Large-scale Flow and Heat Transfer Enhancement; 2.8.5 Prandtl Number Effects; Chapter 3 Spherical Shells, Rossby Waves and Centrifugally Driven Thermal Convection; 3.1 The Coriolis Effect in Atmosphere Dynamics
3.1.1 The Origin of the Zonal Winds

Sommario/riassunto

"In this context, it is expressly shown how the aforementioned isomorphism between small and large scale phenomena becomes beneficial to the definition and ensuing development of an integrated comprehensive framework allowing the reader to understand and assimilate the underlying quintessential mechanisms without requiring, however, familiarity with specific literature on the subject"--