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| Autore | Zhang Xiaolei |
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| Nota di contenuto | Frontmatter -- Preface -- Contents -- 1. Introduction -- 2. Dynamical Drivers of Galaxy Evolution -- 3. N-Body Simulations of Galaxy Evolution -- 4. Astrophysical Implications of the Dynamical Theory -- 5. Putting It All Together -- 6. Concluding Remarks -- 7. Appendix: Relation to Kinetics and Fluid Mechanics -- References -- Index |
| Sommario/riassunto | This research monograph presents a new dynamical framework for the study of secular morphological evolution of galaxies along the Hubble sequence. Classical approaches based on Boltzmann's kinetic equation, as well as on its moment-equation descendants the Euler and Navier-Stokes fluid equations, are inadequate for treating the maintenance and long-term evolution of systems containing self-organized structures such as galactic density-wave modes. A global and synthetic approach, incorporating correlated fluctuations of the constituent particles during a nonequilibrium phase transition, is adopted to supplement the continuum treatment. The cutting-edge research combining analytical, N-body simulational, and observational aspects, as well as the fundamental-physics connections it provides, make this work a valuable reference for researchers and graduate students in astronomy, astrophysics, cosmology, many-body physics, complexity theory, and other related fields. ContentsDynamical Drivers of Galaxy EvolutionN-Body Simulations of Galaxy EvolutionAstrophysical Implications of the |

