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Soggetti	Scaling laws (Statistical physics) Lattice theory Self-organizing systems Phase transformations (Statistical physics) Differentiable dynamical systems
Lingua di pubblicazione	Inglese
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Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references (p. 249-269) and index.
Nota di contenuto	1. Introduction. 1.1. Critical exponents of equilibrium (thermal) systems. 1.2. Static percolation cluster exponents. 1.3. Dynamical critical exponents. 1.4. Crossover between classes. 1.5. Critical exponents and relations of spreading processes. 1.6. Field theoretical approach to reaction-diffusion systems. 1.7. The effect of disorder -- 2. Out of equilibrium classes. 2.1. Field theoretical description of dynamical classes at and below T_c . 2.2. Dynamical classes at $T_c > 0$. 2.3. Ising classes. 2.4. Potts classes. 2.5. XY model classes. 2.6. $O(N)$ symmetric model classes -- 3. Genuine basic nonequilibrium classes with fluctuating ordered states. 3.1. Driven lattice gas (DLG) classes -- 4. Genuine basic nonequilibrium classes with absorbing state. 4.1. Mean-field classes of general $nA \rightarrow (n+k)A, mA \rightarrow (m-l)A$ processes. 4.2. Directed percolation (DP) classes. 4.3. Generalized, n-particle contact processes. 4.4. Dynamical isotropic percolation (DIP) classes. 4.5. Voter model (VM) classes. 4.6. Parity conserving (PC) classes. 4.7. Classes in models with $n < m$ production and m particle annihilation at $\mu=0$. 4.8. Classes in

models with $n < m$ production and m particle coagulation at $[\text{symbol}] = 0$; reversible reactions (1R). 4.9. Generalized PC models. 4.10. Multiplicative noise classes -- 5. Scaling at first-order phase transitions. 5.1. Tricritical directed percolation classes (TDP). 5.2. Tricritical DIP classes -- 6. Universality classes of multi-component systems. 6.1. The $A+B[\text{symbol}]$ classes. 6.2. $AA[\text{symbol}]$, $BB[\text{symbol}]$ with hard-core exclusion. 6.3. Symmetrical, multi-species $A[\text{symbol}] + A[\text{symbol}][\text{symbol}](q\text{-MAM})$ classes. 6.4. Heterogeneous, multi-species $A[\text{symbol}] + A[\text{symbol}][\text{symbol}]$ system. 6.5. Unidirectionally coupled ARW classes. 6.6. DP coupled to frozen field classes. 6.7. DP with coupled diffusive field classes. 6.8. BARW with coupled non-diffusive field class. 6.9. DP with diffusive, conserved slave field classes. 6.10. DP with frozen, conserved slave field classes. 6.11. Coupled N-component DP classes. 6.12. Coupled N-component BARW2 classes. 6.13. Hard-core 2-BARW2 classes in one dimension -- 7. Surface-interface growth classes. 7.1. The random deposition class. 7.2. Edwards-Wilkinson (EW) classes. 7.3. Quench disordered EW classes (QEW). 7.4. Kardar-Parisi-Zhang (KPZ) classes. 7.5. Other continuum growth classes. 7.6. Unidirectionally coupled DP classes. 7.7. Unidirectionally coupled PC classes -- 8. Summary and outlook.

Sommario/riassunto

Universal scaling behavior is an attractive feature in statistical physics because a wide range of models can be classified purely in terms of their collective behavior due to a diverging correlation length. This book provides a comprehensive overview of dynamical universality classes occurring in nonequilibrium systems defined on regular lattices. The factors determining these diverse universality classes have yet to be fully understood, but the book attempts to summarize our present knowledge, taking them into account systematically. The book helps the reader to navigate in the zoo of basic m
