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9.2. The RG Equation for the Dimensionless Potential U k9.3. The Limits d 4, d 2 and N; 10. Conclusion; Acknowledgements; Appendix A. Definitions, conventions; Appendix B. The Exact RG equations; Appendix B.1. RG equation for Wk[B]; Appendix B.2. RG equation for k [M]; Appendix B.3. RG equation for the elective potential; References; Introduction to Critical Dynamics Reinhard Folk; Contents; 1. Introduction; 2. Experimental Evidence; 2.1. Fluids; 2.2. Light Scattering; 2.3. Ferromagnets; 2.4. Super fluid 4He; 3. Van Hove Theory; 4. Dynamical Scaling
4.1. Scaling Form of the Dynamic Susceptibility 4.2. Finding the Dynamical Exponent z by Scaling Relations; 4.2.1. Ferromagnet; 4.2.2. Fluids; 4.2.3. Superfluid Transition; 5. From Dynamic Equations to a Lagrangian; 5.1. Static Functional; 5.2. Dynamic Equations; 5.3. Dynamic Functional; 5.4. Renormalization; 6. Renormalization and the Dynamical Exponent; 6.1. Structure and Renormalization; 6.2. Calculating the Dynamical Exponent; 6.2.1. Models without Mode Coupling Terms; 6.2.2. Models with Mode Coupling Terms; 7. Comparison with Experiment; 7.1. General Procedure
7.2. Fluids: The Linewidth in Light Scattering

Sommario/riassunto

This book is the second volume of review papers on advanced problems of phase transitions and critical phenomena, following the success of the first volume in 2004. Broadly, the volume aims to demonstrate that the phase transition theory, which experienced its 'golden age' during the 70's and 80's, is far from over and there is still a good deal of work to be done, both at the fundamental level and in respect of applications.The topics presented in this volume include: critical behavior as explained by the non-perturbative renormalization group, critical dynamics, a spacetime approach to phase t