

CONTENTS

Introductory Essay	v
More is Different	1
1. Theory of Ferroelectric Behaviour of Barium Titanate	5
2. Use of Stochastic Methods in Line-Broadening Problems	13
3. Qualitative Considerations on the Statistics of the Phase Transition in BaTiO ₃ -type Ferroelectrics	35
4. Theory of Dirty Superconductors	45
5. Calculation of the Superconducting State Parameters with Retarded Electron-Phonon Interaction (with P. Morel)	51
6. Plasmons, Gauge Invariance, and Mass	61
7. Hard Superconductors	67
Hard Superconductivity: Theory of the Motion of Abrikosov Flux Lines (with Y. B. Kim)	107
8. Exchange in Magnetic Insulators	113
9. Superconductivity (with B. T. Matthias)	131
10. Coherent Matter Field Phenomena in Superfluids	143
11. Considerations on the Flow of Superfluid Helium	165
12. Multiple-Scattering Theory and Resonances in Transition Metals (with W. L. McMillan)	179
13. The Kondo Effect I	217
The Kondo Effect II	224
Kondo Effect III: The Wilderness — Mainly Theoretical	232
Kondo Effect IV: Out of the Wilderness	238
14. Superconductivity in the Past and Future	245

15. Macroscopic Coherence and Superfluidity	263
16. The Fermi Glass: Theory and Experiment	273
17. Space-Time and Scaling Techniques in the Kondo Problem	281
18. Comments on the Maximum Superconducting Transition Temperature	287
Comment on 'Model for an Exciton Mechanism of Superconductivity' (with J. C. Inkson)	299
19. Conference Summary	303
20. Asymptotically Exact Methods in the Kondo Problem (with G. Yuval)	311
21. Many-Body Effects at Surfaces	333
22. Uses of Solid State Analogies in Elementary Particle Theory	363
23. Possible Consequences of Negative U Centers in Amorphous Materials	389
24. Survey of Theories of Spin Glass	395
25. Disorder: A Frontier of Theoretical Physics	413
26. Some General Thoughts about Broken Symmetry	419
27. The Rheology of Neutron Stars: Vortex Line Pinning in the Crust Superfluid (with M. A. Alpar, D. Pines and J. Shaham)	431
28. Localization Redux	445
29. Chemical Pseudopotentials	453
30. Some Remarks on Strong Electron-Phonon Coupling Metals (with C. C. Yu)	463
31. Spin Glass Hamiltonians: A Bridge between Biology, Statistical Mechanics and Computer Science	495
32. Measurement in Quantum Theory and the Problem of Complex Systems	501
33. It's Not Over Till the Fat Lady Sings	515
34. Spin Glass I: A Scaling Law Rescued	525
Spin Glass II: Is There a Phase Transition?	528
Spin Glass III: Theory Raises its Head	529

Spin Glass IV: Glimmerings of Trouble	531
Spin Glass V: Real Power Brought to Bear	533
Spin Glass VI: Spin Glass as Cornucopia	535
Spin Glass VII: Spin Glass as Paradigm	537
35. Valence Instabilities and Related Narrow-Band Phenomena	539
36. Present Status of Theory: $1/N$ Approach	548
37. The Problem of Fluctuating Valence in f-Electron Metals	562
38. Some Ideas on the Aesthetics of Science	569
39. Theoretical Paradigms for the Sciences of Complexity	584
40. 50 Years of the Mott Phenomenon: Insulators, Magnets, Solids, and Superconductors as Aspects of Strong-Repulsion Theory	595
41. The “Central Dogmas”	637
42. The “Infrared Catastrophe”: When Does it Trash Fermi Liquid Theory?	657
43. Experimental Constraints on the Theory of High- T_c Superconductivity	673