

Contents

Preface

I. Introduction

A. Electronic Basis of Magnetism

- A1 Magnetism in Atoms (K. Schroeder)*
- A2 Heisenberg Model: Magnetic Interactions (A. Bringer)*
- A3 Localised Moments: Finite Temperature (U. Nowak)*
- A4 Band Magnetism I (D. Wortmann)*
- A5 Band Magnetism II (R. Zeller)*
- A6 Correlated Electrons (E. Koch)*
- A7 Electronic Structure of Complex Oxides (A.I. Lichtenstein)*
- A8 Ordering phenomena in CTMO (Y. Su)*

B. Experimental Techniques

- B1 X-Ray Magnetic Dichroism (F.U. Hillebrecht)*
- B2 Scattering Techniques: Neutron Diffraction (D. Richter)*
- B3 Photoelectron Spectroscopy (L. Baumgarten)*
- B4 Magneto-optics (F.U. Hillebrecht)*
- B5 Scattering Techniques II: Magnetic X-Ray Scattering (T. Brückel)*

C. Reduced Dimensionality

- C1 Reduced Dimensions I: Magnetic Moment and Magnetic Structure (S. Blügel)*
- C2 Reduced Dimensions II: Magnetic Anisotropy (G. Bihlmayer)*
- C3 Interlayer Exchange Coupling (P.H. Dederichs)*
- C4 Magnetic Nanoparticles (M. Farle)*
- C5 Synthesis of Magnetic Nanostructures (B. Voigtländer)*
- C6 Magnetic Clusters and Nanowires (P. Bechthold)*
- C7 Single-Spin Detection at Surfaces (A. Schneider)*

D. Excitations and Dynamics

- D1 Magnetic Excitations (A. Schindlmayr)*
- D2 Spin Fluctuations – The Fingerprints of Macroscopic Quantum Ground States (M. Enderle)*
- D3 Magnetic Excitations and Scattering Experimental (W. Schweika)*
- D4 Magnetization Dynamics (U. Rucker)*
- D5 Imaging Magnetization Dynamics (C. M. Schneider)*

E. Nanoscale Transport and Spintronics

- E1 Electronics in Nanocircuits (T. Heinzel)*
- E2 Spin-Dependent Transport Processes (Ph. Mavropoulos)*
- E3 Spin-Polarized Scanning Tunneling Microscopy (Ph. Ebert)*
- E4 Dilute Magnetic Semiconductors (P.H. Dederichs)*
- E5 Spin-Transport in Layered Systems (D.E. Bürgler)*
- E6 Advanced Magnetic Switching Concepts (D.E. Bürgler)*
- E7 Spin Coherence in Semiconductors (A. Beschoten)*
- E8 Spin Injection and Spin Transport in Semiconductors (G. Schmidt)*
- E9 Berry Phase Effects (P. Bruno)*

F. Molecular Magnetism

- F1 Quantum Theory of Molecular Magnetism (J. Schnack)*
- F2 Synthesis of Molecular Magnets (M. Ruben)*
- F3 Quantum Tunneling of Magnetization in Molecular Nanomagnets (W. Wernsdorfer)*
- F4 Electron Theory of Molecular Magnets (A. Postnikov)*
- F5 Molecular Magnetism: Neutron Scattering (R. Zorn)*

G. Quantum Information Aspects

- G1 Quantum Information Technology (Basics) (T. Schäpers)*

Index