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Molecules in Strong Fields; 2.4 Bond-breaking in Single Molecules; 2.5 Controlling Molecular Populations and Chemical Reactions by Ultrafast Pulses; 2.6 Polyatomic Molecules and Nonadiabatic Processes; 2.7 Recent Results in Ultrafast Crystallography: UED and Time-resolved X-rays; 2.8 New Nonlinear Optical Techniques for Probing Surfaces: Surface Second-harmonic and Sum-frequency Generation
2.9 SummaryReferences; Chapter 3. Transport and Deposition of Aerosol Particles; 3.1 Introduction; 3.2 Noncontinuum Considerations; 3.3 Lagrangian Particle Equation of Motion; 3.4 Inertial Effects; 3.5 Drift Velocity; 3.6 Eulerian Formulation; 3.7 Particle Transport and Deposition in a Parallel Plate Reactor; 3.8 Inertia-Enhanced Deposition; 3.9 Chapter Summary and Practical Guidelines; References; Chapter 4. Relevance of Particle Transport in Surface Deposition and Cleaning; 4.1 Introduction; 4.2 Particle-solid Surface Interactions; 4.3 Dry Deposition 4.4 Thermophoresis and Its Relevance in Surface Cleaning4.5 Electrostatic Force and Its Relevance in Surface Cleaning; 4.6 Dielectrophoresis and Its Relevance in Surface Cleaning; 4.7 Abrasive Erosion and Its Relevance in Surface Cleaning; 4.8 Summary; References; Chapter 5. Tribological Implication of Particles; 5.1 Introduction; 5.2 The Micro-Site for Generation of Wear Particles; 5.3 Wear Modes and Particles; 5.4 Wear Rate and Number of Generated Wear Particles; 5.5 The Size Distribution of Wear Particles; 5.6 Concluding Remarks; Acknowledgement; References
Chapter 6. Airborne Molecular Contamination: Contamination on Substrates and the Environment in Semiconductors and Other Industries6.1 Introduction; 6.2 Definitions, Types and Sources of AMCs; 6.3 Analysis Methods; 6.4 Nature of Airborne Molecular Contamination and Its Effects; 6.5 Examples of Application of Knowledge and Technology; 6.6 Future Directions; 6.7 Summary of the Chapter; Acknowledgements; References; Chapter 7. Aspects of Particle Adhesion and Removal; 7.1 Introduction; 7.2 Interactions Giving Rise to Particle Adhesion; 7.3 Mechanics of Particle Adhesion
7.4 Factors Affecting Particle Adhesion

Sommario/riassunto

Surface contamination is of cardinal importance in a host of technologies and industries, ranging from microelectronics to optics to automotive to biomedical. Thus, the need to understand the causes of surface contamination and their removal is very patent. Generally speaking, there are two broad categories of surface contaminants: film-type and particulates. In the world of shrinking dimensions, such as the ever-decreasing size of microelectronic devices, there is an intensified need to understand the behavior of nanoscale particles and to devise ways to remove them to an acceptable level. Pa
