

CONTENTS

Preface	iii
Contributors	ix
1. Metal Oxides	
1.1 Forced Hydrolysis in Homogeneous Solutions	2
1.2 Hydrolysis of Metal Alkoxides in Homogeneous Solutions	35
1.3 Phase Transformation from Solid Precursors	58
1.4 Reaction in Microemulsions	84
1.5 Synthesis of Monodispersed Colloids by Chemical Reactions in Aerosols	97
1.6 Reaction in Gas Phases	114
2. Silica	
2.1 Hydrolysis of Silicon Alkoxides in Homogeneous Solutions	126
2.2 Hydrolysis of Silicon Alkoxides in Microemulsions	147
3. Metal Chalcogenides (Sulfides, Selenides, and Tellurides)	
3.1 Reaction in Homogeneous Solutions of Metal Ions	190
3.2 Preparation of Metal Sulfides from Chelates	199
3.3 Preparation of Monodispersed CdS Particles by Phase Transformation from Cd(OH) ₂	209
3.4 CdS and CdTe Nanoparticles Made in Reverse Micelles : Preparation Modes and Optical Properties	217
3.5 Preparation of Metal Chalcogenides in LB Films	235
4. Silver Halides	
4.1 Controlled Double-Jet Process	280
4.2 Ostwald Ripening Process	290
4.3 Reaction in Microemulsions	300
4.4 Reaction with Thiol	308

5. Metal Sulfates	
5.1 Reaction in Homogeneous Solutions	326
5.2 Formation of Basic Aluminum Sulfate by Phase Transformation from Condensed Hydroxide Gel	337
6. Metal Phosphates and Apatites	
6.1 Reaction in Homogeneous Solutions for the Synthesis of Metal Phosphate Particles	350
6.2 Different Reactions for the Synthesis of Apatite Particles	362
7. Metal Carbonates	
7.1 Formation of Monodispersed Metal (Basic) Carbonates in the Presence of Urea	386
7.2 Reaction in Microemulsions	396
8. Nitrides	
8.1 Reaction in Gas Phases	404
9. Metals	
9.1 Reactions in Homogeneous Solutions	430
9.2 Polyol Process	460
9.3 Metal Particles Made in Various Colloidal Self-Assemblies : Syntheses and Properties	497
9.4 Formation in Gas Phases	513
10. Carbon Nanotubes	
10.1 Reaction in Anodic Aluminum Oxide Films	552
10.2 Production by Arc Discharge	573
11. Polymer Latices	
11.1 Emulsion Polymerization and Related Polymerizations	592
11.2 Dispersion Polymerization	609

12. Particles Modified in Surface Properties	
12.1 Surface Modification of Inorganic Particles	626
12.2 Surface Modification of Polymer Particles	647
13. Particles of Specific Functions	
13.1 Formation of Magnetic Particles	662
13.2 Formation of Nanocrystalline Luminous Materials	683
13.3 Formation of Fine Composites	699
 Index	 721