

Contents :

Front Matter

- Preface
- Symposium Organization
- List of Contributors

Section I – Fundamental Aspects of Epitaxy

1. Growth Mechanisms in Semiconductor Epitaxy
2. Surface Structure and Interface Formation
3. Nucleation and Growth Kinetics
4. Crystal Defects in Epitaxial Layers
5. Stress Distribution and Critical Thickness of Thin Epitaxial Films (S. Sharan, J. Narayan, K. Jagannadham) pp. 31–40

Epitaxial Growth of Copper, Silver and Gold on a Semiconducting Layered Material pp. 41–44

Section II – Semiconductor Heterostructures

7. Semiconductor Heteroepitaxy
8. GaAs/AlGaAs Layered Structures
9. InP-Based Heterostructures
10. III–V Compound Semiconductor Interfaces
11. Band Structure Engineering
12. Quantum Wells and Superlattices

Section III – Strained-Layer Epitaxy

13. Strained Semiconductor Films
14. Critical Thickness Phenomena
15. Strain Relaxation Mechanisms
16. Misfit Dislocations
17. Ge/Si Strained Layers
18. Strained Layer Semiconductor Films: Structure and Stability p. 405

Section IV – Silicon and Silicon-Germanium Epitaxy

19. Silicon Homoepitaxy
20. Selective Silicon Epitaxy
21. Silicon-Germanium Alloys
22. Buried Epitaxial Structures
23. Advanced Silicon Device Structures
24. Three-Dimensional Silicon Architectures

Section V – Metal/Semiconductor Epitaxy

- 25. Epitaxial Silicides
- 26. CoSi_2/Si Heterostructures
- 27. Metal Contacts on Semiconductors
- 28. Interface Reactions
- 29. Epitaxial Metal Films
- 30. Buried Conductive Layers

Section VI – Molecular Beam Epitaxy (MBE)

- 31. MBE Growth Techniques
- 32. In-Situ Surface Monitoring
- 33. RHEED Characterization
- 34. Low-Temperature MBE
- 35. Ultrathin Epitaxial Layers
- 36. Multilayer Growth Control

Section VII – MOCVD and Alternative Growth Methods

- 37. Metal-Organic Chemical Vapor Deposition
- 38. Organometallic Growth Processes
- 39. Atomic Layer Epitaxy
- 40. Selective Area Growth
- 41. Chemical Beam Epitaxy
- 42. Growth of Complex Multilayers

Section VIII – Layered Semiconductor Structures

- 43. Superlattice Fabrication
- 44. Quantum Confinement Structures
- 45. Artificial Semiconductor Crystals
- 46. Multilayer Device Structures
- 47. Optoelectronic Layered Materials
- 48. Novel Semiconductor Alloys

Section IX – Characterization Techniques

- 49. Transmission Electron Microscopy
- 50. High-Resolution X-Ray Diffraction
- 51. Surface Analytical Techniques
- 52. Defect Characterization
- 53. Electrical Characterization
- 54. Optical Characterization

Section X – Device Applications

- 55. High-Speed Electronic Devices
- 56. Heterojunction Bipolar Transistors
- 57. MODFET and HEMT Structures

- 58. Optical Devices
- 59. Semiconductor Lasers
- 60. Advanced Memory Structures
- 61. VLSI Applications
- 62. Future Directions in Semiconductor Epitaxy

Indexes

- Author Index
- Subject Index