Contents

Preface and introductory remarks 3

Part I: Hamiltonian properties of products of undirected graphs 7

1. Basic definitions and notations 7
2. Hamiltonian cycles and Hamiltonian paths 11
2.1 The Cartesian sum 11
2.2 Other products 21
3. Generalized Hamiltonian properties 31
3.1 Properties related to Hamiltonicity 31
3.2 Pancyclicity 40
4. Decomposition into edge-disjoint Hamiltonian cycles . 48
4.1 The Cartesian sum 48
4.2 Other products 54
5. Generalizations of the classical products . . . 57
6. References 66
7. Index of definitions 70
8. Index of notations 71

Part II: Hamiltonian properties of products of digraphs . . 74

9. Basic definitions and notations 74
10. r-Hamiltonian properties 78
10.1 Traceability 79
10.2 Homogeneous traceability 88
10.3 Hamiltonicity 97
10.4 Hamiltonian connectedness 100
11. Products of Cayley digraphs 109
11.1 The Cartesian sum 111
11.1.1 Directed cycles 111
11.1.2 Other Cayley digraphs 115
11.2 The Cartesian product 121
12. Strong path-connectedness 125
13. Pancyclic properties 134
14. References 142
15. Index of definitions 144
16. Index of notations 145