Contents

1 Preface 1

2 Auxiliary Information. Subharmonic Functions

2.1 Semicontinuous functions 3
2.2 Measures and integrals 7
2.3 Distributions 14
2.4 Harmonic functions 21
2.5 Potentials and capacities 28
2.6 Subharmonic functions 36
2.7 Sequences of subharmonic functions 43
2.8 Scale of growth. Growth characteristics of subharmonic functions 52
2.9 The representation theorem of subharmonic functions in $\mathbb{R}^m$ 62

3 Asymptotic Behavior of Subharmonic Functions of Finite Order

3.1 Limit sets 75
3.2 Indicators 87
3.3 Densities 99

4 Structure of Limit Sets

4.1 Dynamical systems 107
4.2 Subharmonic function with prescribed limit set 121
4.3 Further properties of limit sets 134
4.4 Subharmonic curves. Curves with prescribed limit sets 147

5 Applications to Entire Functions

5.1 Growth characteristics of entire functions 151
5.2 $\mathcal{D}'$-topology and topology of exceptional sets 152
5.3 Asymptotic approximation of subharmonic functions 157
5.4 Lower indicator of A.A. Gol′dberg. Description of lower indicator. Description of the pair: indicator-lower indicator 163
5.5 Asymptotic extremal problems. Semiadditive integral 173

5.6 Entire functions of completely regular growth. Levin-Pfluger Theorem. Balashov's theory 177
5.7 General characteristics of growth of entire functions 180
5.8 A generalization of the Valiron-Titchmarsh theorem 199

6 Application to the Completeness of Exponential Systems
6.1 The multiplicator problem 203
6.2 A generalization of ρ-trigonometric convexity 223
6.3 Completeness of exponential systems in convex domains 228

Notation 247

List of Terms 249

Bibliography 255