

Contents

Functional spaces and their exceptional sets

(Jürgen Bliedtner)

0. Introduction	1
1. Coercive bilinear forms on Hilbert spaces	2
2. Functional spaces and their pure potentials	3
3. Capacity and cocapacity	6
4. Quasi-continuity	11
5. Exterior capacity and exceptional sets	12
6. Bibliography	13

Dirichlet forms on regular functional spaces

(Jürgen Bliedtner)

0. Introduction	15
I. Characterizations of Dirichlet forms	16
1. Coercive bilinear forms on Hilbert spaces	16
2. Potentials and copotentials	17
3. Normalized contractions	22
4. Resolvent and coresolvent	23
5. The associated approximation form	28
6. The domination principle	29
7. The associated kernel and singular measure	36
8. The complete maximum principle	38
9. Representations of Dirichlet forms	43
10. Examples	45
II. Potential theory of Dirichlet forms	47
11. The principle of the convex envelope	47
12. Theorem of spectral synthesis	50
13. The condensor principle	52
14. Balayage theory	55
15. Bibliography	61

Cohomology in harmonic spaces

(Wolfhard Hansen)

0. Introduction	63
1. Local harmonic kernels	65
2. Resolution of the sheaf \mathcal{H}	68
3. The sheaf \mathcal{R}	70

IV

4. The sheaf Q	74
5. Cohomology groups of \mathcal{H}	83
6. Perturbation of the harmonic structure	86
7. The index-zero theorem	97
Bibliography	100

Martin boundary and \mathcal{H}^p -theory of harmonic spaces

(Klaus Janßen)

0. Introduction	102
1. Preliminaries	104
2. Martin boundary	107
3. Uniform integrability	121
4. \mathcal{H}^Φ -spaces of harmonic functions	128
5. Boundary properties of \mathcal{H}^Φ -functions	137
6. Applications	143
Bibliography	149
Symbols	151

Approximation of capacities by measures

(Bernd Anger)

0. Introduction	152
1. Preliminaries	152
2. Approximation of capacity functionals	157
3. Approximation of capacities	163
Bibliography	170

