

Contents

1	Introduction	1
1.1	Historical remarks	1
1.2	On inequalities for higher derivatives	3
1.3	On methods	5
1.4	Survey of the contents	6
2	Basic coefficient inequalities	7
2.1	Subordinate functions	7
2.2	Bieberbach's conjecture by de Branges	11
2.3	Theorems of Jenkins and Sheil-Small	15
2.4	Inverse coefficients	18
2.5	Domains with bounded boundary rotation	23
3	The Poincaré metric	27
3.1	Background	27
3.2	The Schwarz-Pick inequality	30
3.3	Estimates using the Euclidean distance	33
3.4	An application of Teichmüller's theorem	37
3.5	Domains with uniformly perfect boundary	40
3.6	Derivatives of the conformal radius	44
4	Basic Schwarz-Pick type inequalities	49
4.1	Two classical inequalities	50
4.2	Theorems of Ruscheweyh and Yamashita	52
4.3	Pairs of simply connected domains	55
4.4	Holomorphic mappings into convex domains	59
4.5	Punishing factors for convex pairs	63
4.6	Case $n = 2$ for all domains	66
5	Punishing factors for special cases	69
5.1	Solution of the Chua conjecture	69
5.2	Punishing factors for angles	72

5.3	Sharp lower bounds for punishing factors	78
5.4	Domains in the extended complex plane	84
5.5	Maps from convex into concave domains	90
6	Multiply connected domains	97
6.1	Finitely connected domains	97
6.2	Pairs of arbitrary domains	104
6.3	Some examples	108
7	Related results	113
7.1	Inequalities for schlicht functions	113
7.2	Derivatives of α -invariant functions	117
7.3	A characterization of convex domains	124
8	Some open problems	127
8.1	The Krzyż conjecture	127
8.2	The angle conjecture	128
8.3	The generalized Goodman conjecture	131
8.4	Bloch and several variable problems	139
8.5	On sums of inverse coefficients	140
	Bibliography	143
	Index	155



<http://www.springer.com/978-3-7643-9999-3>

Schwarz-Pick Type Inequalities

Avkhadiev, F.G.; Wirths, K.-J.

2009, VIII, 156 p., Softcover

ISBN: 978-3-7643-9999-3

A product of Birkhäuser Basel