

Contents

<i>Preface</i>	vii
1 Harmonic Functions	1
1.1 Guide	1
1.2 Mean Value Properties	1
1.3 Fundamental Solutions	9
1.4 Maximum Principles	17
1.5 Energy Method	23
2 Maximum Principles	29
2.1 Guide	29
2.2 Strong Maximum Principle	29
2.3 A Priori Estimates	36
2.4 Gradient Estimates	39
2.5 Alexandroff Maximum Principle	44
2.6 Moving Plane Method	51
3 Weak Solutions, Part I	55
3.1 Guide	55
3.2 Growth of Local Integrals	56
3.3 Hölder Continuity of Solutions	65
3.4 Hölder Continuity of Gradients	70
4 Weak Solutions, Part II	77
4.1 Guide	77
4.2 Local Boundedness	77
4.3 Hölder Continuity	91
4.4 Moser's Harnack Inequality	97
4.5 Nonlinear Equations	107

	5 Viscosity Solutions	113
5.1	Guide	113
5.2	Alexandroff Maximum Principle	113
5.3	Harnack Inequality	120
5.4	Schauder Estimates	131
5.5	$W^{2,p}$ Estimates	136
	<i>Bibliography</i>	143