

# Contents

	Page
Preface	1
1. Introduction	3
2. The maximal, square and Littlewood-Paley functions	7
3. Brownian motion	16
3.1 Definition	17
3.2 Construction	18
3.3 Some properties of the Brownian paths	19
3.4 The martingale and Markov properties	23
3.5 The strong Markov property	26
3.6 Kakutani's theorem	30
4. Distribution equivalence of the two maximal functions	35
4.1 The right-hand inequality	37
4.2 Conditioned Brownian motion	41
4.3 Removal of the restrictions on $\sigma$ and $r$	46
4.4 Conditionally reflected Brownian motion	50
5. Inequalities for the conjugate function	55
5.1 A Brownian maximal function inequality	55
5.2 The M. Riesz inequalities	61
6. The maximal function characterization of $H^p$	65
7. The martingale versions of $H^p$ and BMO	70
7.1 $H^p$ martingales	70
7.2 BMO martingales	75
7.3 The duality theorem	89
References	98
Index	102