



## TABLE OF CONTENTS

INTRODUCTION .....	1
FIRST CHAPTER. FUNCTION EXTENSIONS .....	8
1. The averaging operator $K$ .....	8
2. The invariance of the $H$ -classes under $K$ .....	11
3. The derivatives of $Kf$ .....	20
4. The boundary values of $Kf$ and its derivatives .....	29
5. Function extensions from an $(n - 1)$ -dimensional hyperplane onto the whole space .....	39
6. Function extensions from a domain .....	49
7. Averagings relative to $m$ -dimensional hyperplanes .....	53
8. Function extensions from smooth manifolds .....	58
9. Function extensions to a domain with a piecewise smooth boundary .....	77
10. The variation of boundaries principle .....	87
SECOND CHAPTER. WEIGHTED IMBEDDING THEOREMS .....	92
11. Weighted imbedding theorems for function classes on flat mani- folds .....	92
12. Weighted imbedding theorems for function classes on arbitrary manifolds .....	126
13. Completeness of weighted spaces .....	138
14. Limit theorems .....	140
15. Compact function classes .....	147
16. Weighted imbedding theorems for domains with a piecewise smooth boundary .....	151
THIRD CHAPTER. VARIATIONAL METHODS FOR THE SOLUTION OF ELLIP- TIC EQUATIONS .....	156
17. General plan of the variational method .....	156

18. General plan for the solution of degenerate equations by the variational method .....	175
19. The solution of elliptic equations degenerate on the whole boundary of a domain ( $0 \leq \alpha < 1$ ) .....	181
20. The solution of elliptic equations degenerate on part of the boundary of a domain ( $0 \leq \alpha < 1$ ) .....	189
21. The solution of elliptic equations degenerate on the boundary of a domain with degeneracy exponent $\alpha \geq 1$ .....	199
<b>BIBLIOGRAPHY</b> .....	<b>203</b>

