



# Contents

INTRODUCTION	1
CHAPTER I. PRELIMINARY RESULTS	
1. Fundamental Solutions and Analyticity	5
2. Existence and Uniqueness of Solutions to the Dirichlet and Cauchy Problems	6
CHAPTER II. IMPROPERLY POSED INITIAL VALUE PROBLEMS	
3. Cauchy's Problem in Two Independent Variables	9
4. Cauchy's Problem for Quasilinear Systems	15
5. Uniqueness of Solutions to Cauchy's Problem and the Runge Approximation Property	17
6. The Non-Characteristic Cauchy Problem for Parabolic Equations	21
7. Improperly Posed Initial-Value Problems for Hyperbolic Equations	26
CHAPTER III. INTEGRAL OPERATORS FOR ELLIPTIC EQUATIONS	
8. Integral Operators in Two Independent Variables	36
9. Integral Operators for Self Adjoint Equations in Three Independent Variables	42
10. Integral Operators for Non Self Adjoint Equations in Three Independent Variables	53
CHAPTER IV. ANALYTIC CONTINUATION	
11. Lewy's Reflection Principle and Vekua's Integral Operators	57
12. The Envelope Method and Analytic Continuation	59
13. The Axially Symmetric Helmholtz Equation	63
14. Analytic Continuation of Solutions to the Axially Symmetric Helmholtz Equation	69
CHAPTER V. PSEUDOPARABOLIC EQUATIONS	
15. Pseudoparabolic Equations in One Space Variable	75
16. Pseudoparabolic Equations in Two Space Variables	79
REFERENCES	86