

# Contents

|   |     |
|---|-----|
| Acknowledgements  | iii |
| Abstract in Thai  | iv  |
| Abstract in English   | v   |
| 1 Introduction  | 1   |
| 2 Basic Concepts  | 3   |
| 2.1 The Gamma Function . . . . .  | 3   |
| 2.2 Distributions . . . . .   | 4   |
| 2.3 Introduction to Partial Differential Equations . . . . .                    | 7   |
| 3 The Diamond Kernel of Marcel Riesz  | 16  |
| 3.1 The Value of the Diamond Kernel $K_{2k,2k}$ of Marcel Riesz . . . . .       | 16  |
| 3.2 An Explicit Formula of the Solution of the Diamond Operator . . . . .       | 23  |
| 4 On the Nonlinear Diamond Operator Related to the Wave Equation                | 27  |
| 5 On the Product of the Nonlinear Diamond Operators Related to the Elastic Wave | 30  |
| Bibliography  | 33  |
| Vita  | 35  |