

## 附 錄

表 A.1: 設計矩陣 A

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	2	0	2	2	1	1	1	2	0	1	1	2	2	0	1	1	2	2
0	1	1	2	0	2	0	1	0	1	2	1	1	1	2	0	1	1	1	2	0	1
0	1	2	2	2	2	1	2	2	2	1	0	2	2	0	1	0	2	2	0	1	2
0	2	0	1	1	1	1	0	1	2	0	1	1	2	1	1	2	1	2	2	2	0
0	2	2	1	1	1	2	1	2	0	2	2	2	0	2	2	1	2	0	1	1	1
1	0	2	2	1	2	1	1	0	2	1	1	1	2	2	2	0	1	2	1	1	0
1	0	2	2	1	2	2	0	2	1	2	0	2	0	1	1	1	2	0	2	2	1
1	1	0	1	0	1	0	2	1	2	2	2	0	2	1	0	1	1	0	1	0	2
1	1	0	1	2	1	2	0	2	0	0	1	2	1	0	2	2	2	1	0	2	0
1	2	1	0	0	0	0	2	0	1	0	2	0	1	2	1	0	0	1	2	1	2
1	2	1	0	2	0	1	1	1	0	1	0	1	0	0	0	2	0	2	0	0	1
2	0	0	1	0	1	0	1	1	0	2	1	1	1	0	1	1	1	1	0	1	1
2	0	1	1	2	1	1	2	2	2	0	2	2	2	2	0	2	2	2	2	0	2
2	1	1	0	1	0	1	0	0	0	1	2	0	0	2	1	2	0	0	2	1	0
2	1	2	0	1	0	2	1	1	1	0	0	1	0	1	2	0	0	2	1	2	1
2	2	0	2	0	2	0	0	0	2	2	0	0	2	0	2	1	1	0	0	2	2
2	2	2	2	2	2	2	2	2	1	1	1	2	1	1	0	0	2	1	1	0	0

表 A.2: 設計矩陣 B

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	1	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0
-1	-1	-1	-1	-1	-1	-1	-1	0	0	1	1	1	0	0	2	2
-1	1	-1	-1	1	1	1	1	0	1	0	1	0	2	2	0	1
1	-1	1	1	-1	1	-1	1	0	1	2	2	2	2	2	1	2
1	-1	1	-1	1	-1	1	-1	0	2	1	0	1	0	1	1	0
-1	1	-1	1	-1	-1	-1	-1	0	-2	2	2	2	1	1	2	1
1	1	1	1	1	1	1	1	1	0	2	2	2	0	2	1	1
-1	-1	-1	-1	1	1	1	1	1	0	2	2	2	2	2	2	0
1	1	1	-1	-1	-1	-1	-1	1	1	1	0	1	1	1	0	2
-1	-1	-1	1	1	-1	1	-1	1	1	1	0	1	1	1	2	0
1	1	-1	1	-1	1	-1	1	1	2	0	1	0	0	0	0	2
-1	-1	1	-1	-1	-1	-1	-1	1	2	0	1	0	2	0	1	1
-1	-1	-1	-1	-1	-1	-1	-1	2	0	0	0	0	1	1	0	1
1	1	1	1	-1	-1	-1	-1	2	0	1	1	1	2	1	1	2
1	-1	1	-1	1	-1	1	-1	2	1	0	1	0	0	0	1	0
-1	1	-1	1	-1	1	-1	1	2	1	2	2	2	0	0	2	1
-1	1	-1	1	1	1	1	1	2	2	1	0	1	2	2	0	0
1	-1	1	-1	1	1	1	1	2	2	2	2	2	1	2	2	2

表 A.2: (cont.) 設計矩陣 B

18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	1	2	0	1	1	2	0	1	1	2	2	0	1	1	2	2
1	1	2	1	1	1	2	1	1	1	2	0	1	1	1	2	0	1
2	2	0	0	2	2	0	2	2	2	0	1	0	2	2	0	1	2
1	2	1	2	1	2	2	0	1	2	1	1	2	1	2	2	2	0
2	0	2	1	2	0	1	1	2	0	2	2	1	2	0	1	1	1
1	2	2	0	1	2	1	0	1	2	2	2	0	1	2	1	1	0
2	0	1	1	2	0	2	1	2	0	1	1	1	2	0	2	2	1
0	2	1	1	1	0	1	2	0	2	1	0	1	1	0	1	0	2
2	1	0	2	2	1	0	0	2	1	0	2	2	2	1	0	2	0
0	1	2	0	0	1	2	2	0	1	2	1	0	0	1	2	1	2
1	0	0	2	0	2	0	1	1	0	0	0	2	0	2	0	0	1
1	1	0	1	1	1	0	1	1	1	0	1	1	1	1	0	1	1
2	2	2	2	2	2	2	2	2	2	2	0	2	2	2	2	0	2
0	0	2	2	0	0	2	0	0	0	2	1	2	0	0	2	1	0
1	0	1	0	0	2	1	1	1	0	1	2	0	0	2	1	2	1
0	2	0	1	1	0	0	2	0	2	0	2	1	1	0	0	2	2
2	1	1	0	2	1	1	0	2	1	1	0	0	2	1	1	0	0

表 A.3: 設計矩陣 C

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	1	1	1	1	1	1	1	1	0	1	1	1	1
0	1	0	0	1	0	1	2	0	1	2	1	0	0	2	2
0	1	2	2	2	2	2	0	2	2	1	1	2	2	1	1
0	2	1	1	2	1	2	2	1	2	0	2	1	2	0	2
0	2	2	2	0	2	0	1	2	0	2	2	2	1	2	0
1	0	0	0	2	0	2	2	0	2	1	1	1	1	2	2
1	0	2	2	1	2	1	0	2	1	2	1	2	2	0	0
1	1	1	1	2	1	2	1	1	2	2	2	0	1	0	1
1	1	2	2	0	2	0	2	2	0	0	2	1	0	1	0
1	2	0	0	1	0	1	1	0	1	0	0	0	2	2	1
1	2	1	1	0	1	0	0	1	0	1	0	2	0	1	2
2	0	1	1	0	1	0	2	1	0	2	2	0	2	1	2
2	0	2	2	2	2	2	1	2	2	0	2	2	0	2	1
2	1	0	0	0	0	0	1	0	0	1	0	1	2	2	0
2	1	1	1	1	1	1	0	1	1	0	0	2	1	0	2
2	2	0	0	2	0	2	0	0	2	2	1	0	1	1	0
2	2	2	2	1	2	1	2	2	1	1	1	1	0	0	1

表 A.4: 設計矩陣 D

1	2	3	4	5	6
1	1	1	1	1	1
-1	-1	-1	-1	1	-1
-1	-1	-1	-1	1	-1
1	1	1	1	-1	1
1	1	1	1	-1	1
-1	-1	-1	-1	-1	-1
-1	1	1	1	-1	1
1	-1	-1	-1	-1	-1
-1	1	-1	-1	1	1
-1	-1	1	1	-1	-1
1	1	-1	-1	1	1
1	-1	1	1	-1	-1
-1	1	-1	-1	1	1
-1	1	1	1	1	1
1	1	1	1	-1	1
-1	-1	-1	-1	-1	-1
-1	1	-1	-1	1	1
1	-1	1	1	1	-1

表 A.4: (cont.) 設計矩陣 D

7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	1	0	1	0	1	1	1	1	1	1	0	1	1	1	1
0	1	0	1	0	1	0	1	0	2	0	1	2	2	1	0	0	2	2
0	1	2	1	2	1	2	1	2	1	2	2	0	1	1	2	2	1	1
0	2	1	2	1	2	1	2	1	2	1	2	2	0	2	1	2	0	2
0	2	2	2	2	2	2	2	2	2	0	2	0	1	2	2	2	1	2
1	0	0	1	1	1	1	1	1	1	0	0	2	2	1	1	1	2	2
1	0	2	1	2	2	0	2	0	2	2	1	0	2	1	2	2	0	0
1	1	1	2	0	0	2	0	2	0	1	2	1	2	2	0	1	0	1
1	1	2	2	1	2	0	2	0	1	2	0	2	0	2	1	0	1	0
1	2	0	0	0	0	2	0	2	2	0	1	1	0	0	0	2	2	1
1	2	1	0	2	1	1	1	1	1	1	0	0	1	0	2	0	1	2
2	0	1	2	0	1	2	1	2	2	1	0	2	2	2	0	2	1	2
2	0	2	2	2	2	2	2	2	1	2	2	1	0	2	2	0	2	1
2	1	0	0	1	0	1	0	1	2	0	0	1	1	0	1	2	2	0
2	1	1	0	2	2	1	2	1	0	1	1	0	0	0	2	1	0	2
2	2	0	1	0	0	0	0	0	1	0	2	0	2	1	0	1	1	0
2	2	2	1	1	1	0	1	0	0	2	1	2	1	1	1	0	0	1

表 A.5: 設計矩陣 E

區集	處理因子									
	1	2	3	4	5	6	7	8	9	10
I	0	0	0	0	0	0	0	0	0	0
I	0	1	1	1	2	1	1	2	1	2
I	0	2	2	2	1	2	2	1	2	1
I	1	0	2	0	2	1	0	2	1	1
I	1	1	0	1	1	2	1	1	2	0
I	1	2	1	2	0	0	2	0	0	2
I	2	0	1	0	0	2	0	1	1	2
I	2	1	2	1	2	0	1	0	2	1
I	2	2	0	2	1	1	2	2	0	0
II	0	0	1	0	1	1	0	0	2	2
II	0	1	2	1	0	2	1	2	0	1
II	0	2	0	2	2	0	2	1	1	0
II	1	0	2	0	2	2	0	2	2	0
II	1	1	0	1	1	0	1	1	0	2
II	1	2	1	2	0	1	2	0	1	1
II	2	0	0	0	1	0	0	1	0	1
II	2	1	1	1	0	1	1	0	1	0
II	2	2	2	2	2	2	2	2	2	2

表 A.5: (cont.) 設計矩陣 E

區集	處理因子																
	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I	0	1	1	1	2	1	1	1	2	0	1	1	1	1	2	0	1
I	1	2	2	1	0	2	1	2	1	1	2	1	2	2	0	1	2
I	1	1	2	2	2	0	1	2	2	2	0	0	1	2	1	1	0
I	1	2	0	0	1	0	2	0	1	1	1	0	2	0	2	2	1
I	2	0	1	0	2	1	2	1	0	2	2	2	0	1	2	1	2
I	0	1	0	2	1	1	0	0	2	1	2	1	0	2	1	2	1
I	2	0	2	2	0	2	0	2	0	2	1	2	1	0	0	2	2
I	2	2	1	1	1	2	2	1	1	0	0	2	2	1	1	0	0
II	1	0	1	2	1	0	0	1	1	2	2	0	0	1	1	2	2
II	2	1	2	0	1	1	2	2	0	1	0	2	1	2	2	2	0
II	2	2	0	2	2	2	2	0	2	2	1	2	2	0	1	1	1
II	0	0	2	1	1	1	0	2	1	0	1	1	1	0	1	0	2
II	0	2	1	2	0	2	0	1	2	1	0	1	2	1	0	2	0
II	2	1	0	1	0	2	1	0	0	0	2	2	0	2	0	0	1
II	0	2	2	0	2	0	1	1	0	1	1	0	1	1	0	1	1
II	1	0	0	1	2	0	2	2	2	0	2	0	2	2	2	0	2
II	1	1	1	0	0	1	1	0	1	2	0	1	0	0	2	1	0



表 A.6: 設計矩陣 F

區集	處理因子										
	1	2	3	4	5	6	7	8	9	10	11
I	0	0	0	0	0	0	0	0	0	0	0
I	0	1	1	1	2	1	1	1	1	2	1
I	0	2	1	2	1	2	1	2	2	0	2
I	1	0	1	2	2	0	0	1	2	1	0
I	1	0	2	0	1	1	0	2	0	2	1
I	1	1	2	1	0	2	2	0	1	2	2
I	2	1	0	0	2	2	1	0	2	1	1
I	2	2	0	2	0	1	2	1	0	0	2
I	2	2	2	1	1	0	2	2	1	1	0
II	0	0	0	1	1	2	0	0	1	1	2
II	0	1	2	2	0	0	2	1	2	2	0
II	0	2	2	0	2	1	2	2	0	1	1
II	1	1	0	2	1	1	1	1	0	1	2
II	1	2	0	1	2	0	1	2	1	0	0
II	1	2	1	0	0	2	2	0	2	0	1
II	2	0	1	1	0	1	0	1	1	0	1
II	2	0	2	2	2	2	0	2	2	2	2
II	2	1	1	0	1	0	1	0	0	2	0

表 A.7: 設計矩陣 G

區集	處理因子																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I	0	0	2	1	1	0	1	2	0	1	1	2	0	1	1	2	0	1	1	1	2
I	1	2	0	0	1	1	2	0	1	1	2	0	1	2	2	0	1	0	0	2	1
I	1	2	2	2	2	2	1	1	2	0	1	1	2	1	0	1	1	2	2	1	2
I	2	1	1	1	2	1	0	1	1	2	0	1	1	0	1	1	2	1	1	2	1
I	2	1	1	2	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	0
II	0	1	0	0	2	1	1	0	1	0	2	1	1	1	2	0	1	1	2	0	1
II	0	2	1	2	1	2	2	1	1	2	1	2	2	2	0	1	1	2	1	2	0
II	1	0	1	1	0	0	2	2	0	2	2	0	0	2	1	2	2	0	1	1	0
II	1	1	2	1	0	1	0	2	2	0	0	2	1	0	0	2	2	1	0	0	2
II	2	0	0	0	2	0	0	1	0	1	0	1	0	0	2	1	0	0	2	1	1
II	2	2	2	2	1	2	1	0	2	1	1	0	2	1	1	0	0	2	0	2	2
III	0	1	2	1	2	1	2	1	2	1	2	1	1	2	1	1	2	0	2	2	2
III	0	2	1	2	0	2	0	2	2	2	0	0	2	0	2	2	2	2	0	1	1
III	1	0	1	0	1	0	1	1	0	2	1	1	0	1	2	1	0	1	2	2	0
III	1	1	0	2	2	2	0	0	1	1	0	2	2	0	1	0	0	2	1	0	1
III	2	0	2	0	0	0	2	0	0	0	2	2	0	2	0	0	1	0	1	0	2
III	2	2	0	1	1	1	1	2	1	0	1	0	1	1	0	2	1	1	0	1	0

表 A.8: 設計矩陣 H

區集	處理因子							
	1	2	3	4	5	6	7	8
I	0	0	0	0	0	0	0	0
I	0	1	1	1	2	2	1	1
I	1	0	2	1	0	0	2	2
I	1	2	1	2	1	1	1	2
I	2	1	0	0	2	1	0	1
I	2	2	2	2	1	2	2	0
II	0	0	1	0	1	0	0	2
II	0	2	2	2	2	1	2	0
II	1	1	0	1	2	1	1	0
II	1	2	0	2	0	2	0	1
II	2	0	2	0	0	0	1	1
II	2	1	1	1	1	2	2	2
III	0	1	2	1	1	1	2	1
III	0	2	0	2	0	2	1	2
III	1	0	1	0	1	0	2	1
III	1	1	2	0	2	2	0	0
III	2	0	0	1	0	0	1	0
III	2	2	1	2	2	1	0	2

表 A.8: (cont.) 設計矩陣 H

區集	處理因子																			
	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
I	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0
I	0	1	1	2	2	0	1	2	0	0	1	1	2	2	2	0	1	1	2	2
I	1	1	2	1	0	1	0	2	2	2	1	2	2	1	0	1	2	2	2	0
I	2	0	1	1	1	2	2	1	0	1	2	1	0	0	1	2	0	1	1	1
I	1	2	0	2	1	1	2	1	1	0	0	2	1	0	2	1	1	0	1	1
I	2	2	2	0	2	2	1	0	2	2	2	0	1	2	0	2	2	2	0	2
II	1	0	2	0	1	1	2	0	2	1	0	0	2	0	0	1	1	2	0	1
II	1	2	1	1	2	2	0	1	0	2	2	2	0	2	2	2	2	0	1	0
II	0	2	2	2	0	0	2	2	1	2	0	1	1	1	2	0	2	1	0	1
II	2	0	0	2	2	1	1	0	0	0	1	0	1	2	1	2	1	0	2	2
II	0	1	0	1	1	0	0	1	2	0	1	1	0	0	0	0	0	2	1	2
II	2	1	1	0	0	2	1	2	1	1	2	2	2	1	1	1	0	1	2	0
III	2	1	2	2	1	1	1	1	1	2	1	2	1	0	1	1	2	1	1	2
III	2	2	0	1	0	2	2	2	2	0	2	1	1	1	0	2	0	2	2	1
III	0	2	1	0	1	0	1	1	2	1	0	2	0	2	0	0	1	2	1	0
III	1	1	0	0	2	2	0	0	1	0	2	0	2	0	2	1	0	0	0	2
III	0	0	2	1	2	0	2	0	0	2	0	1	2	2	1	0	2	0	2	1
III	1	0	1	2	0	1	0	2	0	1	1	0	0	1	2	2	1	1	0	0

表 A.9: 設計矩陣 I

區集	處理因子											
	1	2	3	4	5	6	7	8	9	10	11	12
I	1	1	1	1	1	1	1	1	1	1	1	1
I	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	1
I	1	-1	1	1	1	1	-1	-1	1	1	-1	-1
I	-1	1	-1	-1	-1	-1	1	1	-1	1	-1	-1
I	-1	1	-1	1	1	1	-1	-1	-1	-1	-1	-1
I	1	-1	1	-1	-1	-1	1	-1	1	-1	1	1
II	-1	1	-1	-1	-1	-1	-1	1	-1	1	-1	1
II	1	-1	-1	1	1	1	-1	-1	1	-1	1	-1
II	1	1	1	-1	1	-1	1	-1	1	-1	1	1
II	-1	-1	1	1	-1	-1	1	1	-1	1	-1	1
II	-1	-1	1	-1	-1	-1	1	1	1	1	-1	-1
II	1	1	-1	1	1	1	-1	-1	-1	-1	1	-1
III	1	-1	1	1	-1	1	1	1	1	1	-1	-1
III	-1	1	1	-1	1	-1	1	-1	-1	-1	-1	-1
III	-1	1	-1	1	1	1	-1	-1	-1	-1	1	1
III	1	-1	-1	-1	-1	-1	-1	1	1	-1	1	-1
III	1	-1	-1	1	-1	1	-1	1	1	1	-1	1
III	-1	1	1	-1	1	-1	1	-1	-1	1	1	1

表 A.9: (cont.) 設計矩陣 I

區集	處理因子							
	13	14	15	16	17	18	19	20
I	0	0	0	0	1	0	0	0
I	0	0	2	1	0	2	1	1
I	1	1	1	0	2	0	2	2
I	1	1	1	2	2	1	1	2
I	2	2	0	1	0	1	0	1
I	2	2	2	2	1	2	2	0
II	0	1	0	2	0	0	0	2
II	0	2	1	2	2	1	2	0
II	1	0	2	1	1	1	1	0
II	1	2	2	1	1	2	0	1
II	2	0	1	0	0	0	1	1
II	2	1	0	0	2	2	2	2
III	0	1	2	0	1	1	2	1
III	0	2	1	1	2	2	1	2
III	1	0	0	0	0	0	2	1
III	1	2	0	2	0	2	0	0
III	2	0	1	1	2	0	1	0
III	2	1	2	2	1	1	0	2

表 A.9: (cont.) 設計矩陣 I

區集	處理因子									
	29	30	31	32	33	34	35	36	37	38
I	0	0	0	0	0	0	0	0	1	1
I	0	1	1	2	2	0	1	2	0	0
I	1	1	2	1	0	1	0	2	2	2
I	2	0	1	1	1	2	2	1	0	1
I	1	2	0	2	1	1	2	1	1	0
I	2	2	2	0	2	2	1	0	2	2
II	1	0	2	0	1	1	2	0	2	1
II	1	2	1	1	2	2	0	1	0	2
II	0	2	2	2	0	0	2	2	1	2
II	2	0	0	2	2	1	1	0	0	0
II	0	1	0	1	1	0	0	1	2	0
II	2	1	1	0	0	2	1	2	1	1
III	2	1	2	2	1	1	1	1	1	2
III	2	2	0	1	0	2	2	2	2	0
III	0	2	1	0	1	0	1	1	2	1
III	1	1	0	0	2	2	0	0	1	0
III	0	0	2	1	2	0	2	0	0	2
III	1	0	1	2	0	1	0	2	0	1

表 A.9: (cont.) 設計矩陣 I

區集	處理因子									
	39	40	41	42	43	44	45	46	47	48
I	0	0	0	1	1	0	0	0	1	1
I	0	1	2	0	0	1	1	2	2	2
I	1	0	2	2	2	1	2	2	1	0
I	2	2	1	0	1	2	1	0	0	1
I	1	2	1	1	0	0	2	1	0	2
I	2	1	0	2	2	2	0	1	2	0
II	1	1	1	1	2	0	0	2	0	0
II	2	2	0	2	0	2	2	0	2	2
II	0	1	1	2	1	0	1	1	1	2
II	2	0	2	1	0	1	0	1	2	1
II	0	2	2	0	2	1	1	0	0	0
II	1	0	0	0	1	2	2	2	1	1
III	1	2	2	2	1	1	2	1	0	1
III	2	0	1	0	2	2	1	1	1	0
III	0	2	0	1	2	0	2	0	2	0
III	1	1	0	0	0	2	0	2	0	2
III	0	0	1	2	0	0	1	2	2	1
III	2	1	2	1	1	1	0	0	1	2



表 A.9: (cont.) 設計矩陣 I

區集	處理因子														
	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I	0	1	1	2	2	1	1	1	2	1	1	1	1	2	1
I	1	2	2	2	0	1	0	2	1	1	1	1	0	1	2
I	2	0	1	1	1	2	1	0	0	2	2	0	2	0	1
I	1	1	0	1	1	0	2	2	2	2	0	2	2	2	2
I	2	2	2	0	2	2	2	1	1	0	2	2	1	1	0
II	1	1	2	0	1	1	2	2	0	0	1	2	2	0	2
II	2	2	0	1	0	2	1	2	1	2	2	2	0	1	1
II	0	2	1	0	1	0	2	0	1	1	0	1	2	1	0
II	2	1	0	2	2	2	0	1	2	0	2	0	1	2	2
II	0	0	2	1	2	0	1	1	0	1	0	1	1	0	1
II	1	0	1	2	0	1	0	0	2	2	1	0	0	2	0
III	1	2	1	1	2	0	0	1	1	2	0	0	1	1	2
III	2	0	2	2	1	2	2	0	2	1	2	1	2	2	0
III	0	1	2	1	0	0	1	2	2	0	0	2	0	2	1
III	1	0	0	0	2	1	2	1	0	2	1	2	1	0	0
III	0	2	0	2	1	1	1	0	1	0	1	0	2	1	1
III	2	1	1	0	0	2	0	2	0	1	2	1	0	0	2

表 A.10: 設計矩陣 J

區集	處理因子							
	1	2	3	4	5	6	7	8
I	1	1	0	0	0	0	0	0
I	-1	-1	0	0	2	0	2	2
I	-1	-1	1	2	0	2	0	1
I	1	1	1	2	1	2	1	2
I	-1	-1	2	1	1	1	1	0
I	1	1	2	1	2	1	2	1
II	-1	-1	0	1	0	1	0	1
II	1	1	0	2	2	2	1	1
II	-1	-1	1	0	1	0	1	0
II	1	1	1	1	0	1	2	0
II	1	1	2	0	1	0	0	2
II	-1	-1	2	2	2	2	2	2
III	1	1	0	1	1	1	1	2
III	-1	-1	0	2	1	2	2	0
III	1	1	1	0	2	0	2	1
III	-1	-1	1	1	2	1	0	2
III	-1	-1	2	0	0	0	1	1
III	1	1	2	2	0	2	0	0

表 A.11: 設計矩陣 K

區集	處理因子																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I	1	1	1	1	2	2	1	2	2	1	1	2	2	1	1	2	1	1	1	2	2	1	2
I	2	2	2	2	1	1	2	1	1	2	2	1	1	2	2	1	2	2	2	1	1	2	1
II	0	1	2	1	1	2	1	1	2	0	1	1	2	0	1	1	0	1	1	1	2	0	1
II	1	2	0	2	0	1	2	0	1	1	2	1	0	1	2	1	1	0	2	0	1	1	0
II	2	0	1	0	2	0	0	2	0	2	0	2	0	2	0	2	2	0	0	2	0	2	2
III	0	2	1	2	0	2	2	0	2	2	1	2	1	2	1	2	2	2	2	0	2	2	2
III	1	0	2	0	2	1	0	2	1	0	2	0	1	0	2	0	0	2	0	2	1	0	1
III	2	1	0	1	1	0	1	1	0	1	0	0	2	1	0	0	1	1	1	1	0	1	0
IV	0	0	0	0	1	1	0	1	1	1	0	1	1	1	0	1	1	2	0	1	1	1	2
IV	1	1	1	1	0	0	1	0	0	2	1	0	0	2	1	0	2	0	1	0	0	2	1
IV	2	2	2	2	2	2	2	2	2	0	2	2	2	0	2	2	0	1	2	2	2	0	0
V	0	1	2	1	2	1	1	2	1	2	2	0	2	2	2	0	2	1	1	2	1	2	0
V	1	2	0	2	1	0	2	1	0	0	0	2	1	0	0	2	0	2	2	1	0	0	2
V	2	0	1	0	0	2	0	0	2	1	1	0	1	1	1	0	1	2	0	0	2	1	1
VI	0	2	1	2	2	0	2	2	0	1	2	2	0	1	2	2	1	0	2	2	0	1	1
VI	1	0	2	0	1	2	0	1	2	2	0	1	2	2	0	1	2	1	0	1	2	2	0
VI	2	1	0	1	0	1	1	0	1	0	1	1	0	0	1	1	0	0	1	0	1	0	2

表 A.12: 設計矩陣 L

區集	處理因子															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I	0	1	2	0	1	1	0	1	1	1	0	1	1	1	1	1
I	0	2	1	1	2	2	1	0	1	2	1	0	1	2	2	2
I	1	0	2	0	0	2	1	1	2	1	1	1	2	1	2	0
I	1	1	1	1	2	0	1	2	0	2	1	2	0	2	0	1
I	1	2	0	2	1	0	2	1	0	0	2	1	0	0	1	2
I	2	0	1	1	1	1	0	2	2	1	0	2	2	1	0	0
I	2	1	0	2	0	2	2	0	2	0	2	0	2	0	2	1
I	2	2	2	2	2	1	2	2	1	2	2	2	1	2	1	2
II	0	0	1	1	0	1	1	2	2	0	1	2	2	0	1	0
II	0	1	0	2	1	2	2	1	2	2	2	1	2	2	0	1
II	0	2	2	2	2	0	2	2	0	1	2	2	0	1	2	2
II	1	0	0	0	2	1	0	0	2	2	0	0	2	2	1	0
II	1	1	2	1	1	2	0	2	1	0	0	2	1	0	2	1
II	1	2	1	2	0	1	2	0	1	1	2	0	1	1	0	2
II	2	0	2	0	1	0	0	1	0	2	0	1	0	2	2	0
II	2	1	1	0	2	2	1	0	0	1	1	0	0	1	1	1
II	2	2	0	1	0	0	1	1	1	0	1	1	1	0	0	2

表 A.12: (cont.) 設計矩陣 L

區集	處理因子																
	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I	1	2	2	1	1	1	1	1	2	0	1	1	1	1	2	0	1
I	2	1	2	0	2	2	1	2	1	1	2	1	2	2	0	1	2
I	1	1	1	2	2	0	1	2	2	2	0	0	1	2	1	1	0
I	2	0	1	0	1	0	2	0	1	1	1	0	2	0	2	2	1
I	0	2	0	1	2	1	2	1	0	2	2	2	0	1	2	1	2
I	2	2	0	2	1	1	0	0	2	1	2	1	0	2	1	2	1
I	0	1	2	2	0	2	0	2	0	2	1	2	1	0	0	2	2
I	1	0	1	1	0	2	2	1	1	0	0	2	2	1	1	0	0
II	0	1	1	1	1	0	0	1	1	2	2	0	0	1	1	2	2
II	1	0	0	2	2	1	2	2	0	1	0	2	1	2	2	2	0
II	2	2	1	2	0	2	2	0	2	2	1	2	2	0	1	1	1
II	1	2	2	0	0	1	0	2	1	0	1	1	1	0	1	0	2
II	2	1	0	1	0	2	0	1	2	1	0	1	2	1	0	2	0
II	0	0	2	2	1	2	1	0	0	0	2	2	0	2	0	0	1
II	2	0	2	1	2	0	1	1	0	1	1	0	1	1	0	1	1
II	0	2	1	0	2	0	2	2	2	0	2	0	2	2	2	0	2
II	1	1	0	0	1	1	1	0	1	2	0	1	0	0	2	1	0

表 A.13: 設計矩陣 M

區集	處理因子												
	1	2	3	4	5	6	7	8	9	10	11	12	13
I	0	0	0	0	0	0	0	0	0	0	0	0	0
I	0	1	1	1	1	1	1	1	1	1	1	1	1
I	1	0	1	0	1	2	0	1	2	0	1	2	2
I	1	2	2	2	2	0	2	2	1	2	2	0	1
I	2	1	2	1	2	2	1	2	0	1	2	2	0
I	2	2	0	2	0	1	2	0	2	2	0	1	2
II	0	0	2	0	2	2	0	2	1	0	2	2	1
II	0	2	1	2	1	0	2	1	2	2	1	0	2
II	1	1	2	1	2	1	1	2	2	1	2	1	2
II	1	2	0	2	0	2	2	0	0	2	0	2	0
II	2	0	1	0	1	1	0	1	0	0	1	1	0
II	2	1	0	1	0	0	1	0	1	1	0	0	1
III	0	1	0	1	0	2	1	0	2	1	0	2	2
III	0	2	2	2	2	1	2	2	0	2	2	1	0
III	1	0	0	0	0	1	0	0	1	0	0	1	1
III	1	1	1	1	1	0	1	1	0	1	1	0	0
III	2	0	2	0	2	0	0	2	2	0	2	0	2
III	2	2	1	2	1	2	2	1	1	2	1	2	1

表 A.14: 設計矩陣 N

區集	處理因子					
	1	2	3	4	5	6
I	1	1	1	1	1	1
I	-1	-1	-1	-1	-1	-1
I	-1	-1	1	1	-1	-1
I	1	1	-1	-1	1	1
I	1	-1	-1	1	-1	1
I	-1	-1	1	-1	1	-1
II	1	1	-1	-1	-1	1
II	-1	-1	1	1	1	-1
II	1	-1	1	1	1	1
II	-1	1	-1	-1	-1	-1
II	-1	1	1	-1	1	-1
II	1	-1	-1	1	-1	1
III	-1	-1	-1	1	1	1
III	1	1	1	-1	-1	-1
III	1	1	-1	-1	-1	-1
III	-1	-1	1	1	1	1
III	1	-1	-1	-1	-1	-1
III	-1	1	1	1	1	1

表 A.14: (cont.) 設計矩陣 N

區集	處理因子																				
	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I	0	0	1	0	1	2	2	2	0	1	1	1	0	1	1	1	0	1	1	1	1
I	1	1	0	1	0	0	1	1	1	1	2	0	1	2	1	0	1	0	0	2	2
I	1	1	2	1	2	1	0	2	1	2	1	2	2	2	0	2	1	2	2	1	1
I	2	2	1	2	1	1	2	1	2	0	2	2	1	1	2	2	2	1	1	2	2
I	2	2	2	2	2	2	1	0	2	2	0	1	2	0	2	1	2	2	2	0	0
II	0	1	1	1	1	0	0	1	1	0	0	2	1	0	0	2	1	1	2	0	2
II	0	1	2	2	0	1	1	2	1	2	2	1	1	2	2	1	1	2	1	2	0
II	1	2	0	0	2	1	2	0	2	0	1	1	0	1	2	0	2	0	1	1	0
II	1	2	1	2	0	2	1	1	2	1	0	0	2	1	0	1	2	1	0	0	1
II	2	0	0	0	2	0	2	2	0	1	2	2	0	2	1	2	0	0	2	1	2
II	2	0	2	1	1	2	0	0	0	2	1	0	2	0	1	0	0	2	0	2	1
III	0	2	0	1	2	1	1	0	2	1	1	2	2	1	1	2	2	0	2	2	1
III	0	2	2	2	2	2	2	1	2	2	2	0	2	2	2	0	2	2	0	1	2
III	1	0	1	0	1	0	2	0	0	0	2	1	0	0	2	2	0	1	2	2	0
III	1	0	2	2	1	2	0	2	0	2	0	2	1	0	1	1	0	2	1	0	2
III	2	1	0	0	0	0	1	2	1	0	1	0	0	2	0	1	1	0	1	0	1
III	2	1	1	1	0	1	0	1	1	1	0	1	1	1	0	0	1	1	0	1	0



表 A.15: 設計矩陣 O

區集	處理因子			
	1	2	3	4
I	1	0	0	0
I	1	0	1	1
I	1	1	0	1
I	-1	1	2	2
I	-1	2	1	2
I	-1	2	2	0
I	-1	0	0	2
I	-1	0	2	1
I	1	1	1	2
II	1	1	2	0
II	-1	2	0	1
II	1	2	1	0
II	-1	0	1	0
II	1	0	2	2
II	-1	1	0	0
II	-1	1	1	1
II	1	2	0	2
II	1	2	2	1

表 A.16: 設計矩陣 P

區集	處理因子															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I	1	1	1	1	2	1	2	1	2	1	2	1	2	1	2	2
I	2	2	2	2	1	2	1	2	1	2	1	2	1	2	1	1
II	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	2
II	1	2	1	2	0	2	0	2	0	2	0	2	0	2	0	1
II	2	0	2	0	2	0	2	0	2	0	2	0	2	0	2	0
III	0	2	1	2	2	1	2	2	2	1	2	2	0	2	0	2
III	1	0	2	0	1	2	1	0	1	2	1	0	2	0	2	1
III	2	1	0	1	0	0	0	1	0	0	0	1	1	1	1	0
IV	0	0	1	0	1	0	1	0	1	0	1	0	1	0	1	1
IV	1	1	2	1	0	1	0	1	0	1	0	1	0	1	0	0
IV	2	2	0	2	2	2	2	2	2	2	2	2	2	2	2	2
V	0	1	2	1	2	2	0	2	0	2	2	2	2	1	2	1
V	1	2	0	2	1	0	2	0	2	0	1	0	1	2	1	0
V	2	0	1	0	0	1	1	1	1	1	0	1	0	0	0	2
VI	0	2	2	2	0	2	2	1	2	2	0	1	2	2	2	0
VI	1	0	0	0	2	0	1	2	1	0	2	2	1	0	1	2
VI	2	1	1	1	1	1	0	0	0	1	1	0	0	1	0	1

表 A.16: (cont.) 設計矩陣 P

區集	處理因子															
	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I	1	2	2	1	2	2	1	2	1	1	2	1	1	2	2	1
I	2	1	1	2	1	1	2	1	2	2	1	2	2	1	1	2
II	1	1	2	1	1	2	1	1	0	1	1	0	1	1	2	0
II	2	0	1	2	0	1	2	0	1	2	0	1	2	0	1	1
II	0	2	0	0	2	0	0	2	2	0	2	2	0	2	0	2
III	2	2	0	1	2	1	1	2	2	2	2	1	2	0	2	2
III	0	1	2	2	1	0	2	1	0	0	1	2	0	2	1	0
III	1	0	1	0	0	2	0	0	1	1	0	0	1	1	0	1
IV	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	1
IV	1	0	0	1	0	0	1	0	2	1	0	2	1	0	0	2
IV	2	2	2	2	2	2	2	2	0	2	2	0	2	2	2	0
V	1	2	1	2	0	2	2	0	2	2	0	2	1	2	1	2
V	2	1	0	0	2	1	0	2	0	0	2	0	2	1	0	0
V	0	0	2	1	1	0	1	1	1	1	1	1	0	0	2	1
VI	2	0	2	2	2	0	2	2	1	1	2	2	2	2	0	1
VI	0	2	1	0	1	2	0	1	2	2	1	0	0	1	2	2
VI	1	1	0	1	0	1	1	0	0	0	0	1	1	0	1	0

表 A.16: (cont.) 設計矩陣 P

區集	處理因子																	
	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
I	1	2	2	1	1	2	2	1	1	2	2	1	1	2	2	1	2	0
I	2	1	1	2	2	1	1	2	2	1	1	2	2	1	1	2	2	1
II	1	1	2	0	1	1	2	0	1	1	2	0	2	1	0	1	2	2
II	2	0	1	1	2	0	1	1	2	0	1	1	0	0	2	2	1	1
II	0	2	0	2	0	2	0	2	0	2	0	2	1	2	1	0	0	0
III	2	2	0	1	1	2	1	2	2	0	2	2	1	2	1	2	1	2
III	0	1	2	2	2	1	0	0	0	2	1	0	2	1	0	0	1	0
III	1	0	1	0	0	0	2	1	1	1	0	1	0	0	2	1	0	2
IV	0	1	1	1	0	1	1	1	0	1	1	1	1	0	1	1	1	0
IV	1	0	0	2	1	0	0	2	1	0	0	2	2	2	0	2	0	2
IV	2	2	2	0	2	2	2	0	2	2	2	0	0	1	2	0	1	2
V	1	2	1	2	2	0	2	2	1	2	1	2	0	1	2	2	0	0
V	2	1	0	0	0	2	1	0	2	1	0	0	1	0	1	0	2	2
V	0	0	2	1	1	1	0	1	0	0	2	1	2	2	0	1	1	1
VI	2	0	2	2	2	2	0	1	2	2	0	1	2	2	2	0	2	1
VI	0	2	1	0	0	1	2	2	0	1	2	2	0	1	1	1	0	1
VI	1	1	0	1	1	0	1	0	1	0	1	0	1	0	0	2	2	0