

表 4-1 SRM 於每個凹槽相對位置的速度  $u$  的相對誤差比較

	(A)	(B)	(C)	(D)	(E)
1	0.1361198	0.1287368	0.1983746	0.0872627	0.1276267
2	0.0215852	0.0181370	0.0147135	0.0113452	0.0077330
3	0.0059017	0.0042849	0.0027551	0.0018681	0.0010907
4	0.0008007	0.0005251	0.0002941	0.0001872	0.0001058
5	0.0000723	0.0000457	0.0000262	0.0000210	0.0000277
6	0.0000057	0.0000046	0.0000082	0.0000128	0.0000240
7	0	0	0	0	0
8	0.0000238	0.0000385	0.0000979	0.0001545	0.0002821
9	0.0003013	0.0004709	0.0011167	0.0016686	0.0027912
10	0.0027012	0.0038874	0.0078075	0.0104170	0.0147515
11	0.0135549	0.0169881	0.0269849	0.0321088	0.0491828
12	0.1118273	0.1763826	0.1938747	0.3817173	0.3182378

表 4-2 SRM 於每個凹槽相對位置的速度  $v$  的相對誤差比較

	(A)	(B)	(C)	(D)	(E)
1	0.1364748	0.1173874	0.1039838	0.0938748	0.0876261
2	0.0144873	0.0128356	0.0104492	0.0080406	0.0055072
3	0.0042334	0.0031390	0.0020072	0.0013486	0.0007803
4	0.0005814	0.0003882	0.0002149	0.0001329	0.0000687
5	0.0000525	0.0000331	0.0000168	0.0000120	0.0000180
6	0.0000036	0.0000026	0.0000054	0.0000091	0.0000177
7	0	0	0	0	0
8	0.0000177	0.0000288	0.0000715	0.0001129	0.0002083
9	0.0002233	0.00035014	0.0008069	0.0012044	0.0020317
10	0.0019736	0.00285479	0.0055571	0.0073664	0.0104352
11	0.0096050	0.01202452	0.0172555	0.0175212	0.0143952
12	0.0176267	0.01076352	0.01287474	0.1276373	0.1173783

表 4-3 SRM 於每個凹槽相對位置的速度  $w$  的相對誤差比較

	(A)	(B)	(C)	(D)	(E)
1	0.0102748	0.0123838	0.0128983	0.0839731	0.0066824
2	0.0065310	0.0035312	0.0010366	0.0003891	0.0002511
3	0.0002958	0.0002881	0.0001062	0.0000568	0.0000297
4	0.0000333	0.0000308	0.0000095	0.0000046	0.0000030
5	0.0000029	0.0000026	0.0000009	0.0000005	0.0000009
6	0.0000002	0.0000002	0.0000002	0.0000003	0.0000008
7	0	0	0	0	0
8	0.0000009	0.0000021	0.0000026	0.0000034	0.0000090
9	0.0000114	0.0000266	0.0000302	0.0000451	0.0001073
10	0.0001181	0.0002466	0.0002401	0.0002547	0.0010176
11	0.0011850	0.0027812	0.0095226	0.0167803	0.0164054
12	0.0183718	0.0283776	0.0193973	0.0267371	0.0297292

表 4-4 SRM 格點分佈

	速度	濃度	主流道	凹槽
Mesh-A	96900	42000	$\Delta x = 0.1, \Delta y = 0.1,$ $\Delta z = 0.1$	$\Delta x = 0.1, \Delta y = 0.1,$ $\Delta z = 0.1$
Mesh-B	309960	147840	$\Delta x = 0.07, \Delta y = 0.07,$ $\Delta z = 0.07$	$\Delta x = 0.07, \Delta y = 0.07,$ $\Delta z = 0.03$
Mesh-C	481440	235008	$\Delta x = 0.06, \Delta y = 0.06,$ $\Delta z = 0.06$	$\Delta x = 0.06, \Delta y = 0.06,$ $\Delta z = 0.026$
Mesh-D	621108	303264	$\Delta x = 0.055, \Delta y = 0.055,$ $\Delta z = 0.055$	$\Delta x = 0.055, \Delta y = 0.055,$ $\Delta z = 0.024$

表 4- 5 SHM 格點分佈

	速度	濃度	主流道	溝槽
Mesh-A	319200	101700	$\Delta x = 0.1, \Delta y = 0.1,$ $\Delta z = 0.1$	$\Delta x = 0.1, \Delta y = 0.1,$ $\Delta z = 0.1$
Mesh-B	676368	219528	$\Delta x = 0.08, \Delta y = 0.08,$ $\Delta z = 0.08$	$\Delta x = 0.08, \Delta y = 0.08,$ $\Delta z = 0.04$
Mesh-C	875004	283842	$\Delta x = 0.07, \Delta y = 0.07,$ $\Delta z = 0.036$	$\Delta x = 0.07, \Delta y = 0.07,$ $\Delta z = 0.036$
Mesh-D	1053360	340830	$\Delta x = 0.06, \Delta y = 0.06,$ $\Delta z = 0.06$	$\Delta x = 0.06, \Delta y = 0.06,$ $\Delta z = 0.03$

表 4-6 各型態壓力梯度整理(無因次)

	SRM	SHM	OBSHM	Block Type1	Block Type 2	Block Type 3	Block Type4
$Pe = 2 \times 10^3$ $Re = 0.01$	-1446.89	-1434.91	-2751.73	-4336.78	-4098.06	-9797.80	-8975.56
$Pe = 2 \times 10^5$ $Re = 1$	-14.48	-14.35	-27.57	-43.50	-41.09	-98.64	-90.50

表 4-7 SRM  $Pe = 2 \times 10^5$ ,  $Re = 1$  不同凹槽參數時的壓力梯度(無因次)

Double SRM	$G_d = 0.2h$	$G_d = 0.86h$	$G_w = 0.36h$	$G_w = 1.44h$	$\alpha = 30^\circ$	$\alpha = 60^\circ$	$\alpha = 75^\circ$
-13.65	-14.68	-14.35	-15.09	-13.11	-14.58	-14.59	-14.71

表 4-8 各型態壓力梯度整理 ( $N/m^3$ )

	SRM	SHM	OBSHM	Block Type1	Block Type 2	Block Type 3	Block Type4
$Pe = 2 \times 10^3$ $Re = 0.01$	$-1.598 \times 10^6$	$-1.585 \times 10^6$	$-3.04 \times 10^6$	$-4.790 \times 10^6$	$-4.526 \times 10^6$	$-1.082 \times 10^7$	$-9.914 \times 10^6$
$Pe = 2 \times 10^5$ $Re = 1$	$-1.60 \times 10^8$	$-1.585 \times 10^8$	$-3.046 \times 10^8$	$-4.806 \times 10^8$	$-4.539 \times 10^8$	$-1.090 \times 10^9$	$-1.0 \times 10^9$

表 4-9 SRM  $Pe = 2 \times 10^5$ ,  $Re = 1$  不同凹槽參數時的壓力梯度 ( $N/m^3$ )

Double SRM	$G_d = 0.2h$	$G_d = 0.86h$	$G_w = 0.36h$	$G_w = 1.44h$	$\alpha = 30^\circ$	$\alpha = 60^\circ$	$\alpha = 75^\circ$	
	$-1.508 \times 10^8$	$-1.621 \times 10^8$	$-1.586 \times 10^8$	$-1.667 \times 10^8$	$-1.448 \times 10^8$	$-1.610 \times 10^8$	$-1.611 \times 10^8$	$-1.625 \times 10^8$

