

MC topology analysis: tex version

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Contents

1 Modes list in decreasing order

1.1 Decay modes

No.	decay chain	final states	iTopology	nEvt	nTot
0	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow b_1^+ \pi^0 \pi^-, b_1^+ \rightarrow \omega \pi^+, \omega \rightarrow \pi^0 \gamma$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma \gamma$	17	137	137
1	$\psi' \rightarrow \pi^0 \pi^0 h_1(1170), h_1(1170) \rightarrow \rho^+ \pi^-, \rho^+ \rightarrow \pi^+ \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+$	11	131	268
2	$\psi' \rightarrow h_1(1170) \pi^0 \pi^0, h_1(1170) \rightarrow \rho^- \pi^+, \rho^- \rightarrow \pi^- \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+$	8	123	391
3	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \pi^0 \pi^+ b_1^-, b_1^- \rightarrow \omega \pi^-, \omega \rightarrow \pi^0 \gamma$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma \gamma$	57	120	511
4	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow \pi^0 h_1(1170), h_1(1170) \rightarrow \rho^+ \pi^-, \rho^+ \rightarrow \pi^+ \pi^0$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma \gamma$	20	107	618
5	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow h_1(1170) \pi^0, h_1(1170) \rightarrow \rho^- \pi^+, \rho^- \rightarrow \pi^- \pi^0$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma \gamma$	10	102	720
6	$\psi' \rightarrow J/\psi \pi^0 \pi^0, J/\psi \rightarrow h_1(1170) \pi^0, h_1(1170) \rightarrow \rho^- \pi^+, \rho^- \rightarrow \pi^- \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \pi^+$	1	92	812
7	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow \pi^0 h_1(1170), h_1(1170) \rightarrow \rho^0 \pi^0, \rho^0 \rightarrow \pi^+ \pi^-$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma \gamma$	3	75	887
8	$\psi' \rightarrow J/\psi \pi^0 \pi^0, J/\psi \rightarrow h_1(1170) \pi^0, h_1(1170) \rightarrow \rho^+ \pi^-, \rho^+ \rightarrow \pi^+ \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^0 \pi^+$	23	70	957
9	$\psi' \rightarrow h_1(1170) \pi^0 \pi^0, h_1(1170) \rightarrow \rho^0 \pi^0, \rho^0 \rightarrow \pi^+ \pi^-$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+$	43	69	1026
10	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow \omega \pi^0, \omega \rightarrow \pi^- \pi^+ \pi^0$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma \gamma$	27	63	1089
11	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \rho^+ \pi^- \pi^0, \rho^+ \rightarrow \pi^+ \pi^0$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma$	2	59	1148
12	$\psi' \rightarrow J/\psi \pi^+ \pi^-, J/\psi \rightarrow b_1^0 \pi^0, b_1^0 \rightarrow \omega \pi^0, \omega \rightarrow \pi^0 \gamma$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma$	15	59	1207
13	$\psi' \rightarrow J/\psi \pi^+ \pi^-, J/\psi \rightarrow \omega \pi^0 \pi^0, \omega \rightarrow \pi^0 \gamma$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma$	34	53	1260
14	$\psi' \rightarrow J/\psi \pi^+ \pi^-, J/\psi \rightarrow \gamma \pi^0 \pi^0 \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma$	9	48	1308
15	$\psi' \rightarrow J/\psi \pi^0 \pi^0, J/\psi \rightarrow h_1(1170) \pi^0, h_1(1170) \rightarrow \rho^0 \pi^0, \rho^0 \rightarrow \pi^+ \pi^-$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^0 \pi^+$	0	47	1355
16	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \rho^- \pi^+ \pi^0, \rho^- \rightarrow \pi^- \pi^0$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma$	48	45	1400
17	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \pi^0 \rho^- \rho^+, \rho^- \rightarrow \pi^- \pi^0, \rho^+ \rightarrow \pi^+ \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma$	67	40	1440
18	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow \omega \pi^0 \pi^0, \omega \rightarrow \pi^- \pi^+ \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma \gamma$	89	37	1477
19	$\psi' \rightarrow \pi^0 \pi^0 \rho^+ \pi^-, \rho^+ \rightarrow \pi^+ \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+$	19	34	1511
20	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow \gamma \pi^+ \pi^- \pi^0 \pi^0$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma \gamma \gamma$	31	33	1544
21	$\psi' \rightarrow J/\psi \pi^0 \pi^0, J/\psi \rightarrow \gamma \eta', \eta' \rightarrow \rho^0 \gamma, \rho^0 \rightarrow \pi^+ \pi^-$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma \gamma$	36	32	1576
22	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow b_1^0 \pi^0, b_1^0 \rightarrow \omega \pi^0, \omega \rightarrow \pi^- \pi^+ \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma \gamma$	53	31	1607
23	$\psi' \rightarrow J/\psi \pi^+ \pi^-, J/\psi \rightarrow \gamma \eta, \eta \rightarrow \pi^0 \pi^0 \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma$	12	31	1638
24	$\psi' \rightarrow J/\psi \pi^+ \pi^-, J/\psi \rightarrow \gamma \eta_c, \eta_c \rightarrow \eta \pi^0 \pi^0, \eta \rightarrow \gamma \gamma$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma \gamma \gamma$	105	30	1668
25	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \pi^- \pi^0 \pi^0 \rho^+, \rho^+ \rightarrow \pi^+ \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma$	55	28	1696
26	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \pi^+ \pi^0 \pi^0 \rho^-, \rho^- \rightarrow \pi^- \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma$	61	27	1723
27	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow h_1(1170) \pi^0 \pi^0, h_1(1170) \rightarrow \rho^- \pi^+, \rho^- \rightarrow \pi^- \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma \gamma$	38	27	1750
28	$\psi' \rightarrow \pi^0 \pi^0 \rho^- \pi^+, \rho^- \rightarrow \pi^- \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+$	101	25	1775
29	$\psi' \rightarrow b_1^0 \pi^0, b_1^0 \rightarrow \omega \pi^0, \omega \rightarrow \pi^- \pi^+ \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+$	73	25	1800

Table 1:

No.	decay chain	final states	iTopology	nEvt	nTot
30	$\psi' \rightarrow J/\psi\pi^+\pi^-, J/\psi \rightarrow \omega f_2(1270), \omega \rightarrow \pi^0\gamma, f_2(1270) \rightarrow \pi^0\pi^0$	$\pi^-\pi^0\pi^0\pi^+\gamma$	30	24	1824
31	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \eta'\pi^0\pi^0, \eta' \rightarrow \rho^0\gamma, \rho^0 \rightarrow \pi^+\pi^-$	$\pi^-\pi^0\pi^0\pi^+\gamma\gamma$	21	24	1848
32	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow h_1(1170)\pi^0\pi^0, h_1(1170) \rightarrow \rho^+\pi^-, \rho^+ \rightarrow \pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma\gamma$	25	23	1871
33	$\psi' \rightarrow J/\psi\pi^0\pi^0, J/\psi \rightarrow b_1^0\pi^0, b_1^0 \rightarrow \omega\pi^0, \omega \rightarrow \pi^-\pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^0\pi^+$	71	23	1894
34	$\psi' \rightarrow J/\psi\pi^+\pi^-, J/\psi \rightarrow \gamma\eta', \eta' \rightarrow \pi^0\pi^0\eta, \eta \rightarrow \gamma\gamma$	$\pi^-\pi^0\pi^0\pi^+\gamma\gamma\gamma$	54	21	1915
35	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow \gamma\rho^+\rho^-, \rho^+ \rightarrow \pi^+\pi^0, \rho^- \rightarrow \pi^-\pi^0$	$\pi^-\pi^0\pi^0\pi^+\gamma\gamma\gamma$	74	19	1934
36	$\psi' \rightarrow J/\psi\pi^+\pi^-, J/\psi \rightarrow \gamma f_4(2050), f_4(2050) \rightarrow \pi^0\pi^0$	$\pi^-\pi^0\pi^0\pi^+\gamma$	56	19	1953
37	$\psi' \rightarrow J/\psi\pi^0\pi^0, J/\psi \rightarrow \gamma\pi^+\pi^-\pi^0\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^0\pi^+\gamma$	62	16	1969
38	$\psi' \rightarrow \omega f_2(1270), \omega \rightarrow \pi^-\pi^+\pi^0, f_2(1270) \rightarrow \pi^0\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+$	13	16	1985
39	$\psi' \rightarrow \pi^0 b_1^0\pi^0, b_1^0 \rightarrow \omega\pi^0, \omega \rightarrow \pi^-\pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^0\pi^+$	88	15	2000
40	$\psi' \rightarrow J/\psi\pi^0\pi^0, J/\psi \rightarrow \pi^0\pi^0 h_1(1170), h_1(1170) \rightarrow \rho^+\pi^-, \rho^+ \rightarrow \pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^0\pi^0\pi^+$	59	15	2015
41	$\psi' \rightarrow \pi^0 b_1^-\pi^+\pi^0, b_1^- \rightarrow \omega\pi^-, \omega \rightarrow \pi^0\gamma$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma$	153	15	2030
42	$\psi' \rightarrow J/\psi\pi^0\pi^0, J/\psi \rightarrow \omega\pi^0, \omega \rightarrow \pi^-\pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^0\pi^+$	70	13	2043
43	$\psi' \rightarrow \gamma\eta_c(2S), \eta_c(2S) \rightarrow b_1^-\pi^0\pi^+, b_1^- \rightarrow \omega\pi^-, \omega \rightarrow \pi^0\gamma$	$\pi^-\pi^0\pi^0\pi^+\gamma\gamma$	16	13	2056
44	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow \pi^0 h_1(1170)\pi^0, h_1(1170) \rightarrow \rho^0\pi^0, \rho^0 \rightarrow \pi^+\pi^-$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma\gamma$	6	13	2069
45	$\psi' \rightarrow \gamma\eta_c(2S), \eta_c(2S) \rightarrow \rho^+\rho^-, \rho^+ \rightarrow \pi^+\pi^0, \rho^- \rightarrow \pi^-\pi^0$	$\pi^-\pi^0\pi^0\pi^+\gamma$	5	12	2081
46	$\psi' \rightarrow \gamma\eta_c(2S), \eta_c(2S) \rightarrow \pi^0\pi^- b_1^+, b_1^+ \rightarrow \omega\pi^+, \omega \rightarrow \pi^0\gamma$	$\pi^-\pi^0\pi^0\pi^+\gamma\gamma$	42	12	2093
47	$\psi' \rightarrow J/\psi\pi^0\pi^0, J/\psi \rightarrow \gamma\rho^+\rho^-, \rho^+ \rightarrow \pi^+\pi^0, \rho^- \rightarrow \pi^-\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^0\pi^+\gamma$	49	12	2105
48	$\psi' \rightarrow J/\psi\pi^0\pi^0, J/\psi \rightarrow \omega\pi^0\pi^0, \omega \rightarrow \pi^-\pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^0\pi^0\pi^+$	137	11	2116
49	$\psi' \rightarrow \pi^0\pi^-\pi^+\pi^0\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+$	94	11	2127
50	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow f_2(1270)\eta, f_2(1270) \rightarrow \pi^0\pi^0, \eta \rightarrow \pi^-\pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma$	76	10	2137
51	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \pi^+\pi^0\pi^0\pi^-\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma$	77	10	2147
52	$\psi' \rightarrow \gamma\chi_{c2}, \chi_{c2} \rightarrow \gamma J/\psi, J/\psi \rightarrow \omega\pi^0\pi^0, \omega \rightarrow \pi^-\pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma\gamma$	58	10	2157
53	$\psi' \rightarrow \eta\pi^+\pi^-\pi^0, \eta \rightarrow \pi^0\pi^0\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^0\pi^+$	75	10	2167
54	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow \pi^0\rho^+\pi^-, \rho^+ \rightarrow \pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^+\gamma\gamma$	93	10	2177
55	$\psi' \rightarrow \gamma\chi_{c2}, \chi_{c2} \rightarrow b_1^-\pi^+\pi^0, b_1^- \rightarrow \omega\pi^-, \omega \rightarrow \pi^0\gamma$	$\pi^-\pi^0\pi^0\pi^+\gamma\gamma$	157	10	2187
56	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow a_2^+\pi^0\pi^-, a_2^+ \rightarrow \rho^+\pi^0, \rho^+ \rightarrow \pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma$	174	10	2197
57	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \pi^+\pi^0 a_2^-, a_2^- \rightarrow \rho^-\pi^0, \rho^- \rightarrow \pi^-\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma$	125	9	2206
58	$\psi' \rightarrow \gamma\chi_{c2}, \chi_{c2} \rightarrow \gamma J/\psi, J/\psi \rightarrow \gamma\pi^+\pi^-\pi^0\pi^0$	$\pi^-\pi^0\pi^0\pi^+\gamma\gamma\gamma$	45	9	2215
59	$\psi' \rightarrow b_1^+\pi^-\pi^0\pi^0, b_1^+ \rightarrow \omega\pi^+, \omega \rightarrow \pi^0\gamma$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma$	82	9	2224

Table 2:

No.	decay chain	final states	iTopology	nEvt	nTot
60	$\psi' \rightarrow J/\psi\pi^0\pi^0, J/\psi \rightarrow h_1(1170)\pi^0\pi^0, h_1(1170) \rightarrow \rho^-\pi^+, \rho^- \rightarrow \pi^-\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+$	86	9	2233
61	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \pi^0\pi^0\pi^+\pi^-$	$\pi^-\pi^0\pi^0\pi^+\gamma$	121	9	2242
62	$\psi' \rightarrow \pi^0\pi^0\rho^0\pi^0, \rho^0 \rightarrow \pi^+\pi^-$	$\pi^-\pi^0\pi^0\pi^0\pi^+$	226	9	2251
63	$\psi' \rightarrow \rho^+a_2^-, \rho^+ \rightarrow \pi^+\pi^0, a_2^- \rightarrow \rho^-\pi^0, \rho^- \rightarrow \pi^-\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+$	37	8	2259
64	$\psi' \rightarrow \gamma\eta_c(2S), \eta_c(2S) \rightarrow \rho^-\pi^+\pi^0, \rho^- \rightarrow \pi^-\pi^0$	$\pi^-\pi^0\pi^0\pi^+\gamma$	102	8	2267
65	$\psi' \rightarrow \gamma\chi_{c2}, \chi_{c2} \rightarrow \gamma J/\psi, J/\psi \rightarrow b_1^0\pi^0, b_1^0 \rightarrow \omega\pi^0, \omega \rightarrow \pi^-\pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma\gamma$	51	7	2274
66	$\psi' \rightarrow J/\psi\pi^+\pi^-, J/\psi \rightarrow \gamma f_0(1710), f_0(1710) \rightarrow \pi^0\pi^0$	$\pi^-\pi^0\pi^0\pi^+\gamma$	40	7	2281
67	$\psi' \rightarrow \gamma\chi_{c2}, \chi_{c2} \rightarrow \gamma J/\psi, J/\psi \rightarrow h_1(1170)\pi^0\pi^0, h_1(1170) \rightarrow \rho^+\pi^-, \rho^+ \rightarrow \pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma\gamma$	131	7	2288
68	$\psi' \rightarrow J/\psi\eta, J/\psi \rightarrow h_1(1170)\pi^0, \eta \rightarrow \gamma\gamma, h_1(1170) \rightarrow \rho^+\pi^-, \rho^+ \rightarrow \pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^+\gamma\gamma$	99	7	2295
69	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow \pi^0\pi^+\rho^-, \rho^- \rightarrow \pi^-\pi^0$	$\pi^-\pi^0\pi^0\pi^+\gamma\gamma$	242	7	2302
70	$\psi' \rightarrow \gamma\eta_c, \eta_c \rightarrow \eta\pi^0\pi^0, \eta \rightarrow \pi^-\pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma$	252	7	2309
71	$\psi' \rightarrow \gamma\chi_{c2}, \chi_{c2} \rightarrow \rho^-\pi^+\pi^0, \rho^- \rightarrow \pi^-\pi^0$	$\pi^-\pi^0\pi^0\pi^+\gamma$	141	6	2315
72	$\psi' \rightarrow J/\psi\pi^0\pi^0, J/\psi \rightarrow \pi^-\pi^+\pi^0\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^0\pi^+$	151	6	2321
73	$\psi' \rightarrow J/\psi\pi^+\pi^-, J/\psi \rightarrow \gamma f_2(1270), f_2(1270) \rightarrow \pi^0\pi^0$	$\pi^-\pi^0\pi^0\pi^+\gamma$	113	6	2327
74	$\psi' \rightarrow J/\psi\pi^0\pi^0, J/\psi \rightarrow h_1(1170)\pi^0\pi^0, h_1(1170) \rightarrow \rho^0\pi^0, \rho^0 \rightarrow \pi^+\pi^-$	$\pi^-\pi^0\pi^0\pi^0\pi^0\pi^0\pi^+$	156	6	2333
75	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \rho^-\pi^+\pi^0\gamma_{FSR}, \rho^- \rightarrow \pi^-\pi^0$	$\pi^-\pi^0\pi^0\pi^+\gamma$	32	6	2339
76	$\psi' \rightarrow \rho^-a_2^+, \rho^- \rightarrow \pi^-\pi^0, a_2^+ \rightarrow \rho^+\pi^0, \rho^+ \rightarrow \pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+$	160	6	2345
77	$\psi' \rightarrow \pi^-\pi^0a_2^+, a_2^+ \rightarrow \rho^+\pi^0, \rho^+ \rightarrow \pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+$	169	6	2351
78	$\psi' \rightarrow \gamma\eta_c(2S), \eta_c(2S) \rightarrow \rho^+\pi^-\pi^0, \rho^+ \rightarrow \pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^+\gamma$	47	6	2357
79	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow \omega f_2(1270), \omega \rightarrow \pi^-\pi^+\pi^0, f_2(1270) \rightarrow \pi^0\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma\gamma$	196	6	2363
80	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow K^*K^0\pi^0, K^* \rightarrow K^+\pi^-, K_S \rightarrow \pi^0\pi^0$	$\pi^-\pi^0\pi^0\pi^0\gamma K^+$	128	6	2369
81	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \rho^+K^-K^0, \rho^+ \rightarrow \pi^+\pi^0, K_S \rightarrow \pi^0\pi^0$	$K^-\pi^0\pi^0\pi^0\pi^+\gamma$	78	6	2375
82	$\psi' \rightarrow a_2^-\pi^+\pi^0, a_2^- \rightarrow \rho^-\pi^0, \rho^- \rightarrow \pi^-\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+$	96	6	2381
83	$\psi' \rightarrow J/\psi\pi^0\pi^0, J/\psi \rightarrow \omega f_2(1270), \omega \rightarrow \pi^-\pi^+\pi^0, f_2(1270) \rightarrow \pi^0\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^0\pi^0\pi^+$	52	5	2386
84	$\psi' \rightarrow \gamma\chi_{c2}, \chi_{c2} \rightarrow \pi^0\pi^0\rho^-\pi^+, \rho^- \rightarrow \pi^-\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma$	127	5	2391
85	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow \pi^0\pi^0\pi^+\pi^-$	$\pi^-\pi^0\pi^0\pi^+\gamma\gamma$	112	5	2396
86	$\psi' \rightarrow J/\psi\pi^0\pi^0, J/\psi \rightarrow \pi^+\pi^0\rho^-, \rho^- \rightarrow \pi^-\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^0\pi^+$	33	5	2401
87	$\psi' \rightarrow J/\psi\eta, J/\psi \rightarrow \gamma f_4(2050), \eta \rightarrow \pi^-\pi^+\pi^0, f_4(2050) \rightarrow \pi^0\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma$	229	5	2406
88	$\psi' \rightarrow b_1^0\pi^0\eta, b_1^0 \rightarrow \omega\pi^0, \eta \rightarrow \gamma\gamma, \omega \rightarrow \pi^-\pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma\gamma$	134	5	2411
89	$\psi' \rightarrow J/\psi\pi^0\pi^0, J/\psi \rightarrow \gamma\eta\pi^+\pi^-, \eta \rightarrow \gamma\gamma$	$\pi^-\pi^0\pi^0\pi^+\gamma\gamma\gamma$	97	5	2416

Table 3:

No.	decay chain	final states	iTopology	nEvt	nTot
90	$\psi' \rightarrow J/\psi\pi^+\pi^-, J/\psi \rightarrow \gamma\eta_c, \eta_c \rightarrow \pi^0\pi^0\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma$	276	5	2421
91	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \rho^-K^+\bar{K}^0, \rho^- \rightarrow \pi^-\pi^0, K_S \rightarrow \pi^0\pi^0$	$\pi^-\pi^0\pi^0\pi^0\gamma K^+$	289	5	2426
92	$\psi' \rightarrow h_1(1170)\pi^0\pi^0, h_1(1170) \rightarrow \rho^0\pi^0, \rho^0 \rightarrow \pi^+\pi^-\gamma_{FSR}$	$\pi^-\pi^0\pi^0\pi^0\pi^+$	29	4	2430
93	$\psi' \rightarrow J/\psi\pi^0\pi^0, J/\psi \rightarrow \pi^-\pi^0\rho^+, \rho^+ \rightarrow \pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\pi^+$	39	4	2434
94	$\psi' \rightarrow J/\psi\pi^0\pi^0, J/\psi \rightarrow \gamma f_1(1285), f_1(1285) \rightarrow a_0^-\pi^+, a_0^- \rightarrow \eta\pi^-, \eta \rightarrow \gamma\gamma$	$\pi^-\pi^0\pi^0\pi^+\gamma\gamma\gamma$	115	4	2438
95	$\psi' \rightarrow J/\psi\eta, J/\psi \rightarrow \gamma f_2(1270), \eta \rightarrow \pi^-\pi^+\pi^0, f_2(1270) \rightarrow \pi^0\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma$	120	4	2442
96	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \omega\omega, \omega \rightarrow \pi^0\gamma, \omega \rightarrow \pi^-\pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^+\gamma\gamma$	84	4	2446
97	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \pi^+\pi^-\omega\pi^0, \omega \rightarrow \pi^0\gamma$	$\pi^-\pi^0\pi^0\pi^+\gamma\gamma$	164	4	2450
98	$\psi' \rightarrow J/\psi\pi^0\pi^0, J/\psi \rightarrow \gamma f_4(2050), f_4(2050) \rightarrow \pi^0\pi^0$	$\pi^0\pi^0\pi^0\pi^0\gamma$	264	4	2454
99	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow a_2^-\rho^+, a_2^- \rightarrow \rho^-\pi^0, \rho^+ \rightarrow \pi^+\pi^0, \rho^- \rightarrow \pi^-\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma\gamma$	269	4	2458
100	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \pi^0\pi^0 a_2^0, a_2^0 \rightarrow \rho^-\pi^+, \rho^- \rightarrow \pi^-\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma$	165	4	2462
101	$\psi' \rightarrow \gamma\chi_{c2}, \chi_{c2} \rightarrow b_1^+\pi^0\pi^-, b_1^+ \rightarrow \omega\pi^+, \omega \rightarrow \pi^0\gamma$	$\pi^-\pi^0\pi^0\pi^+\gamma\gamma$	92	4	2466
102	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow \pi^0\rho^0\pi^0, \rho^0 \rightarrow \pi^+\pi^-$	$\pi^-\pi^0\pi^0\pi^+\gamma\gamma$	293	4	2470
103	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow b_1^+\pi^0\pi^0\pi^-, b_1^+ \rightarrow \omega\pi^+, \omega \rightarrow \pi^0\gamma$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma\gamma$	354	4	2474
104	$\psi' \rightarrow \gamma\chi_{c2}, \chi_{c2} \rightarrow \pi^0\eta'\pi^0, \eta' \rightarrow \rho^0\gamma, \rho^0 \rightarrow \pi^+\pi^-$	$\pi^-\pi^0\pi^0\pi^+\gamma\gamma$	60	3	2477
105	$\psi' \rightarrow J/\psi\pi^+\pi^-, J/\psi \rightarrow \gamma f_2(1950), f_2(1950) \rightarrow \pi^0\pi^0$	$\pi^-\pi^0\pi^0\pi^+\gamma$	14	3	2480
106	$\psi' \rightarrow \gamma\chi_{c2}, \chi_{c2} \rightarrow \pi^0\pi^0\pi^-\rho^+, \rho^+ \rightarrow \pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma$	175	3	2483
107	$\psi' \rightarrow J/\psi\pi^0\pi^0, J/\psi \rightarrow h_1(1170)\pi^0, h_1(1170) \rightarrow \rho^0\pi^0, \rho^0 \rightarrow \pi^+\pi^-\gamma_{FSR}$	$\pi^-\pi^0\pi^0\pi^0\pi^0\pi^+$	184	3	2486
108	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow b_1^0\pi^0, b_1^0 \rightarrow \omega\pi^0, \omega \rightarrow \pi^-\pi^+$	$\pi^-\pi^0\pi^0\pi^+\gamma\gamma$	186	3	2489
109	$\psi' \rightarrow J/\psi\pi^0, J/\psi \rightarrow b_1^0\pi^0, b_1^0 \rightarrow \omega\pi^0, \omega \rightarrow \pi^-\pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^0\pi^+$	24	3	2492
110	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow h_1(1170)\pi^0\pi^0, h_1(1170) \rightarrow \rho^0\pi^0, \rho^0 \rightarrow \pi^+\pi^-\gamma_{FSR}$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma\gamma$	204	3	2495
111	$\psi' \rightarrow J/\psi\pi^0\pi^0, J/\psi \rightarrow \pi^0\rho^0\pi^0, \rho^0 \rightarrow \pi^+\pi^-$	$\pi^-\pi^0\pi^0\pi^0\pi^0\pi^+$	206	3	2498
112	$\psi' \rightarrow J/\psi\eta, J/\psi \rightarrow \gamma\pi^+\pi^-\pi^0\pi^0, \eta \rightarrow \gamma\gamma$	$\pi^-\pi^0\pi^0\pi^+\gamma\gamma\gamma$	222	3	2501
113	$\psi' \rightarrow \gamma\chi_{c2}, \chi_{c2} \rightarrow \gamma J/\psi, J/\psi \rightarrow h_1(1170)\pi^0\pi^0, h_1(1170) \rightarrow \rho^0\pi^0, \rho^0 \rightarrow \pi^+\pi^-$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma\gamma$	116	3	2504
114	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \rho^+\pi^-\pi^0\gamma_{FSR}, \rho^+ \rightarrow \pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^+\gamma$	227	3	2507
115	$\psi' \rightarrow \gamma\eta_c(2S), \eta_c(2S) \rightarrow \pi^0\pi^0\pi^0\pi^0$	$\pi^0\pi^0\pi^0\pi^0\gamma$	145	3	2510
116	$\psi' \rightarrow J/\psi\pi^+\pi^-, J/\psi \rightarrow \gamma\pi^0\pi^0\eta, \eta \rightarrow \gamma\gamma$	$\pi^-\pi^0\pi^0\pi^+\gamma\gamma\gamma$	232	3	2513
117	$\psi' \rightarrow \gamma\chi_{c2}, \chi_{c2} \rightarrow \gamma J/\psi, J/\psi \rightarrow h_1(1170)\pi^0\pi^0, h_1(1170) \rightarrow \rho^-\pi^+, \rho^- \rightarrow \pi^-\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma\gamma$	233	3	2516
118	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \pi^0\pi^-b_1^+\gamma_{FSR}, b_1^+ \rightarrow \omega\pi^+, \omega \rightarrow \pi^0\gamma$	$\pi^-\pi^0\pi^0\pi^+\gamma\gamma$	240	3	2519
119	$\psi' \rightarrow J/\psi\pi^+\pi^-, J/\psi \rightarrow \gamma f_1(1285), f_1(1285) \rightarrow a_0^0\pi^0, a_0^0 \rightarrow \eta\pi^0, \eta \rightarrow \gamma\gamma$	$\pi^-\pi^0\pi^0\pi^+\gamma\gamma\gamma$	66	3	2522

Table 4:

No.	decay chain	final states	iTopology	nEvt	nTot
120	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \omega\pi^+\rho^-, \omega \rightarrow \pi^0\gamma, \rho^- \rightarrow \pi^-\pi^0$	$\pi^-\pi^0\pi^0\pi^+\gamma\gamma$	245	3	2525
121	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow a_1^+\pi^0\pi^-, a_1^+ \rightarrow \rho^+\pi^0, \rho^+ \rightarrow \pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma$	247	3	2528
122	$\psi' \rightarrow \phi f_0(980), \phi \rightarrow \rho^+\pi^-, f_0(980) \rightarrow \pi^0\pi^0, \rho^+ \rightarrow \pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+$	87	3	2531
123	$\psi' \rightarrow J/\psi\pi^0\pi^0, J/\psi \rightarrow \pi^0\rho^+\pi^-\pi^0, \rho^+ \rightarrow \pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+$	257	3	2534
124	$\psi' \rightarrow h_1(1170)\pi^0\pi^0, h_1(1170) \rightarrow \rho^+\pi^-\gamma_{FSR}, \rho^+ \rightarrow \pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+$	95	3	2537
125	$\psi' \rightarrow \gamma\rho^-\pi^0\rho^+, \rho^- \rightarrow \pi^-\pi^0, \rho^+ \rightarrow \pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma$	265	3	2540
126	$\psi' \rightarrow \gamma\eta_c(2S), \eta_c(2S) \rightarrow \rho^+\rho^-\gamma_{FSR}, \rho^+ \rightarrow \pi^+\pi^0, \rho^- \rightarrow \pi^-\pi^0$	$\pi^-\pi^0\pi^0\pi^+\gamma$	126	3	2543
127	$\psi' \rightarrow \gamma\eta_c(2S), \eta_c(2S) \rightarrow \rho^+\pi^0\rho^-, \rho^+ \rightarrow \pi^+\pi^0, \rho^- \rightarrow \pi^-\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma$	274	3	2546
128	$\psi' \rightarrow \gamma\chi_{c2}, \chi_{c2} \rightarrow \rho^+\pi^-\pi^0, \rho^+ \rightarrow \pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^+\gamma$	106	3	2549
129	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow f_2(1270)\pi^+\rho^-, f_2(1270) \rightarrow \pi^0\pi^0, \rho^- \rightarrow \pi^-\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma$	281	3	2552
130	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \pi^0\pi^0 a_1^0, a_1^0 \rightarrow \rho^-\pi^+, \rho^- \rightarrow \pi^-\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma$	109	3	2555
131	$\psi' \rightarrow J/\psi\eta, J/\psi \rightarrow \gamma f_4(2050), \eta \rightarrow \gamma\pi^-\pi^+, f_4(2050) \rightarrow \pi^0\pi^0$	$\pi^-\pi^0\pi^0\pi^+\gamma\gamma$	130	3	2558
132	$\psi' \rightarrow \gamma\chi_{c2}, \chi_{c2} \rightarrow \pi^0\pi^0\pi^0\pi^0$	$\pi^0\pi^0\pi^0\pi^0\gamma$	299	3	2561
133	$\psi' \rightarrow \gamma\chi_{c2}, \chi_{c2} \rightarrow \pi^-\pi^0\pi^0\pi^+, b_1^0 \rightarrow \omega\pi^0, \omega \rightarrow \pi^0\gamma$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma\gamma$	314	3	2564
134	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow b_1^-\pi^0\rho^+, b_1^- \rightarrow \omega\pi^-, \rho^+ \rightarrow \pi^+\pi^0, \omega \rightarrow \pi^0\gamma$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma\gamma$	168	3	2567
135	$\psi' \rightarrow \pi^0\pi^0\pi^0 b_1^0, b_1^0 \rightarrow \omega\pi^0, \omega \rightarrow \pi^-\pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+$	360	3	2570
136	$\psi' \rightarrow J/\psi\pi^+\pi^-, J/\psi \rightarrow \omega\eta, \omega \rightarrow \pi^0\gamma, \eta \rightarrow \gamma\gamma$	$\pi^-\pi^0\pi^+\gamma\gamma\gamma$	363	3	2573
137	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \pi^0\pi^0\pi^0\pi^0$	$\pi^0\pi^0\pi^0\pi^0\gamma$	383	3	2576
138	$\psi' \rightarrow \gamma\eta_c(2S), \eta_c(2S) \rightarrow \pi^0\pi^0\rho^+\pi^-, \rho^+ \rightarrow \pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma$	205	2	2578
139	$\psi' \rightarrow \gamma\chi_{c2}, \chi_{c2} \rightarrow \bar{K}^* K^0\pi^0, \bar{K}^* \rightarrow K^-\pi^+, K_S \rightarrow \pi^0\pi^0$	$K^-\pi^0\pi^0\pi^0\pi^+\gamma$	147	2	2580
140	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow a_1^-\pi^+\pi^0, a_1^- \rightarrow \rho^-\pi^0, \rho^- \rightarrow \pi^-\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma$	207	2	2582
141	$\psi' \rightarrow h_1(1170)\pi^0\pi^0, h_1(1170) \rightarrow \rho^+\pi^-, \rho^+ \rightarrow \pi^+\pi^0\gamma_{FSR}$	$\pi^-\pi^0\pi^0\pi^0\pi^+$	211	2	2584
142	$\psi' \rightarrow J/\psi\eta, J/\psi \rightarrow \gamma f_0(1710), \eta \rightarrow \pi^-\pi^+\pi^0, f_0(1710) \rightarrow \pi^0\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma$	215	2	2586
143	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \pi^0\pi^0\eta, \eta \rightarrow \pi^-\pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma$	218	2	2588
144	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow \gamma f_4(2050), f_4(2050) \rightarrow \pi^0\pi^0$	$\pi^0\pi^0\gamma\gamma\gamma$	150	2	2590
145	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \rho^+\pi^-\pi^0, \rho^+ \rightarrow \pi^+\pi^0\gamma_{FSR}$	$\pi^-\pi^0\pi^0\pi^+\gamma$	224	2	2592
146	$\psi' \rightarrow J/\psi\pi^0\pi^0, J/\psi \rightarrow a_2^-\rho^+, a_2^- \rightarrow \rho^-\pi^0, \rho^+ \rightarrow \pi^+\pi^0, \rho^- \rightarrow \pi^-\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+$	123	2	2594
147	$\psi' \rightarrow J/\psi\pi^0, J/\psi \rightarrow \omega\pi^0\pi^0, \omega \rightarrow \pi^-\pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^0\pi^+$	124	2	2596
148	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow a_2^+\rho^-, a_2^+ \rightarrow \rho^+\pi^0, \rho^- \rightarrow \pi^-\pi^0, \rho^+ \rightarrow \pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma\gamma$	155	2	2598
149	$\psi' \rightarrow \gamma\eta_c(2S), \eta_c(2S) \rightarrow \pi^+\pi^0\omega\pi^-, \omega \rightarrow \pi^0\gamma$	$\pi^-\pi^0\pi^0\pi^+\gamma\gamma$	230	2	2600

Table 5:

No.	decay chain	final states	iTopology	nEvt	nTot
150	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \rho^- \pi^+ \pi^0, \rho^- \rightarrow \pi^- \pi^0 \gamma_{FSR}$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma$	63	2	2602
151	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow \pi^+ \pi^0 \pi^0 \rho^-, \rho^- \rightarrow \pi^- \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma \gamma$	64	2	2604
152	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \pi^- \pi^0 b_1^0 \pi^+, b_1^0 \rightarrow \omega \pi^0, \omega \rightarrow \pi^0 \gamma$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma \gamma$	238	2	2606
153	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow \pi^0 h_1(1170), h_1(1170) \rightarrow \rho^- \pi^+ \gamma_{FSR}, \rho^- \rightarrow \pi^- \pi^0$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma \gamma$	111	2	2608
154	$\psi' \rightarrow \gamma\eta_c(2S), \eta_c(2S) \rightarrow \pi^+ \pi^- \pi^0 \pi^0$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma$	163	2	2610
155	$\psi' \rightarrow J/\psi \pi^0 \pi^0, J/\psi \rightarrow \gamma f_2(1270), f_2(1270) \rightarrow \pi^0 \pi^0$	$\pi^0 \pi^0 \pi^0 \pi^0 \gamma$	18	2	2612
156	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow \gamma f_0(1710), f_0(1710) \rightarrow \pi^0 \pi^0$	$\pi^0 \pi^0 \gamma \gamma \gamma$	35	2	2614
157	$\psi' \rightarrow J/\psi \pi^0 \pi^0, J/\psi \rightarrow \gamma f_0(1710), f_0(1710) \rightarrow \pi^0 \pi^0$	$\pi^0 \pi^0 \pi^0 \pi^0 \gamma$	250	2	2616
158	$\psi' \rightarrow \gamma\chi_{c2}, \chi_{c2} \rightarrow \gamma J/\psi, J/\psi \rightarrow a_2^- \rho^+, a_2^- \rightarrow \rho^- \pi^0, \rho^+ \rightarrow \pi^+ \pi^0, \rho^- \rightarrow \pi^- \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma \gamma$	167	2	2618
159	$\psi' \rightarrow \gamma\chi_{c2}, \chi_{c2} \rightarrow \gamma J/\psi, J/\psi \rightarrow a_2^+ \rho^-, a_2^+ \rightarrow \rho^+ \pi^0, \rho^- \rightarrow \pi^- \pi^0, \rho^+ \rightarrow \pi^+ \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma \gamma$	26	2	2620
160	$\psi' \rightarrow J/\psi \eta, J/\psi \rightarrow b_1^0 \pi^0, \eta \rightarrow \pi^- \pi^+ \pi^0, b_1^0 \rightarrow \omega \pi^0, \omega \rightarrow \pi^0 \gamma$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \gamma$	44	2	2622
161	$\psi' \rightarrow \gamma\eta_c(2S), \eta_c(2S) \rightarrow \rho^+ \rho^-, \rho^+ \rightarrow \pi^+ \pi^0, \rho^- \rightarrow \pi^- \pi^0 \gamma_{FSR}$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma$	173	2	2624
162	$\psi' \rightarrow \gamma\eta_c(2S), \eta_c(2S) \rightarrow \rho^+ K^- K^0, \rho^+ \rightarrow \pi^+ \pi^0, K_S \rightarrow \pi^0 \pi^0$	$K^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma$	266	2	2626
163	$\psi' \rightarrow \gamma\eta_c, \eta_c \rightarrow \eta' \pi^0 \pi^0, \eta' \rightarrow \pi^+ \pi^- \eta, \eta \rightarrow \gamma \gamma$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma \gamma \gamma$	267	2	2628
164	$\psi' \rightarrow f_2(1270) h_1(1170), f_2(1270) \rightarrow \pi^0 \pi^0, h_1(1170) \rightarrow \rho^- \pi^+, \rho^- \rightarrow \pi^- \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+$	135	2	2630
165	$\psi' \rightarrow \gamma\eta_c(2S), \eta_c(2S) \rightarrow \rho^- \pi^+ \pi^0, \rho^- \rightarrow \pi^- \pi^0 \gamma_{FSR}$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma$	270	2	2632
166	$\psi' \rightarrow \gamma\chi_{c2}, \chi_{c2} \rightarrow b_1^+ \pi^0 \pi^- \pi^0, b_1^+ \rightarrow \omega \pi^+, \omega \rightarrow \pi^0 \gamma$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma \gamma$	273	2	2634
167	$\psi' \rightarrow \rho^0 \pi^0 f_2(1270), \rho^0 \rightarrow \pi^+ \pi^-, f_2(1270) \rightarrow \pi^0 \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+$	117	2	2636
168	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow \gamma\eta_c, \eta_c \rightarrow \rho^+ \rho^-, \rho^+ \rightarrow \pi^+ \pi^0, \rho^- \rightarrow \pi^- \pi^0$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma \gamma \gamma$	177	2	2638
169	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow b_1^0 \rho^0 \pi^0, b_1^0 \rightarrow \omega \pi^0, \rho^0 \rightarrow \pi^+ \pi^-, \omega \rightarrow \pi^0 \gamma$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma \gamma$	140	2	2640
170	$\psi' \rightarrow J/\psi \pi^0 \pi^0, J/\psi \rightarrow \pi^0 \rho^- \pi^+ \pi^0, \rho^- \rightarrow \pi^- \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^0 \pi^+$	286	2	2642
171	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \eta \pi^- \rho^+, \eta \rightarrow \pi^0 \pi^0 \pi^0, \rho^+ \rightarrow \pi^+ \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \gamma$	80	2	2644
172	$\psi' \rightarrow \gamma\eta_c(2S), \eta_c(2S) \rightarrow \rho^- \pi^+ b_1^0, \rho^- \rightarrow \pi^- \pi^0, b_1^0 \rightarrow \omega \pi^0, \omega \rightarrow \pi^0 \gamma$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma \gamma$	290	2	2646
173	$\psi' \rightarrow \gamma\chi_{c2}, \chi_{c2} \rightarrow \pi^+ \pi^- K_S K_S, K_S \rightarrow \pi^0 \pi^0, K_S \rightarrow \pi^0 \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \gamma$	190	2	2648
174	$\psi' \rightarrow \gamma\chi_{c2}, \chi_{c2} \rightarrow \pi^0 \pi^+ a_2^-, a_2^- \rightarrow \rho^- \pi^0, \rho^- \rightarrow \pi^- \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma$	191	2	2650
175	$\psi' \rightarrow J/\psi \pi^+ \pi^-, J/\psi \rightarrow \gamma \eta', \eta' \rightarrow \pi^0 \pi^0 \eta, \eta \rightarrow \pi^0 \pi^0 \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \gamma$	304	2	2652
176	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow b_1^- \pi^0 \pi^+ \gamma_{FSR}, b_1^- \rightarrow \omega \pi^-, \omega \rightarrow \pi^0 \gamma$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma \gamma$	305	2	2654
177	$\psi' \rightarrow \gamma\chi_{c2}, \chi_{c2} \rightarrow b_1^0 \pi^+ \rho^-, b_1^0 \rightarrow \omega \pi^0, \rho^- \rightarrow \pi^- \pi^0, \omega \rightarrow \pi^0 \gamma$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma \gamma$	306	2	2656
178	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow \omega \pi^0 \pi^0, \omega \rightarrow \pi^- \pi^+$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma \gamma$	307	2	2658
179	$\psi' \rightarrow J/\psi \pi^+ \pi^-, J/\psi \rightarrow \gamma\eta_c, \eta_c \rightarrow \eta \pi^0 \pi^0, \eta \rightarrow \pi^0 \pi^0 \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \gamma$	312	2	2660

Table 6:

No.	decay chain	final states	iTopology	nEvt	nTot
180	$\psi' \rightarrow \gamma\chi_{c2}, \chi_{c2} \rightarrow \pi^+\pi^0\pi^0\pi^-\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma$	142	2	2662
181	$\psi' \rightarrow J/\psi\pi^0\pi^0, J/\psi \rightarrow \omega\pi^0, \omega \rightarrow \pi^-\pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^0\pi^+$	316	2	2664
182	$\psi' \rightarrow \gamma\chi_{c2}, \chi_{c2} \rightarrow \rho^-\pi^0b_1^+, \rho^- \rightarrow \pi^-\pi^0, b_1^+ \rightarrow \omega\pi^+, \omega \rightarrow \pi^0\gamma$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma\gamma$	323	2	2666
183	$\psi' \rightarrow \gamma K^{*-}K^{*+}, K^{*-} \rightarrow K^-\pi^0, K^{*+} \rightarrow K^0\pi^+, K_S \rightarrow \pi^0\pi^0$	$K^-\pi^0\pi^0\pi^0\pi^+\gamma$	324	2	2668
184	$\psi' \rightarrow \gamma\eta\pi^+\pi^-, \eta \rightarrow \pi^0\pi^0\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma$	333	2	2670
185	$\psi' \rightarrow \gamma\chi_{c2}, \chi_{c2} \rightarrow \eta\pi^0\pi^0, \eta \rightarrow \pi^-\pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma$	334	2	2672
186	$\psi' \rightarrow \gamma\eta\pi^0\pi^0, \eta \rightarrow \pi^-\pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma$	199	2	2674
187	$\psi' \rightarrow J/\psi\pi^0\pi^0, J/\psi \rightarrow \pi^+\eta\rho^-, \eta \rightarrow \gamma\gamma, \rho^- \rightarrow \pi^-\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma\gamma$	355	2	2676
188	$\psi' \rightarrow f_2(1270)\pi^+b_1^-, f_2(1270) \rightarrow \pi^0\pi^0, b_1^- \rightarrow \omega\pi^-, \omega \rightarrow \pi^0\gamma$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma$	200	2	2678
189	$\psi' \rightarrow \pi^0\pi^0h_1(1170), h_1(1170) \rightarrow \rho^-\pi^+\gamma_{FSR}, \rho^- \rightarrow \pi^-\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+$	203	2	2680
190	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow \pi^-\pi^0\rho^+\pi^0, \rho^+ \rightarrow \pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma\gamma$	81	2	2682
191	$\psi' \rightarrow J/\psi\gamma\gamma, J/\psi \rightarrow \gamma\pi^+\pi^-\pi^0\pi^0$	$\pi^-\pi^0\pi^0\pi^+\gamma\gamma\gamma$	132	1	2683
192	$\psi' \rightarrow f_2(1270)h_1(1170), f_2(1270) \rightarrow \pi^0\pi^0, h_1(1170) \rightarrow \rho^+\pi^-, \rho^+ \rightarrow \pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+$	192	1	2684
193	$\psi' \rightarrow \gamma\chi_{c2}, \chi_{c2} \rightarrow K^+K^-\pi^0\pi^0$	$K^-\pi^0\pi^0\gamma K^+$	193	1	2685
194	$\psi' \rightarrow \gamma\eta_c, \eta_c \rightarrow \eta\pi^0\pi^0, \eta \rightarrow \gamma\pi^-\pi^+$	$\pi^-\pi^0\pi^0\pi^+\gamma\gamma$	194	1	2686
195	$\psi' \rightarrow \pi^0\pi^0h_1(1170), h_1(1170) \rightarrow \rho^0\pi^0, \rho^0 \rightarrow \gamma\pi^+\pi^-$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma$	195	1	2687
196	$\psi' \rightarrow J/\psi\pi^0\pi^0, J/\psi \rightarrow \eta\pi^0\pi^-\pi^+, \eta \rightarrow \gamma\gamma$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma\gamma$	133	1	2688
197	$\psi' \rightarrow J/\psi\pi^0\pi^0, J/\psi \rightarrow e^+e^-\gamma_{FSR}$	$e^+e^-\pi^0\pi^0$	197	1	2689
198	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow \pi^-\pi^0a_2^+, a_2^+ \rightarrow \rho^+\pi^0, \rho^+ \rightarrow \pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma\gamma$	198	1	2690
199	$\psi' \rightarrow J/\psi\pi^0\pi^0, J/\psi \rightarrow \pi^0\rho^+\pi^-, \rho^+ \rightarrow \pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^0\pi^+$	104	1	2691
200	$\psi' \rightarrow \gamma\chi_{c2}, \chi_{c2} \rightarrow b_1^-\pi^+\eta, b_1^- \rightarrow \omega\pi^-, \eta \rightarrow \gamma\gamma, \omega \rightarrow \pi^0\gamma$	$\pi^-\pi^0\pi^+\gamma\gamma\gamma\gamma$	85	1	2692
201	$\psi' \rightarrow \gamma\eta_c(2S), \eta_c(2S) \rightarrow \rho^+\pi^-\pi^0\eta, \rho^+ \rightarrow \pi^+\pi^0, \eta \rightarrow \gamma\gamma$	$\pi^-\pi^0\pi^0\pi^+\gamma\gamma\gamma$	201	1	2693
202	$\psi' \rightarrow \gamma\chi_{c2}, \chi_{c2} \rightarrow K^{*-}K^+\pi^0, K^{*-} \rightarrow \bar{K}^0\pi^-, K_S \rightarrow \pi^0\pi^0$	$\pi^-\pi^0\pi^0\pi^0\gamma K^+$	202	1	2694
203	$\psi' \rightarrow J/\psi\pi^0\pi^0, J/\psi \rightarrow \eta h_1(1170), \eta \rightarrow \gamma\gamma, h_1(1170) \rightarrow \rho^-\pi^+, \rho^- \rightarrow \pi^-\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma\gamma$	136	1	2695
204	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \pi^0K^-K^{*+}, K^{*+} \rightarrow K^0\pi^+, K_S \rightarrow \pi^0\pi^0$	$K^-\pi^0\pi^0\pi^0\pi^+\gamma$	72	1	2696
205	$\psi' \rightarrow K_2^{*-}K_2^{*+}, K_2^{*-} \rightarrow K^-\pi^0, K_2^{*+} \rightarrow K^0\pi^+, K_S \rightarrow \pi^0\pi^0$	$K^-\pi^0\pi^0\pi^0\pi^+$	138	1	2697
206	$\psi' \rightarrow J/\psi\pi^0\pi^0, J/\psi \rightarrow h_1(1170)\pi^0, h_1(1170) \rightarrow \rho^-\pi^+\gamma_{FSR}, \rho^- \rightarrow \pi^-\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^0\pi^+$	139	1	2698
207	$\psi' \rightarrow b_1^0a_1^0, b_1^0 \rightarrow \omega\pi^0, a_1^0 \rightarrow \rho^-\pi^+, \omega \rightarrow \pi^0\gamma, \rho^- \rightarrow \pi^-\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma$	107	1	2699
208	$\psi' \rightarrow J/\psi\pi^0\pi^0, J/\psi \rightarrow \gamma\eta, \eta \rightarrow \pi^-\pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma$	208	1	2700
209	$\psi' \rightarrow J/\psi\pi^0\pi^0, J/\psi \rightarrow \gamma f_2(1950), f_2(1950) \rightarrow \pi^0\pi^0$	$\pi^0\pi^0\pi^0\pi^0\gamma$	209	1	2701

Table 7:

No.	decay chain	final states	iTopology	nEvt	nTot
210	$\psi' \rightarrow \rho^+ \pi^- \pi^0 \pi^0 \gamma_{FSR}, \rho^+ \rightarrow \pi^+ \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+$	210	1	2702
211	$\psi' \rightarrow J/\psi \eta, J/\psi \rightarrow \eta h_1(1170), \eta \rightarrow \pi^0 \pi^0 \pi^0, \eta \rightarrow \gamma \gamma, h_1(1170) \rightarrow \rho^+ \pi^-, \rho^+ \rightarrow \pi^+ \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \gamma \gamma$	108	1	2703
212	$\psi' \rightarrow \gamma \chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow \pi^0 \eta h_1(1170), \eta \rightarrow \gamma \gamma, h_1(1170) \rightarrow \rho^- \pi^+, \rho^- \rightarrow \pi^- \pi^0$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma \gamma \gamma \gamma$	212	1	2704
213	$\psi' \rightarrow \gamma \eta_c(2S), \eta_c(2S) \rightarrow \gamma J/\psi, J/\psi \rightarrow K^{*-} K_2^{*+}, K^{*-} \rightarrow K^- \pi^0, K_2^{*+} \rightarrow K^+ \pi^0$	$K^- \pi^0 \pi^0 \gamma \gamma K^+$	213	1	2705
214	$\psi' \rightarrow \gamma \chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow \gamma \eta_c, \eta_c \rightarrow \rho^+ \rho^-, \rho^+ \rightarrow \pi^+ \pi^0 \gamma_{FSR}, \rho^- \rightarrow \pi^- \pi^0$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma \gamma \gamma$	214	1	2706
215	$\psi' \rightarrow \gamma \chi_{c2}, \chi_{c2} \rightarrow \gamma J/\psi, J/\psi \rightarrow \omega f_2(1270), \omega \rightarrow \pi^- \pi^+ \pi^0, f_2(1270) \rightarrow \pi^0 \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma \gamma$	22	1	2707
216	$\psi' \rightarrow J/\psi \pi^0 \pi^0, J/\psi \rightarrow \gamma \eta', \eta' \rightarrow \rho^0 \gamma, \rho^0 \rightarrow \gamma \pi^+ \pi^-$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma \gamma \gamma$	216	1	2708
217	$\psi' \rightarrow \gamma \chi_{c1}, \chi_{c1} \rightarrow K^* K^0 \pi^0, K^* \rightarrow K^0 \pi^0, K_S \rightarrow \pi^+ \pi^-$	$\pi^- \pi^0 \pi^0 K_L \pi^+ \gamma$	217	1	2709
218	$\psi' \rightarrow \gamma \chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow b_1^0 \pi^0, b_1^0 \rightarrow \omega \pi^0, \omega \rightarrow \pi^0 \gamma$	$\pi^0 \pi^0 \pi^0 \gamma \gamma \gamma$	143	1	2710
219	$\psi' \rightarrow \gamma \chi_{c2}, \chi_{c2} \rightarrow \eta' \pi^0 \pi^0, \eta' \rightarrow \pi^0 \pi^0 \eta, \eta \rightarrow \gamma \pi^- \pi^+$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \gamma \gamma$	219	1	2711
220	$\psi' \rightarrow \gamma \chi_{c1}, \chi_{c1} \rightarrow \omega \omega, \omega \rightarrow \pi^0 \gamma, \omega \rightarrow \pi^0 e^+ e^-$	$e^+ e^- \pi^0 \pi^0 \gamma \gamma$	220	1	2712
221	$\psi' \rightarrow J/\psi \pi^0 \pi^0, J/\psi \rightarrow \omega \pi^0, \omega \rightarrow \pi^0 \gamma$	$\pi^0 \pi^0 \pi^0 \pi^0 \gamma$	221	1	2713
222	$\psi' \rightarrow \gamma \chi_{c2}, \chi_{c2} \rightarrow \omega \omega, \omega \rightarrow \pi^0 \gamma, \omega \rightarrow \pi^- \pi^+ \pi^0$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma \gamma$	144	1	2714
223	$\psi' \rightarrow J/\psi \pi^0 \pi^0, J/\psi \rightarrow \pi^0 h_1(1170), h_1(1170) \rightarrow \rho^+ \pi^- \gamma_{FSR}, \rho^+ \rightarrow \pi^+ \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^0 \pi^+$	223	1	2715
224	$\psi' \rightarrow J/\psi \pi^0 \pi^0, J/\psi \rightarrow \gamma \eta', \eta' \rightarrow \gamma \gamma$	$\pi^0 \pi^0 \gamma \gamma \gamma$	110	1	2716
225	$\psi' \rightarrow \gamma \chi_{c1}, \chi_{c1} \rightarrow K^* K^0 \pi^0, K^* \rightarrow K^0 \pi^0, K_S \rightarrow \pi^+ \pi^-, K_S \rightarrow \pi^0 \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \gamma$	225	1	2717
226	$\psi' \rightarrow \eta' \pi^+ \pi^- \pi^0, \eta' \rightarrow \pi^0 \pi^0 \eta, \eta \rightarrow \gamma \gamma$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma \gamma$	146	1	2718
227	$\psi' \rightarrow J/\psi \eta, J/\psi \rightarrow \omega \pi^0 \pi^0, \eta \rightarrow \pi^- \pi^+ \pi^0, \omega \rightarrow \pi^0 \gamma$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \gamma$	4	1	2719
228	$\psi' \rightarrow \gamma \chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow \pi^0 h_1(1170), h_1(1170) \rightarrow \rho^- \pi^+, \rho^- \rightarrow \pi^- \pi^0 \gamma_{FSR}$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma \gamma$	228	1	2720
229	$\psi' \rightarrow h_1(1170) \eta, h_1(1170) \rightarrow \rho^+ \pi^-, \eta \rightarrow \pi^0 \pi^0 \pi^0, \rho^+ \rightarrow \pi^+ \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^0 \pi^+$	148	1	2721
230	$\psi' \rightarrow \gamma \chi_{c1}, \chi_{c1} \rightarrow f_2(1270) \eta, f_2(1270) \rightarrow \pi^0 \pi^0, \eta \rightarrow \pi^0 \pi^0 \pi^0$	$\pi^0 \pi^0 \pi^0 \pi^0 \pi^0 \gamma$	149	1	2722
231	$\psi' \rightarrow \gamma \chi_{c1}, \chi_{c1} \rightarrow \pi^+ \pi^0 b_1^-, b_1^- \rightarrow \omega \pi^- \gamma_{FSR}, \omega \rightarrow \pi^0 \gamma$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma \gamma$	231	1	2723
232	$\psi' \rightarrow K^0 \pi^0 \bar{K}^*, \bar{K}^* \rightarrow K^- \pi^+, K_S \rightarrow \pi^0 \pi^0$	$K^- \pi^0 \pi^0 \pi^0 \pi^+$	50	1	2724
233	$\psi' \rightarrow \gamma \chi_{c2}, \chi_{c2} \rightarrow h_1(1170) \omega \pi^0, h_1(1170) \rightarrow \rho^+ \pi^-, \omega \rightarrow \pi^0 \gamma, \rho^+ \rightarrow \pi^+ \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma \gamma$	90	1	2725
234	$\psi' \rightarrow J/\psi \pi^+ \pi^-, J/\psi \rightarrow \pi^0 \rho^0 \pi^0, \rho^0 \rightarrow \gamma \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma$	234	1	2726
235	$\psi' \rightarrow \gamma \chi_{c1}, \chi_{c1} \rightarrow \pi^+ \pi^0 \eta \pi^-, \eta \rightarrow \pi^0 \pi^0 \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \gamma$	235	1	2727
236	$\psi' \rightarrow J/\psi \eta, J/\psi \rightarrow \omega \pi^0 \pi^0, \eta \rightarrow \gamma \gamma, \omega \rightarrow \pi^- \pi^+ \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma \gamma$	236	1	2728
237	$\psi' \rightarrow h_1(1170) \pi^0, h_1(1170) \rightarrow \rho^- \pi^+, \rho^- \rightarrow \pi^- \pi^0$	$\pi^- \pi^0 \pi^0 \pi^+$	237	1	2729
238	$\psi' \rightarrow \gamma \eta_c(2S), \eta_c(2S) \rightarrow a_2^+ \pi^- \pi^0, a_2^+ \rightarrow \rho^+ \pi^0, \rho^+ \rightarrow \pi^+ \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma$	152	1	2730
239	$\psi' \rightarrow \gamma \chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow \eta \rho^0 \pi^0, \eta \rightarrow \pi^0 \pi^0 \pi^0, \rho^0 \rightarrow \pi^+ \pi^-$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \gamma \gamma$	239	1	2731

Table 8:

No.	decay chain	final states	iTopology	nEvt	nTot
240	$\psi' \rightarrow \gamma\chi_{c2}, \chi_{c2} \rightarrow \gamma J/\psi, J/\psi \rightarrow \pi^- \pi^0 \eta \pi^+, \eta \rightarrow \gamma\gamma$	$\pi^- \pi^0 \pi^+ \gamma \gamma \gamma$	114	1	2732
241	$\psi' \rightarrow J/\psi \pi^0 \pi^0, J/\psi \rightarrow \gamma \eta', \eta' \rightarrow \gamma \mu^- \mu^+$	$\mu^+ \pi^0 \pi^0 \mu^- \gamma \gamma$	241	1	2733
242	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow b_1^+ \rho^- \pi^0, b_1^+ \rightarrow \omega \pi^+, \rho^- \rightarrow \pi^- \pi^0, \omega \rightarrow \pi^0 \gamma$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma \gamma$	154	1	2734
243	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \rho^+ \pi^- \pi^0 \gamma_{FSR}, \rho^+ \rightarrow \pi^+ \pi^0 \gamma_{FSR}$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma$	243	1	2735
244	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \pi^0 \eta \eta, \eta \rightarrow \pi^- \pi^+ \pi^0, \eta \rightarrow \gamma\gamma$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma \gamma \gamma$	244	1	2736
245	$\psi' \rightarrow \gamma\chi_{c2}, \chi_{c2} \rightarrow \gamma J/\psi, J/\psi \rightarrow \omega \pi^+ \pi^- \pi^0, \omega \rightarrow \pi^0 \gamma$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma \gamma \gamma$	91	1	2737
246	$\psi' \rightarrow \gamma\eta_c, \eta_c \rightarrow \eta' \pi^0 \pi^0, \eta' \rightarrow \rho^0 \gamma, \rho^0 \rightarrow \pi^+ \pi^-$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma \gamma$	246	1	2738
247	$\psi' \rightarrow J/\psi \pi^0 \pi^0, J/\psi \rightarrow a_2^+ \rho^-, a_2^+ \rightarrow \rho^+ \pi^0, \rho^- \rightarrow \pi^- \pi^0, \rho^+ \rightarrow \pi^+ \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \pi^+$	65	1	2739
248	$\psi' \rightarrow \gamma\eta_c(2S), \eta_c(2S) \rightarrow \pi^0 \pi^- a_2^+, a_2^+ \rightarrow \rho^+ \pi^0, \rho^+ \rightarrow \pi^+ \pi^0 \gamma_{FSR}$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma$	248	1	2740
249	$\psi' \rightarrow \gamma\eta_c(2S), \eta_c(2S) \rightarrow \pi^+ \pi^0 a_2^-, a_2^- \rightarrow \rho^- \pi^0, \rho^- \rightarrow \pi^- \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma$	249	1	2741
250	$\psi' \rightarrow \gamma\chi_{c2}, \chi_{c2} \rightarrow \gamma J/\psi, J/\psi \rightarrow \pi^0 \pi^- \rho^+ \pi^0, \rho^+ \rightarrow \pi^+ \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma \gamma$	7	1	2742
251	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \pi^0 \pi^- \pi^0 \rho^+, \rho^+ \rightarrow \pi^+ \pi^0 \gamma_{FSR}$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma$	251	1	2743
252	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow \pi^+ \eta \pi^0 \pi^-, \eta \rightarrow \gamma\gamma$	$\pi^- \pi^0 \pi^+ \gamma \gamma \gamma \gamma$	158	1	2744
253	$\psi' \rightarrow \gamma\eta_c(2S), \eta_c(2S) \rightarrow \pi^0 \eta' \pi^0, \eta' \rightarrow \rho^0 \gamma, \rho^0 \rightarrow \pi^+ \pi^-$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma \gamma$	253	1	2745
254	$\psi' \rightarrow \gamma\eta_c(2S), \eta_c(2S) \rightarrow \rho^- \pi^+ \pi^0 \gamma_{FSR}, \rho^- \rightarrow \pi^- \pi^0$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma$	254	1	2746
255	$\psi' \rightarrow \gamma\eta_c(2S), \eta_c(2S) \rightarrow a_1^+ \pi^- \pi^0, a_1^+ \rightarrow \rho^+ \pi^0, \rho^+ \rightarrow \pi^+ \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma$	255	1	2747
256	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow h_1(1170) \pi^0 \omega, h_1(1170) \rightarrow \rho^+ \pi^-, \omega \rightarrow \pi^0 \gamma, \rho^+ \rightarrow \pi^+ \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma \gamma$	256	1	2748
257	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow \omega \pi^0, \omega \rightarrow \pi^0 \gamma$	$\pi^0 \pi^0 \gamma \gamma \gamma$	159	1	2749
258	$\psi' \rightarrow \pi^0 \omega \pi^0, \omega \rightarrow \pi^- \pi^+ \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+$	258	1	2750
259	$\psi' \rightarrow J/\psi \pi^0 \pi^0, J/\psi \rightarrow \gamma f_2(1950), f_2(1950) \rightarrow \pi^0 \pi^0$	$\pi^0 \pi^0 \pi^0 \pi^0 \gamma$	259	1	2751
260	$\psi' \rightarrow J/\psi \pi^0 \pi^0, J/\psi \rightarrow \rho^0 \pi^0, \rho^0 \rightarrow \pi^+ \pi^- \gamma_{FSR}$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+$	260	1	2752
261	$\psi' \rightarrow \omega f_2(1270), \omega \rightarrow \pi^0 \gamma, f_2(1270) \rightarrow \pi^0 \pi^0$	$\pi^0 \pi^0 \pi^0 \gamma$	261	1	2753
262	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \rho^- \pi^+ \pi^0 \eta, \rho^- \rightarrow \pi^- \pi^0, \eta \rightarrow \gamma\gamma$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma \gamma \gamma$	262	1	2754
263	$\psi' \rightarrow J/\psi \pi^+ \pi^-, J/\psi \rightarrow \gamma \omega \omega, \omega \rightarrow \pi^0 \gamma, \omega \rightarrow \pi^0 \gamma$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma \gamma \gamma$	263	1	2755
264	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma \pi^+ \pi^- \pi^0 \pi^0$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma \gamma$	118	1	2756
265	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow K^+ \pi^- K^0 \pi^0, K_S \rightarrow \pi^0 \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \gamma K^+$	161	1	2757
266	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow \phi f_0(980), \phi \rightarrow \rho^- \pi^+, f_0(980) \rightarrow \pi^0 \pi^0, \rho^- \rightarrow \pi^- \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma \gamma$	162	1	2758
267	$\psi' \rightarrow J/\psi \eta, J/\psi \rightarrow b_1^0 \pi^0, \eta \rightarrow \pi^0 \pi^0 \pi^0, b_1^0 \rightarrow \omega \pi^0, \omega \rightarrow \pi^- \pi^+ \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \pi^+$	119	1	2759
268	$\psi' \rightarrow J/\psi \pi^0 \pi^0, J/\psi \rightarrow \pi^+ \pi^- \pi^0 \gamma_{FSR}$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+$	268	1	2760
269	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow \omega \eta, \omega \rightarrow \pi^0 \gamma, \eta \rightarrow \gamma\gamma$	$\pi^0 \gamma \gamma \gamma \gamma$	28	1	2761

Table 9:

No.	decay chain	final states	iTopology	nEvt	nTot
270	$\psi' \rightarrow J/\psi\eta, J/\psi \rightarrow \pi^0 h_1(1170), \eta \rightarrow \pi^0 \pi^0 \pi^0, h_1(1170) \rightarrow \rho^+ \pi^-, \rho^+ \rightarrow \pi^+ \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \pi^+$	79	1	2762
271	$\psi' \rightarrow \rho^- \pi^+ f_2(1270), \rho^- \rightarrow \pi^- \pi^0, f_2(1270) \rightarrow \pi^0 \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+$	271	1	2763
272	$\psi' \rightarrow \eta b_1^0, \eta \rightarrow \pi^0 \pi^0 \pi^0, b_1^0 \rightarrow \omega \pi^0, \omega \rightarrow \pi^- \pi^+ \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \pi^+$	272	1	2764
273	$\psi' \rightarrow \pi^- \pi^0 f_2(1270) \pi^+, f_2(1270) \rightarrow \pi^0 \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+$	166	1	2765
274	$\psi' \rightarrow J/\psi \pi^0 \pi^0, J/\psi \rightarrow \omega \eta, \omega \rightarrow \pi^- \pi^+ \pi^0, \eta \rightarrow \gamma \gamma$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma \gamma$	122	1	2766
275	$\psi' \rightarrow \gamma \eta_c(2S), \eta_c(2S) \rightarrow b_1^0 \pi^0 \rho^0, b_1^0 \rightarrow \omega \pi^0, \rho^0 \rightarrow \pi^+ \pi^-, \omega \rightarrow \pi^0 \gamma$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma \gamma$	275	1	2767
276	$\psi' \rightarrow \gamma \chi_{c2}, \chi_{c2} \rightarrow \gamma J/\psi, J/\psi \rightarrow \gamma \eta \pi^+ \pi^-, \eta \rightarrow \gamma \gamma$	$\pi^- \pi^+ \gamma \gamma \gamma \gamma$	68	1	2768
277	$\psi' \rightarrow J/\psi \eta, J/\psi \rightarrow \omega \pi^0, \eta \rightarrow \gamma \gamma, \omega \rightarrow \pi^- \pi^+ \pi^0$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma \gamma$	277	1	2769
278	$\psi' \rightarrow b_1^0 \pi^0, b_1^0 \rightarrow \omega \pi^0, \omega \rightarrow \pi^- \pi^+ \pi^0 \gamma_{FSR}$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+$	278	1	2770
279	$\psi' \rightarrow \eta \pi^0 b_1^0, \eta \rightarrow \pi^- \pi^+ \pi^0, b_1^0 \rightarrow \omega \pi^0, \omega \rightarrow \pi^0 \gamma$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \pi^+ \gamma$	279	1	2771
280	$\psi' \rightarrow \gamma \eta \pi^0 \pi^0, \eta \rightarrow \gamma \gamma$	$\pi^0 \pi^0 \gamma \gamma \gamma$	280	1	2772
281	$\psi' \rightarrow \gamma \chi_{c2}, \chi_{c2} \rightarrow \pi^0 \pi^0 f_1(1285), f_1(1285) \rightarrow a_0^- \pi^+, a_0^- \rightarrow \eta \pi^-, \eta \rightarrow \gamma \gamma$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma \gamma \gamma$	69	1	2773
282	$\psi' \rightarrow \eta \pi^0 \pi^0 \omega, \eta \rightarrow \gamma \gamma, \omega \rightarrow \pi^- \pi^+ \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma \gamma$	282	1	2774
283	$\psi' \rightarrow \gamma \eta_c(2S), \eta_c(2S) \rightarrow \pi^0 \eta' \pi^0, \eta' \rightarrow \rho^0 \gamma, \rho^0 \rightarrow \pi^+ \pi^- \gamma_{FSR}$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma \gamma$	283	1	2775
284	$\psi' \rightarrow J/\psi \pi^+ \pi^- \gamma_{FSR}, J/\psi \rightarrow \gamma \eta_c, \eta_c \rightarrow \eta \pi^0 \pi^0, \eta \rightarrow \gamma \gamma$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma \gamma \gamma$	284	1	2776
285	$\psi' \rightarrow \gamma \chi_{c1}, \chi_{c1} \rightarrow \pi^- \pi^+ \pi^0 \pi^0 \pi^0 \gamma_{FSR}$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma$	285	1	2777
286	$\psi' \rightarrow \pi^0 K^* K_2^{*0}, K^* \rightarrow K^+ \pi^-, K_2^{*0} \rightarrow \bar{K}^0 \pi^0, K_S \rightarrow \pi^0 \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^0 K^+$	170	1	2778
287	$\psi' \rightarrow \gamma \chi_{c1}, \chi_{c1} \rightarrow K^{*-} K^{*+}, K^{*-} \rightarrow \bar{K}^0 \pi^-, K^{*+} \rightarrow K^+ \pi^0, K_S \rightarrow \pi^0 \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \gamma K^+$	287	1	2779
288	$\psi' \rightarrow \gamma \chi_{c1}, \chi_{c1} \rightarrow b_1^0 \pi^- \rho^+, b_1^0 \rightarrow \pi^0 \gamma, \rho^+ \rightarrow \pi^+ \pi^0$	$\pi^- \pi^0 \pi^0 \pi^+ \gamma \gamma$	288	1	2780
289	$\psi' \rightarrow \gamma \chi_{c1}, \chi_{c1} \rightarrow \pi^0 \pi^0 \pi^0 \pi^0$	$\pi^0 \pi^0 \pi^0 \pi^0 \gamma$	171	1	2781
290	$\psi' \rightarrow J/\psi \eta, J/\psi \rightarrow b_1^0 \pi^0, \eta \rightarrow \gamma \gamma, b_1^0 \rightarrow \omega \pi^0, \omega \rightarrow \pi^- \pi^+ \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma \gamma$	172	1	2782
291	$\psi' \rightarrow \gamma \eta_c(2S), \eta_c(2S) \rightarrow \eta \eta, \eta \rightarrow \gamma \gamma, \eta \rightarrow \pi^0 \pi^0 \pi^0$	$\pi^0 \pi^0 \pi^0 \gamma \gamma \gamma$	291	1	2783
292	$\psi' \rightarrow \pi^0 K^0 \bar{K}_1^{\prime 0}, \bar{K}_1^{\prime 0} \rightarrow K^{*-} \pi^+, K^{*-} \rightarrow \bar{K}^0 \pi^-, K_S \rightarrow \pi^0 \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 K_L \pi^+$	292	1	2784
293	$\psi' \rightarrow J/\psi \pi^0 \pi^0, J/\psi \rightarrow a_1^+ \pi^- \pi^0, a_1^+ \rightarrow \rho^+ \pi^0, \rho^+ \rightarrow \pi^+ \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \pi^+$	98	1	2785
294	$\psi' \rightarrow J/\psi \pi^0 \pi^0, J/\psi \rightarrow \gamma f_4(2050), f_4(2050) \rightarrow \pi^0 \pi^0$	$\pi^0 \pi^0 \pi^0 \pi^0 \gamma$	294	1	2786
295	$\psi' \rightarrow J/\psi \eta, J/\psi \rightarrow \pi^0 \pi^0 h_1(1170), \eta \rightarrow \gamma \gamma, h_1(1170) \rightarrow \rho^- \pi^+, \rho^- \rightarrow \pi^- \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma \gamma$	295	1	2787
296	$\psi' \rightarrow J/\psi \pi^0 \pi^0, J/\psi \rightarrow \rho^0 \pi^0, \rho^0 \rightarrow \gamma \pi^+ \pi^-$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^+ \gamma$	296	1	2788
297	$\psi' \rightarrow J/\psi \pi^0, J/\psi \rightarrow b_1^0 \pi^0, b_1^0 \rightarrow \omega \pi^0, \omega \rightarrow \pi^0 \gamma$	$\pi^0 \pi^0 \pi^0 \pi^0 \gamma$	297	1	2789
298	$\psi' \rightarrow J/\psi \pi^+ \pi^-, J/\psi \rightarrow \gamma \eta(1405), \eta(1405) \rightarrow K^0 \bar{K}^0 \pi^0, K_S \rightarrow \pi^0 \pi^0, K_S \rightarrow \pi^0 \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \pi^+ \gamma$	298	1	2790
299	$\psi' \rightarrow K^{*-} \pi^0 K_0^{*+}, K^{*-} \rightarrow \bar{K}^0 \pi^-, K_0^{*+} \rightarrow K^+ \pi^0, K_S \rightarrow \pi^0 \pi^0$	$\pi^- \pi^0 \pi^0 \pi^0 \pi^0 K^+$	46	1	2791

Table 10:

No.	decay chain	final states	iTopology	nEvt	nTot
300	$\psi' \rightarrow \gamma\eta_c(2S), \eta_c(2S) \rightarrow \gamma J/\psi, J/\psi \rightarrow h_1(1170)\pi^0, h_1(1170) \rightarrow \rho^+\pi^-, \rho^+ \rightarrow \pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^+\gamma\gamma$	300	1	2792
301	$\psi' \rightarrow J/\psi\pi^+\pi^-, J/\psi \rightarrow K^0\bar{K}^0\pi^0, K_S \rightarrow \pi^0\pi^0$	$\pi^-\pi^0\pi^0\pi^0K_L\pi^+$	301	1	2793
302	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow a_0^+\pi^-\pi^0, a_0^+ \rightarrow \eta\pi^+, \eta \rightarrow \gamma\gamma$	$\pi^-\pi^0\pi^+\gamma\gamma\gamma$	302	1	2794
303	$\psi' \rightarrow \pi^0\pi^0\omega\pi^0, \omega \rightarrow \pi^-\pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\pi^+$	303	1	2795
304	$\psi' \rightarrow \gamma\eta_c, \eta_c \rightarrow \eta\pi^0\pi^0, \eta \rightarrow \gamma e^+e^-$	$e^+e^-\pi^0\pi^0\gamma\gamma$	100	1	2796
305	$\psi' \rightarrow \gamma\chi_{c2}, \chi_{c2} \rightarrow \rho^+\pi^-\pi^0, \rho^+ \rightarrow \pi^+\pi^0\gamma_{FSR}$	$\pi^-\pi^0\pi^0\pi^+\gamma$	176	1	2797
306	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow \pi^0\pi^-b_1^+, b_1^+ \rightarrow \omega\pi^+, \omega \rightarrow \pi^0\gamma$	$\pi^-\pi^0\pi^0\pi^+\gamma\gamma\gamma$	83	1	2798
307	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow \gamma\eta_c, \eta_c \rightarrow \eta\pi^0\pi^0, \eta \rightarrow \gamma e^+e^-$	$e^+e^-\pi^0\pi^0\gamma\gamma\gamma\gamma$	178	1	2799
308	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \pi^-\pi^0\pi^+\pi^0\gamma_{FSR}$	$\pi^-\pi^0\pi^0\pi^+\gamma$	308	1	2800
309	$\psi' \rightarrow \gamma\chi_{c2}, \chi_{c2} \rightarrow \pi^0\eta'\pi^0\pi^0, \eta' \rightarrow \rho^0\gamma, \rho^0 \rightarrow \gamma\pi^+\pi^-$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma\gamma\gamma$	309	1	2801
310	$\psi' \rightarrow J/\psi\eta, J/\psi \rightarrow \pi^0\pi^0\pi^+\pi^-, \eta \rightarrow \gamma\gamma$	$\pi^-\pi^0\pi^0\pi^+\gamma\gamma$	310	1	2802
311	$\psi' \rightarrow J/\psi\pi^0\pi^0, J/\psi \rightarrow h_1(1170)\pi^0, h_1(1170) \rightarrow \rho^+\pi^-, \rho^+ \rightarrow \pi^+\pi^0\gamma_{FSR}$	$\pi^-\pi^0\pi^0\pi^0\pi^0\pi^+$	311	1	2803
312	$\psi' \rightarrow h_c\pi^0, h_c \rightarrow \pi^0\pi^0\pi^+\rho^-, \rho^- \rightarrow \pi^-\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^0\pi^+$	179	1	2804
313	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \eta\pi^0\pi^0\eta, \eta \rightarrow \gamma\gamma, \eta \rightarrow \pi^-\pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma\gamma\gamma$	313	1	2805
314	$\psi' \rightarrow J/\psi\eta, J/\psi \rightarrow \pi^0h_1(1170), \eta \rightarrow \gamma\gamma, h_1(1170) \rightarrow \rho^-\pi^+, \rho^- \rightarrow \pi^-\pi^0$	$\pi^-\pi^0\pi^0\pi^+\gamma\gamma$	180	1	2806
315	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \eta'\pi^0\pi^0, \eta' \rightarrow \rho^0\gamma, \rho^0 \rightarrow \pi^+\pi^-\gamma_{FSR}$	$\pi^-\pi^0\pi^0\pi^+\gamma\gamma$	315	1	2807
316	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow \omega f_2(1270), \omega \rightarrow \pi^-\pi^+, f_2(1270) \rightarrow \pi^0\pi^0$	$\pi^-\pi^0\pi^0\pi^+\gamma\gamma$	181	1	2808
317	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow \omega\eta, \omega \rightarrow \pi^-\pi^+\pi^0, \eta \rightarrow \gamma\gamma$	$\pi^-\pi^0\pi^+\gamma\gamma\gamma\gamma$	317	1	2809
318	$\psi' \rightarrow K_0^{*-}K^{*+}\pi^0, K_0^{*-} \rightarrow K^-\pi^0, K^{*+} \rightarrow K^0\pi^+$	$K^-\pi^0\pi^0K_L\pi^+$	318	1	2810
319	$\psi' \rightarrow J/\psi\pi^0\pi^0, J/\psi \rightarrow \gamma f_2(1270), f_2(1270) \rightarrow \pi^0\pi^0$	$\pi^0\pi^0\pi^0\pi^0\gamma$	319	1	2811
320	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow \gamma f_4(2050), f_4(2050) \rightarrow \pi^0\pi^0$	$\pi^0\pi^0\gamma\gamma\gamma$	320	1	2812
321	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow K^*K^0\pi^0, K^* \rightarrow K^0\pi^0, K_S \rightarrow \pi^+\pi^-$	$\pi^-\pi^0\pi^0K_L\pi^+\gamma$	321	1	2813
322	$\psi' \rightarrow \pi^0\pi^0\pi^0h_1(1170), h_1(1170) \rightarrow \rho^+\pi^-, \rho^+ \rightarrow \pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^0\pi^+$	322	1	2814
323	$\psi' \rightarrow \gamma\chi_{c2}, \chi_{c2} \rightarrow K_S K_S, K_S \rightarrow \pi^0\pi^0, K_S \rightarrow \pi^0\pi^0$	$\pi^0\pi^0\pi^0\pi^0\gamma$	182	1	2815
324	$\psi' \rightarrow \omega f_0(1710), \omega \rightarrow \pi^-\pi^+\pi^0, f_0(1710) \rightarrow \pi^0\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+$	183	1	2816
325	$\psi' \rightarrow J/\psi\pi^0\pi^0, J/\psi \rightarrow \omega\pi^+\pi^-\pi^0, \omega \rightarrow \pi^0\gamma$	$\pi^-\pi^0\pi^0\pi^0\pi^0\pi^+\gamma$	325	1	2817
326	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow K^+K^-\pi^0\pi^0$	$K^-\pi^0\pi^0\gamma K^+$	326	1	2818
327	$\psi' \rightarrow J/\psi\pi^+\pi^-, J/\psi \rightarrow \omega\pi^0\pi^0, \omega \rightarrow \pi^-\pi^+\pi^0$	$\pi^-\pi^-\pi^0\pi^0\pi^0\pi^+\pi^+$	327	1	2819
328	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow a_2^+\pi^-\pi^0, a_2^+ \rightarrow \eta\pi^+, \eta \rightarrow \gamma\gamma$	$\pi^-\pi^0\pi^+\gamma\gamma\gamma\gamma$	328	1	2820
329	$\psi' \rightarrow \gamma\chi_{c1}, \chi_{c1} \rightarrow \gamma J/\psi, J/\psi \rightarrow b_1^0\pi^0, b_1^0 \rightarrow \omega\pi^0, \omega \rightarrow \pi^-\pi^+\pi^0$	$\pi^-\pi^0\pi^0\pi^0\pi^+\gamma\gamma$	329	1	2821

Table 11: