

Topology Analysis ^{*†‡§}

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[†]This package is implemented referring to a program called TOPO, which is first developed by Prof. Shuxian Du from Zhengzhou University and later extended and maintained by Prof. Gang Li from Institute of High Energy Physics, Chinese Academy of Sciences. The TOPO program has been widely used by colleagues in BESIII collaboration. Several years ago, when I was a Ph.D. student working on the BESIII experiment, I learned the idea of topology analysis and a lot of programming techniques from the TOPO program. So, I really appreciate the original works of Prof. Du and Prof. Li very much. To meet my own needs and to practice developing analysis tools with C++, ROOT, and LaTeX, I wrote the package from scratch. At that time, the package functioned well but was relatively simple. At the end of 2017, when I just started my post-doctoral research at Beihang University, my co-supervisor Prof. Chengping Shen reminded me that it could be a useful tool for the Belle II experiment as well. So, I revised and extended it, making it more well-rounded and suitable for the Belle II experiment. Now, it also applies to many other similar high energy physics experiments. Here, I would like to thank Prof. Du and Prof. Li for their original works, and Prof. Shen for his suggestion, guidance, support, and encouragement.

[‡]Besides, I would like to thank all of the people who have helped me in the development of the program. I am particularly grateful to Prof. Xingtao Huang for his comments on the principles and styles of the program, to Remco de Boer for his suggestions on the tex output and the use of GitHub, and to Xi Chen for his discussions on the core algorithms. I am especially indebted to Prof. Xiqing Hao, Longke Li, Xiaoping Qin, Ilya Komarov, Yubo Li, Guanda Gong, Suxian Li, Junhao Yin, Prof. Xiaolong Wang, Yeqi Chen, Hannah Wakeling, Hongrong Qi, Hui Li, Ning Cao, Sanjeeda Bharati Das, Kazuki Kojima, Tingting Han, Fang Yan, Lin Wang, Meiru An, and Noreen Rauls for their advice in extending and perfecting the program. Also, I thank Xi'an Xiong, Runqiu Ma, Wencheng Yan, Sen Jia, Lu Cao, Dong Liu, Hongpeng Wang, Jiawei Zhang, Jiajun Liu, Maoqiang Jing, Yi Zhang, Wei Shan, and Yadi Wang for their efforts in helping me test the program.

[§]The paper on the tool has been published by *Computer Physics Communications*. You can find this paper and the preprint corresponding to it in the links [Comput. Phys. Commun. 258 \(2021\) 107540](#) and [arXiv:2001.04016](#), respectively. If the tool really helps your researches, we would appreciate it very much if you could cite the paper in your publications.

List of Tables

1	Decay trees and their respective initial-final states.	3
2	Decay initial-final states.	9
3	Decay branches of D_s^+ .	12
4	Decay branches of D^{*+} .	13
5	Decay branches of D^{*0} .	14
6	Decay branches of D^0 .	15
7	Decay branches of π^0 .	17
8	Cascade decay branches of D_s^+ .	18
9	Cascade decay branches of D^{*+} .	20
10	Cascade decay branches of D^{*0} .	23
11	Cascade decay branches of D^0 .	26
12	Cascade decay branches of π^0 .	30
13	Decay final states of D^{*+} .	31
14	Decay final states of D^{*0} .	33
15	Decay final states of D^0 .	35
16	Decay final states of π^0 .	38
17	Production branches of D_s^+ .	39
18	Production branches of D^{*+} .	41
19	Production branches of D^{*0} .	45
20	Production branches of D^0 .	49
21	Production branches of π^0 .	53
22	Production branches of e^+ .	56
23	Mothers of D_s^+ .	58
24	Mothers of D^{*+} .	59
25	Mothers of D^{*0} .	60
26	Mothers of D^0 .	61
27	Mothers of π^0 .	62
28	Mothers of e^+ .	64

Table 1: Decay trees and their respective initial-final states.

rowNo	decay tree (decay initial-final states)	iDcyTr	iDcyIFsts	nEtr	nCcEtr	nAllEtr	nCEtr
1	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-\rho^+K^+K^-$, $\rho^+ \rightarrow \pi^0\pi^+$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-$)	2902	2	152	148	300	300
2	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-\rho^+K^+K^-\gamma^I$, $\rho^+ \rightarrow \pi^0\pi^+$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I$)	2221	54	126	145	271	571
3	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\rho^-K^+K^-$, $\rho^- \rightarrow \pi^0\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-$)	1455	112	131	108	239	810
4	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-\pi^-\rho^+K^+K^-$, $\rho^0 \rightarrow \pi^+\pi^-$, $\rho^+ \rightarrow \pi^0\pi^+$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-$)	277	34	130	104	234	1044
5	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^+\pi^-\rho^-\gamma^I$, $\rho^0 \rightarrow \pi^+\pi^-$, $\rho^- \rightarrow \pi^0\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I$)	835	11	106	122	228	1272
6	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^+\pi^-\rho^-$, $\rho^0 \rightarrow \pi^+\pi^-$, $\rho^- \rightarrow \pi^0\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-$)	285	252	98	113	211	1483
7	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-\rho^+\omega K^+K^-$, $\rho^+ \rightarrow \pi^0\pi^+$, $\omega \rightarrow \pi^0\pi^+\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$)	1257	91	108	101	209	1692
8	$e^+e^- \rightarrow \pi^+\pi^+\pi^-\rho^-\omega K^+K^-$, $\rho^- \rightarrow \pi^0\pi^-$, $\omega \rightarrow \pi^0\pi^+\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$)	545	34	107	94	201	1893
9	$e^+e^- \rightarrow \pi^0\rho^0\pi^-\rho^+K^+K^-\gamma^I$, $\rho^0 \rightarrow \pi^+\pi^-$, $\rho^+ \rightarrow \pi^0\pi^+$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I$)	1891	54	98	95	193	2086
10	$e^+e^- \rightarrow \pi^+\pi^-\pi^-\rho^+K^+K^-\gamma^I$, $\rho^+ \rightarrow \pi^0\pi^+$ ($e^+e^- \dashrightarrow \pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I$)	957	109	89	102	191	2277
11	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^-$, $\rho^0 \rightarrow \pi^+\pi^-$, $\rho^- \rightarrow \pi^0\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-$)	395	51	84	98	182	2459
12	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\rho^-K^+K^-$, $\rho^0 \rightarrow \pi^+\pi^-$, $\rho^- \rightarrow \pi^0\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-$)	4024	2	93	88	181	2640
13	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-\pi^-\rho^+\omega\gamma^I$, $\rho^0 \rightarrow \pi^+\pi^-$, $\rho^+ \rightarrow \pi^0\pi^+$, $\omega \rightarrow \pi^0\pi^+\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I$)	2686	145	91	88	179	2819
14	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\rho^-\omega\gamma^I$, $\rho^- \rightarrow \pi^0\pi^-$, $\omega \rightarrow \pi^0\pi^+\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I$)	86	84	85	93	178	2997
15	$e^+e^- \rightarrow \pi^+\pi^+\pi^-\rho^-K^+K^-$, $\rho^- \rightarrow \pi^0\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^+\pi^-\pi^-K^+K^-$)	305	266	90	88	178	3175
16	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-\pi^-\rho^+K^+K^-\gamma^I$, $\rho^0 \rightarrow \pi^+\pi^-$, $\rho^+ \rightarrow \pi^0\pi^+$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I$)	1351	19	98	80	178	3353
17	$e^+e^- \rightarrow \pi^0\pi^+\rho^-\omega K^+K^-\gamma^I$, $\rho^- \rightarrow \pi^0\pi^-$, $\omega \rightarrow \pi^0\pi^+\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I$)	497	395	87	89	176	3529

rowNo	decay tree (decay initial-final states)	iDcyTr	iDcyIFsts	nEtr	nCcEtr	nAllEtr	nCEtr
18	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\rho^-K^+K^-\gamma^I, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	1235	395	83	90	173	3702
19	$e^+e^- \rightarrow \rho^0\pi^+\pi^-\pi^-\rho^+K^+K^-, \rho^0 \rightarrow \pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-)$	1816	27	78	95	173	3875
20	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\rho^-\omega K^+K^-\gamma^I, \rho^- \rightarrow \pi^0\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I)$	915	140	83	89	172	4047
21	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-\pi^-\rho^+\omega, \rho^0 \rightarrow \pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-)$	222	205	101	70	171	4218
22	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-\omega K^+K^-, \rho^0 \rightarrow \pi^+\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-)$	462	34	171	—	171	4389
23	$e^+e^- \rightarrow \pi^+\pi^+\pi^-\rho^-\omega K^+K^-\gamma^I, \rho^- \rightarrow \pi^0\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I)$	5867	19	76	93	169	4558
24	$e^+e^- \rightarrow \pi^0\pi^-\rho^+\omega K^+K^-, \rho^+ \rightarrow \pi^0\pi^+, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-)$	1866	112	86	78	164	4722
25	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\rho^+\rho^-K^+K^-, \rho^+ \rightarrow \pi^0\pi^+, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-)$	2647	112	164	—	164	4886
26	$e^+e^- \rightarrow \pi^0\pi^0\rho^+\pi^-\pi^-\rho^+\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I)$	152	84	77	86	163	5049
27	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^-\omega\gamma^I, \rho^- \rightarrow \pi^0\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I)$	1365	270	73	90	163	5212
28	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-\rho^+\gamma^I, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I)$	1006	11	77	83	160	5372
29	$e^+e^- \rightarrow \pi^0\pi^-\rho^+K^+K^-\gamma^I, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-K^+K^-\gamma^I)$	6463	838	58	101	159	5531
30	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-K^+K^-\gamma^I, \rho^0 \rightarrow \pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	113	109	157	—	157	5688
31	$e^+e^- \rightarrow \rho^0\pi^+\pi^+\pi^-\rho^-K^+K^-\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	468	272	69	88	157	5845
32	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\omega K^+K^-\gamma^I, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	823	54	154	—	154	5999
33	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\rho^-\omega, \rho^- \rightarrow \pi^0\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-)$	2681	51	73	80	153	6152
34	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\rho^-\omega, \rho^- \rightarrow \pi^0\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-)$	1839	205	62	86	148	6300
35	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\omega K^+K^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	2	2	145	—	145	6445

rowNo	decay tree (decay initial-final states)	iDcyTr	iDcyIFsts	nEtr	nCcEtr	nAllEtr	nCEtr
36	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\rho^-\omega, \rho^- \rightarrow \pi^0\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-)$	1991	204	89	54	143	6588
37	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\rho^+\rho^-K^+K^-\gamma^I, \rho^+ \rightarrow \pi^0\pi^+, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	1494	395	141	—	141	6729
38	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^+\pi^-\pi^-\rho^+, \rho^0 \rightarrow \pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-)$	426	156	71	69	140	6869
39	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^-\gamma^I, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-\gamma^I)$	796	581	70	69	139	7008
40	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\rho^-, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-)$	3105	252	70	69	139	7147
41	$e^+e^- \rightarrow \pi^0\pi^+\pi^-K^+K^-\gamma^I$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^-K^+K^-\gamma^I)$	1751	197	137	—	137	7284
42	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\omega K^+K^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^+K^-)$	500	34	134	—	134	7418
43	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-\omega K^+K^-\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	1924	19	134	—	134	7552
44	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^+\pi^-\pi^-\omega\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I)$	128	124	133	—	133	7685
45	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\rho^+K^+K^-\gamma^I\gamma^I, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma^I)$	3159	213	62	71	133	7818
46	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-\rho^+\gamma^I, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I)$	1902	84	67	65	132	7950
47	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-\rho^-\gamma^I\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I\gamma^I)$	18	18	63	68	131	8081
48	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^-\pi^-\rho^+\omega, \rho^0 \rightarrow \pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-)$	677	98	66	64	130	8211
49	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-K^+K^-, \rho^0 \rightarrow \pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^-\pi^-K^+K^-)$	6862	266	129	—	129	8340
50	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^+\pi^-\pi^-\omega, \rho^0 \rightarrow \pi^+\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-)$	3406	156	128	—	128	8468
51	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\rho^+\omega\gamma^I, \rho^+ \rightarrow \pi^0\pi^+, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I)$	7238	145	62	64	126	8594
52	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^+\pi^-\pi^-\rho^+\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I)$	574	124	70	55	125	8719
53	$e^+e^- \rightarrow \rho^0\pi^+\pi^-\omega K^+K^-\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I)$	1450	272	125	—	125	8844

rowNo	decay tree (decay initial-final states)	iDcyTr	iDcyIFsts	nEtr	nCcEtr	nAllEtr	nCEtr
54	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	532	2	124	—	124	8968
55	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\rho^-\bar{K}^*K^+, \rho^- \rightarrow \pi^0\pi^-, \bar{K}^* \rightarrow \pi^+K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	1954	2	58	66	124	9092
56	$e^+e^- \rightarrow \pi^0\rho^0\rho^0\pi^+\pi^-\pi^-\rho^+\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \rho^0 \rightarrow \pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I)$	3780	124	58	66	124	9216
57	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\rho^-\gamma^I, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\gamma^I)$	6365	94	60	64	124	9340
58	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\omega K^+K^-\gamma^I, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I)$	560	19	123	—	123	9463
59	$e^+e^- \rightarrow \pi^0\rho^0\rho^0\pi^+\pi^-\rho^-, \rho^0 \rightarrow \pi^+\pi^-, \rho^0 \rightarrow \pi^+\pi^-, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-)$	3432	156	55	68	123	9586
60	$e^+e^- \rightarrow \pi^0\pi^0\pi^-\rho^+\omega K^+K^-, \rho^+ \rightarrow \pi^0\pi^+, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	2372	62	61	61	122	9708
61	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\omega K^+K^-\gamma^I, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	566	395	121	—	121	9829
62	$e^+e^- \rightarrow \pi^+\pi^-\rho^-\rho^+K^+K^-\gamma^I, \rho^+ \rightarrow \pi^0\pi^+, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	1864	54	121	—	121	9950
63	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\rho^-\bar{K}^*K^-, \rho^0 \rightarrow \pi^+\pi^-, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	2393	112	72	49	121	10071
64	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\rho^-\omega K^+K^-\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \rho^- \rightarrow \pi^0\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	311	140	56	62	118	10189
65	$e^+e^- \rightarrow \pi^0\rho^0\pi^-\rho^+\omega K^+K^-, \rho^0 \rightarrow \pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-)$	663	91	58	60	118	10307
66	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\rho^+\rho^-, \rho^+ \rightarrow \pi^0\pi^+, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-)$	2182	51	118	—	118	10425
67	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\rho^+, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-)$	516	51	60	57	117	10542
68	$e^+e^- \rightarrow \rho^0\pi^+\pi^+\pi^-\rho^-\omega, \rho^0 \rightarrow \pi^+\pi^-, \rho^- \rightarrow \pi^0\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-)$	1584	156	59	58	117	10659
69	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I, \rho^0 \rightarrow \pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	2664	272	117	—	117	10776
70	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^+\pi^-\pi^-K^+K^-, \rho^0 \rightarrow \pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	657	27	116	—	116	10892
71	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\rho^-\bar{K}^*K^-\gamma^I, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	1192	139	62	53	115	11007

rowNo	decay tree (decay initial-final states)	iDcyTr	iDcyIFsts	nEtr	nCcEtr	nAllEtr	nCEtr
72	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\rho^-, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-)$	1	1	52	62	114	11121
73	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^-\pi^-\rho^+\omega\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I)$	1770	506	65	49	114	11235
74	$e^+e^- \rightarrow \pi^+\pi^-\pi^-\rho^+\gamma^I, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\gamma^I)$	582	440	50	63	113	11348
75	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^-K^+K^-\gamma^I, \rho^0 \rightarrow \pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	8964	54	113	—	113	11461
76	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^-K^+K^-, \rho^0 \rightarrow \pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-)$	1253	2	111	—	111	11572
77	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	4263	266	111	—	111	11683
78	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-\rho^+\rho^-\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I)$	1004	84	110	—	110	11793
79	$e^+e^- \rightarrow \pi^+\pi^-\rho^+\rho^-K^+K^-, \rho^+ \rightarrow \pi^0\pi^+, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-)$	1190	2	110	—	110	11903
80	$e^+e^- \rightarrow \rho^0\pi^+\pi^+\pi^-\rho^-\omega\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \rho^- \rightarrow \pi^0\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I)$	4693	124	60	50	110	12013
81	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-\rho^+\rho^-, \rho^0 \rightarrow \pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-)$	605	51	109	—	109	12122
82	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^+\pi^-K^*K^-, \rho^0 \rightarrow \pi^+\pi^-, K^* \rightarrow \pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	994	27	53	56	109	12231
83	$e^+e^- \rightarrow \pi^0\pi^0\pi^-\rho^-K^+K^-, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-K^+K^-)$	3463	398	54	54	108	12339
84	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^-\rho^+K^+K^-\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	5620	395	48	60	108	12447
85	$e^+e^- \rightarrow \pi^0\pi^0\pi^-\omega K^+K^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-)$	1587	112	107	—	107	12554
86	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	2512	109	107	—	107	12661
87	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-K^*K^-\gamma^I, K^* \rightarrow \pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	3225	109	49	57	106	12767
88	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-\rho^+K^+K^-, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-)$	11263	34	50	56	106	12873
89	$e^+e^- \rightarrow \rho^0\pi^-\rho^+K^+K^-\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	1503	109	63	42	105	12978

rowNo	decay tree (decay initial-final states)	iDcyTr	iDcyIFsts	nEtr	nCcEtr	nAllEtr	nCEtr
90	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\rho^+\rho^-\gamma^I, \rho^+ \rightarrow \pi^0\pi^+, \rho^- \rightarrow \pi^0\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I$)	751	84	104	—	104	13082
91	$e^+e^- \rightarrow \pi^+\pi^+\pi^-\pi^-\rho^+\omega, \rho^+ \rightarrow \pi^0\pi^+, \omega \rightarrow \pi^0\pi^+\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-$)	2745	156	53	51	104	13186
92	$e^+e^- \rightarrow \pi^0\pi^-\rho^+K^+K^-, \rho^+ \rightarrow \pi^0\pi^+$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-K^+K^-$)	1321	868	61	42	103	13289
93	$e^+e^- \rightarrow \rho^0\pi^+\pi^+\pi^-\rho^-\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \rho^- \rightarrow \pi^0\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I$)	1740	105	52	51	103	13392
94	$e^+e^- \rightarrow \pi^-\rho^+K^+K^-\gamma^I, \rho^+ \rightarrow \pi^0\pi^+$ ($e^+e^- \dashrightarrow \pi^0\pi^+\pi^-K^+K^-\gamma^I$)	4412	197	46	56	102	13494
95	$e^+e^- \rightarrow \rho^0\pi^+\pi^-\omega K^+K^-, \rho^0 \rightarrow \pi^+\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$)	27	27	101	—	101	13595
96	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\omega K^*K^-, \omega \rightarrow \pi^0\pi^+\pi^-, K^* \rightarrow \pi^-K^+$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$)	5565	34	47	54	101	13696
97	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I$)	8576	54	101	—	101	13797
98	$e^+e^- \rightarrow \pi^+\pi^-\omega K^+K^-\gamma^I, \omega \rightarrow \pi^0\pi^+\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I$)	4641	109	100	—	100	13897
99	$e^+e^- \rightarrow \rho^0\pi^+\rho^-\omega K^+K^-\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \rho^- \rightarrow \pi^0\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I$)	5913	19	48	52	100	13997
100	$e^+e^- \rightarrow \pi^0\pi^+\pi^-K^+K^-\gamma^I\gamma^I$ ($e^+e^- \dashrightarrow \pi^0\pi^+\pi^-K^+K^-\gamma^I\gamma^I$)	341	12	99	—	99	14096
rest	$e^+e^- \rightarrow \text{others (175650 in total)}$ ($e^+e^- \dashrightarrow \text{corresponding to others}$)	—	—	—	—	343692	357788

Table 2: Decay initial-final states.

rowNo	decay initial-final states	iDcyIFSts	nEtr	nCcEtr	nAllEtr	nCEtr
1	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	91	2933	—	2933	2933
2	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	34	2929	—	2929	5862
3	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I$	19	2587	—	2587	8449
4	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I$	140	2574	—	2574	11023
5	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-$	112	2143	—	2143	13166
6	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-$	2	2047	—	2047	15213
7	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I$	54	2024	—	2024	17237
8	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I$	395	1974	—	1974	19211
9	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	102	1854	—	1854	21065
10	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^-$	205	1619	—	1619	22684
11	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I$	97	1591	—	1591	24275
12	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-$	27	1546	—	1546	25821
13	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\gamma^I$	145	1483	—	1483	27304
14	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I$	272	1418	—	1418	28722
15	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-$	62	1414	—	1414	30136
16	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-$	51	1387	—	1387	31523
17	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	466	1380	—	1380	32903
18	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^-$	25	623	755	1378	34281
19	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I$	84	1366	—	1366	35647
20	$e^+e^- \rightarrow \pi^0\pi^0K_L^0\pi^+\pi^+\pi^-\pi^-K^+$	207	571	749	1320	36967
21	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I$	128	1319	—	1319	38286
22	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-$	98	1291	—	1291	39577
23	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	310	1291	—	1291	40868
24	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-$	156	1287	—	1287	42155
25	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+\gamma^I$	152	569	706	1275	43430
26	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^-$	473	670	573	1243	44673
27	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^-\gamma^I$	124	1229	—	1229	45902
28	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-$	204	1228	—	1228	47130
29	$e^+e^- \rightarrow \pi^0\pi^0K_L^0\pi^+\pi^-\pi^-K^+$	147	584	640	1224	48354
30	$e^+e^- \rightarrow \pi^0\pi^0\pi^0K_L^0\pi^+\pi^-\pi^-K^+\gamma^I$	10	565	653	1218	49572
31	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma^I$	81	1200	—	1200	50772
32	$e^+e^- \rightarrow \pi^0\pi^0K_L^0\pi^+\pi^-\pi^-K^+\gamma^I$	68	576	614	1190	51962
33	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+$	83	531	644	1175	53137

rowNo	decay initial-final states	iDcyIFsts	nEtr	nCcEtr	nAllEtr	nCEtr
34	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I$	235	1171	—	1171	54308
35	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\gamma^I$	506	1168	—	1168	55476
36	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^-\gamma^I$	168	637	529	1166	56642
37	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\gamma^I$	270	1136	—	1136	57778
38	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I$	11	1134	—	1134	58912
39	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I\gamma^I$	116	1127	—	1127	60039
40	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I$	109	1114	—	1114	61153
41	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^-\gamma^I$	163	1077	—	1077	62230
42	$e^+e^- \rightarrow \pi^0\pi^0K_L^0\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+$	41	480	569	1049	63279
43	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma^I$	213	1040	—	1040	64319
44	$e^+e^- \rightarrow \pi^0\pi^0\pi^0K_L^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^-$	354	530	505	1035	65354
45	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^-\gamma^I$	184	517	499	1016	66370
46	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-$	252	1009	—	1009	67379
47	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma^I$	323	982	—	982	68361
48	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+$	638	435	546	981	69342
49	$e^+e^- \rightarrow \pi^0\pi^0K_L^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^-\gamma^I$	175	526	454	980	70322
50	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+$	123	437	532	969	71291
51	$e^+e^- \rightarrow \pi^0\pi^0\pi^0K_L^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-K^-\gamma^I$	1187	510	400	910	72201
52	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-$	266	905	—	905	73106
53	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+\gamma^I$	158	376	479	855	73961
54	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	289	839	—	839	74800
55	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+\gamma^I$	178	358	467	825	75625
56	$e^+e^- \rightarrow \pi^0\pi^0\pi^0K_L^0\pi^+\pi^+\pi^+\pi^-\pi^-K^-$	154	445	377	822	76447
57	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^-$	767	814	—	814	77261
58	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-$	274	805	—	805	78066
59	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+$	85	374	417	791	78857
60	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	1154	781	—	781	79638
61	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-$	188	777	—	777	80415
62	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+\gamma^I$	335	373	385	758	81173
63	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-$	355	728	—	728	81901
64	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^-\gamma^I$	1393	380	348	728	82629
65	$e^+e^- \rightarrow \pi^0\pi^0\pi^0K_L^0\pi^+\pi^+\pi^+\pi^-\pi^-K^-\gamma^I$	70	376	348	724	83353
66	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I\gamma^I$	218	713	—	713	84066
67	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+$	525	355	353	708	84774

rowNo	decay initial-final states	iDcyIFSts	nEtr	nCcEtr	nAllEtr	nCEtr
68	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I$	574	704	—	704	85478
69	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^-\gamma^I$	104	695	—	695	86173
70	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^+$	1142	336	355	691	86864
71	$e^+e^- \rightarrow \pi^0K_L^0\pi^+\pi^+\pi^-\pi^-K^-\gamma^I$	632	350	334	684	87548
72	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-$	498	681	—	681	88229
73	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+$	760	337	334	671	88900
74	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\gamma^I$	13	667	—	667	89567
75	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+$	308	328	335	663	90230
76	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I\gamma^I$	373	663	—	663	90893
77	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I$	599	663	—	663	91556
78	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\gamma^I\gamma^I$	825	656	—	656	92212
79	$e^+e^- \rightarrow \pi^0K_L^0\pi^+\pi^+\pi^-\pi^-K^-$	321	332	323	655	92867
80	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\gamma^I$	99	654	—	654	93521
81	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+\gamma^I$	15	320	333	653	94174
82	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma^I$	36	641	—	641	94815
83	$e^+e^- \rightarrow \pi^0K_L^0\pi^+\pi^+\pi^+\pi^-\pi^-K^-$	7	344	296	640	95455
84	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma^I$	368	629	—	629	96084
85	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-$	702	623	—	623	96707
86	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+\gamma^I$	44	301	317	618	97325
87	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I$	1244	613	—	613	97938
88	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^-\pi^-K^+$	262	261	350	611	98549
89	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\gamma^I\gamma^I$	18	606	—	606	99155
90	$e^+e^- \rightarrow \pi^0\pi^0\pi^0K_L^0\pi^+\pi^+\pi^+\pi^-\pi^-K^-$	220	308	296	604	99759
91	$e^+e^- \rightarrow \pi^0\pi^0K_L^0\pi^+\pi^+\pi^-\pi^-K^-\gamma^I\gamma^I$	282	322	281	603	100362
92	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^+\gamma^I\gamma^I$	522	262	336	598	100960
93	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma^I$	238	593	—	593	101553
94	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^-\gamma^I$	64	309	277	586	102139
95	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-K^-\gamma^I\gamma^I$	29	308	277	585	102724
96	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I$	737	582	—	582	103306
97	$e^+e^- \rightarrow \pi^0K_L^0\pi^+\pi^+\pi^-\pi^-K^+\gamma^I$	1078	263	319	582	103888
98	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^-\gamma^I\gamma^I$	404	573	—	573	104461
99	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-K^-$	624	572	—	572	105033
100	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^+K^-K^-$	454	562	—	562	105595
rest	$e^+e^- \rightarrow \text{others (24167 in total)}$	—	—	—	252193	357788

Table 3: Decay branches of D_s^+ .

rowNo	decay branch of D_s^+	iDcyBrP	nCase	nCcCase	nAllCase	nCCase
1	$D_s^+ \rightarrow \bar{K}^0 K^{*+}$	3	3	3	6	6
2	$D_s^+ \rightarrow \pi^+ \eta'$	9	1	4	5	11
3	$D_s^+ \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \eta$	10	2	2	4	15
4	$D_s^+ \rightarrow \tau^+ \nu_\tau$	11	1	3	4	19
5	$D_s^+ \rightarrow \pi^+ K^+ K^-$	13	1	3	4	23
6	$D_s^+ \rightarrow \pi^+ \eta \omega$	20	2	2	4	27
7	$D_s^+ \rightarrow \rho^+ \phi$	12	2	1	3	30
8	$D_s^+ \rightarrow \pi^+ \phi$	8	2	1	3	33
9	$D_s^+ \rightarrow \bar{K}^* K^{*+}$	18	1	2	3	36
10	$D_s^+ \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \pi^-$	0	3	0	3	39
11	$D_s^+ \rightarrow K_S^0 K^+$	6	2	0	2	41
12	$D_s^+ \rightarrow \mu^+ \nu_\mu \eta$	14	1	1	2	43
13	$D_s^+ \rightarrow \rho^+ \eta'$	1	2	0	2	45
14	$D_s^+ \rightarrow \pi^+ \pi^+ \pi^- \omega$	19	1	1	2	47
15	$D_s^+ \rightarrow e^+ \nu_e \eta$	5	1	1	2	49
16	$D_s^+ \rightarrow \pi^+ \eta$	26	1	1	2	51
17	$D_s^+ \rightarrow \pi^0 \pi^0 \pi^+ \eta$	16	0	1	1	52
18	$D_s^+ \rightarrow \rho^+ \eta$	17	0	1	1	53
19	$D_s^+ \rightarrow \pi^0 \pi^+ \omega$	4	1	0	1	54
20	$D_s^+ \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \eta$	7	0	1	1	55
21	$D_s^+ \rightarrow e^+ \nu_e \eta'$	2	1	0	1	56
22	$D_s^+ \rightarrow \pi^+ \pi^- K_S^0 K^+$	21	0	1	1	57
23	$D_s^+ \rightarrow \pi^+ \pi^- K^+$	22	1	0	1	58
24	$D_s^+ \rightarrow \pi^0 \pi^+ \phi$	23	0	1	1	59
25	$D_s^+ \rightarrow \pi^+ \pi^+ \pi^+ \pi^- \pi^- \eta$	24	1	0	1	60
26	$D_s^+ \rightarrow \pi^+ \pi^- \eta K^+$	25	0	1	1	61
27	$D_s^+ \rightarrow \pi^+ \pi^+ \pi^-$	15	1	0	1	62
28	$D_s^+ \rightarrow K_L^0 \pi^+ \pi^- K^+$	27	1	0	1	63
29	$D_s^+ \rightarrow \pi^0 \pi^+ K_S^0$	28	0	1	1	64

Table 4: Decay branches of D^{*+} .

rowNo	decay branch of D^{*+}	iDcyBrP	nCase	nCcCase	nAllCase	nCCase
1	$D^{*+} \rightarrow \pi^+ D^0$	0	59	71	130	130
2	$D^{*+} \rightarrow \pi^0 D^+$	1	20	10	30	160
3	$D^{*+} \rightarrow D^+ \gamma$	2	0	2	2	162

Table 5: Decay branches of D^{*0} .

rowNo	decay branch of D^{*0}	iDcyBrP	nCase	nCcCase	nAllCase	nCCase
1	$D^{*0} \rightarrow \pi^0 D^0$	0	62	54	116	116
2	$D^{*0} \rightarrow D^0 \gamma$	1	28	30	58	174

Table 6: Decay branches of D^0 .

rowNo	decay branch of D^0	iDcyBrP	nCase	nCcCase	nAllCase	nCCase
1	$D^0 \rightarrow \pi^+ K^-$	0	129	108	237	237
2	$D^0 \rightarrow \pi^0 \pi^+ K^-$	9	21	25	46	283
3	$D^0 \rightarrow e^+ \nu_e K^-$	4	8	17	25	308
4	$D^0 \rightarrow K^- a_1^+$	12	12	12	24	332
5	$D^0 \rightarrow \rho^+ K^{*-}$	16	11	7	18	350
6	$D^0 \rightarrow \mu^+ \nu_\mu K^-$	3	8	6	14	364
7	$D^0 \rightarrow \pi^+ \pi^- \bar{K}^*$	1	6	5	11	375
8	$D^0 \rightarrow e^+ \nu_e K^{*-}$	11	4	6	10	385
9	$D^0 \rightarrow K_L^0 \pi^+ \pi^-$	29	6	3	9	394
10	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ K^-$	2	3	5	8	402
11	$D^0 \rightarrow \omega K_S^0$	7	2	3	5	407
12	$D^0 \rightarrow \pi^+ \omega K^-$	17	2	3	5	412
13	$D^0 \rightarrow \mu^+ \nu_\mu K^{*-}$	18	4	1	5	417
14	$D^0 \rightarrow \pi^+ \pi^- K_S^0$	20	1	4	5	422
15	$D^0 \rightarrow \pi^0 \pi^+ \pi^-$	21	2	3	5	427
16	$D^0 \rightarrow \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	22	2	3	5	432
17	$D^0 \rightarrow \pi^0 \pi^+ \pi^- \bar{K}^*$	25	1	4	5	437
18	$D^0 \rightarrow K_S^0 \eta'$	14	1	4	5	442
19	$D^0 \rightarrow \pi^0 \pi^0 K_L^0$	38	3	2	5	447
20	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^-$	42	3	2	5	452
21	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 K_L^0$	13	2	2	4	456
22	$D^0 \rightarrow \pi^- K^+$	28	3	1	4	460
23	$D^0 \rightarrow \pi^+ \pi^+ \pi^- \pi^-$	5	2	2	4	464
24	$D^0 \rightarrow \pi^0 K_S^0$	34	1	3	4	468
25	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^- K_S^0$	15	2	2	4	472
26	$D^0 \rightarrow \pi^0 K_L^0$	24	2	2	4	476
27	$D^0 \rightarrow \pi^0 \bar{K}_1^0$	30	3	0	3	479
28	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^- K_S^0$	26	1	2	3	482
29	$D^0 \rightarrow K_L^0 \omega$	45	3	0	3	485
30	$D^0 \rightarrow \pi^+ \eta K^-$	32	0	2	2	487
31	$D^0 \rightarrow \pi^0 K^+ K^-$	33	1	1	2	489
32	$D^0 \rightarrow \pi^+ K^- \eta'$	27	0	2	2	491
33	$D^0 \rightarrow \pi^+ \pi^-$	35	1	1	2	493

rowNo	decay branch of D^0	iDcyBrP	nCase	nCcCase	nAllCase	nCCase
34	$D^0 \rightarrow K_L^0 \eta'$	6	0	2	2	495
35	$D^0 \rightarrow \eta\eta'$	40	1	1	2	497
36	$D^0 \rightarrow K^- K^{*+}$	41	0	2	2	499
37	$D^0 \rightarrow \pi^0 \eta K_S^0$	8	1	1	2	501
38	$D^0 \rightarrow \pi^0 \pi^+ \pi^- K_S^0$	43	1	1	2	503
39	$D^0 \rightarrow \pi^+ K_1^-$	44	2	0	2	505
40	$D^0 \rightarrow \pi^0 \pi^0 \bar{K}^*$	23	0	2	2	507
41	$D^0 \rightarrow \pi^0 \rho^+ K^-$	47	0	2	2	509
42	$D^0 \rightarrow e^+ \nu_e \pi^-$	49	1	1	2	511
43	$D^0 \rightarrow \pi^+ \pi^+ \pi^- K^-$	52	1	1	2	513
44	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	56	1	1	2	515
45	$D^0 \rightarrow \pi^0 \pi^0 K^+ K^-$	59	1	1	2	517
46	$D^0 \rightarrow \pi^0 \eta$	39	1	0	1	518
47	$D^0 \rightarrow \rho^0 \rho^0$	46	0	1	1	519
48	$D^0 \rightarrow \pi^+ \pi^+ \pi^- \pi^- K_S^0$	31	1	0	1	520
49	$D^0 \rightarrow \pi^0 \bar{K}^*$	48	0	1	1	521
50	$D^0 \rightarrow K_S^0 K^+ K^-$	19	0	1	1	522
51	$D^0 \rightarrow \pi^0 \pi^+ K^{*-}$	50	1	0	1	523
52	$D^0 \rightarrow \pi^+ \pi^+ \pi^+ \pi^- \pi^- K^-$	51	0	1	1	524
53	$D^0 \rightarrow K^+ K^-$	36	0	1	1	525
54	$D^0 \rightarrow \pi^0 \pi^0 \pi^0$	53	1	0	1	526
55	$D^0 \rightarrow K_L^0 \phi$	54	0	1	1	527
56	$D^0 \rightarrow e^+ \nu_e \rho^-$	55	0	1	1	528
57	$D^0 \rightarrow \pi^+ \pi^- K^+ K^-$	37	1	0	1	529
58	$D^0 \rightarrow \bar{K}^* \eta'$	57	1	0	1	530
59	$D^0 \rightarrow \pi^+ \pi^- \eta'$	58	1	0	1	531
60	$D^0 \rightarrow \omega \bar{K}^*$	10	0	1	1	532
61	$D^0 \rightarrow \pi^+ \pi^- \phi$	60	0	1	1	533
62	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 K_S^0$	61	0	1	1	534
63	$D^0 \rightarrow \pi^0 \pi^0$	62	1	0	1	535
64	$D^0 \rightarrow K_L^0 K_L^0 \pi^+ K^-$	63	0	1	1	536
65	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^-$	64	1	0	1	537
66	$D^0 \rightarrow K_L^0 \pi^+ K^-$	65	0	1	1	538

Table 7: Decay branches of π^0 .

rowNo	decay branch of π^0	iDcyBrP	nCase	nCcCase	nAllCase	nCCase
1	$\pi^0 \rightarrow e^+ e^-$	0	49533	—	49533	49533
2	$\pi^0 \rightarrow e^+ e^+ e^- e^-$	1	256	—	256	49789

Table 8: Cascade decay branches of D_s^+ .

rowNo	cascade decay branch of D_s^+	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
1	$D_s^+ \rightarrow \pi^+ K^+ K^-$	18	1	3	4	4
2	$D_s^+ \rightarrow \rho^+ \phi, \rho^+ \rightarrow \pi^0 \pi^+, \phi \rightarrow K^+ K^-$	16	2	1	3	7
3	$D_s^+ \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \pi^-$	0	3	0	3	10
4	$D_s^+ \rightarrow \pi^+ \eta', \eta' \rightarrow \pi^+ \pi^- \eta, \eta \rightarrow \gamma\gamma$	13	0	2	2	12
5	$D_s^+ \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \eta, \eta \rightarrow \gamma\gamma$	14	0	2	2	14
6	$D_s^+ \rightarrow \pi^+ \eta', \eta' \rightarrow \pi^0 \pi^0 \eta, \eta \rightarrow \gamma\gamma$	22	1	1	2	16
7	$D_s^+ \rightarrow \pi^+ \pi^+ \pi^- \omega, \omega \rightarrow \pi^0 \pi^+ \pi^-$	30	1	1	2	18
8	$D_s^+ \rightarrow \pi^+ \eta \omega, \eta \rightarrow \pi^0 \pi^0 \pi^0, \omega \rightarrow \pi^0 \pi^+ \pi^-$	31	1	1	2	20
9	$D_s^+ \rightarrow \pi^+ \eta, \eta \rightarrow \gamma\gamma$	42	1	1	2	22
10	$D_s^+ \rightarrow \pi^0 \pi^+ \pi^- \eta, \eta \rightarrow \pi^0 \pi^0 \pi^0$	44	2	0	2	24
11	$D_s^+ \rightarrow K_S^0 K^+, K_S^0 \rightarrow \pi^0 \pi^0$	10	1	0	1	25
12	$D_s^+ \rightarrow \pi^0 \pi^0 \pi^+ \pi^- \eta, \eta \rightarrow \pi^0 \pi^0 \pi^0$	11	0	1	1	26
13	$D_s^+ \rightarrow \pi^+ \phi, \phi \rightarrow K_L^0 K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	12	1	0	1	27
14	$D_s^+ \rightarrow \rho^+ \eta', \rho^+ \rightarrow \pi^0 \pi^+, \eta' \rightarrow \pi^+ \pi^- \eta, \eta \rightarrow \gamma\gamma$	1	1	0	1	28
15	$D_s^+ \rightarrow e^+ \nu_e \eta', \eta' \rightarrow \rho^0 \gamma, \rho^0 \rightarrow \pi^+ \pi^-$	2	1	0	1	29
16	$D_s^+ \rightarrow \tau^+ \nu_\tau, \tau^+ \rightarrow \bar{\nu}_\tau \pi^0 \pi^+ \pi^-$	15	0	1	1	30
17	$D_s^+ \rightarrow \bar{K}^0 K^{*+}, \bar{K}^0 \rightarrow K_L^0, K^{*+} \rightarrow \pi^0 K^+$	3	0	1	1	31
18	$D_s^+ \rightarrow \pi^+ \phi, \phi \rightarrow K_L^0 K_S^0$	17	1	0	1	32
19	$D_s^+ \rightarrow \pi^0 \pi^+ \omega, \omega \rightarrow \pi^0 \pi^+ \pi^-$	4	1	0	1	33
20	$D_s^+ \rightarrow \bar{K}^0 K^{*+}, \bar{K}^0 \rightarrow K_S^0, K^{*+} \rightarrow \pi^+ K^0, K_S^0 \rightarrow \pi^+ \pi^-, K^0 \rightarrow K_L^0, K_L^0 \rightarrow \gamma\gamma$	19	1	0	1	34
21	$D_s^+ \rightarrow \mu^+ \nu_\mu \eta, \eta \rightarrow \pi^0 \pi^0 \pi^0$	20	0	1	1	35
22	$D_s^+ \rightarrow \pi^+ \pi^+ \pi^-$	21	1	0	1	36
23	$D_s^+ \rightarrow \bar{K}^0 K^{*+}, \bar{K}^0 \rightarrow K_S^0, K^{*+} \rightarrow \pi^0 K^+, K_S^0 \rightarrow \pi^+ \pi^-$	5	1	0	1	37
24	$D_s^+ \rightarrow \pi^0 \pi^0 \pi^+ \eta, \eta \rightarrow \gamma\gamma$	23	0	1	1	38
25	$D_s^+ \rightarrow \rho^+ \eta, \rho^+ \rightarrow \pi^0 \pi^+, \eta \rightarrow \gamma\gamma$	24	0	1	1	39
26	$D_s^+ \rightarrow \bar{K}^* K^{*+}, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, K^{*+} \rightarrow \pi^+ K^0, \bar{K}^0 \rightarrow K_S^0, K^0 \rightarrow K_L^0, K_S^0 \rightarrow \pi^+ \pi^-$	25	1	0	1	40
27	$D_s^+ \rightarrow \bar{K}^0 K^{*+}, \bar{K}^0 \rightarrow K_S^0, K^{*+} \rightarrow \pi^+ K^0, K_S^0 \rightarrow \pi^+ \pi^-, K^0 \rightarrow K_L^0$	26	0	1	1	41
28	$D_s^+ \rightarrow \tau^+ \nu_\tau, \tau^+ \rightarrow \mu^+ \nu_\mu \bar{\nu}_\tau$	27	0	1	1	42
29	$D_s^+ \rightarrow \pi^+ \phi, \phi \rightarrow K_L^0 K_S^0, K_L^0 \rightarrow e^+ \bar{\nu}_e \pi^-, K_S^0 \rightarrow \pi^0 \pi^0$	28	0	1	1	43
30	$D_s^+ \rightarrow \bar{K}^* K^{*+}, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, K^{*+} \rightarrow \pi^0 K^+, \bar{K}^0 \rightarrow K_L^0$	29	0	1	1	44

rowNo	cascade decay branch of D_s^+	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
31	$D_s^+ \rightarrow e^+ \nu_e \eta, \eta \rightarrow \pi^0 \pi^0 \pi^0$	6	1	0	1	45
32	$D_s^+ \rightarrow \bar{K}^0 K^{*+}, \bar{K}^0 \rightarrow K_S^0, K^{*+} \rightarrow \pi^+ K^0, K_S^0 \rightarrow \pi^0 \pi^0,$ $K^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	7	0	1	1	46
33	$D_s^+ \rightarrow \pi^+ \pi^- K_S^0 K^+, K_S^0 \rightarrow \pi^0 \pi^0$	32	0	1	1	47
34	$D_s^+ \rightarrow K_S^0 K^+, K_S^0 \rightarrow \pi^+ \pi^-$	33	1	0	1	48
35	$D_s^+ \rightarrow \tau^+ \nu_\tau, \tau^+ \rightarrow \bar{\nu}_\tau \pi^0 \pi^+$	34	1	0	1	49
36	$D_s^+ \rightarrow \pi^+ \pi^- K^+$	35	1	0	1	50
37	$D_s^+ \rightarrow \pi^+ \eta', \eta' \rightarrow \rho^0 \gamma, \rho^0 \rightarrow \pi^+ \pi^-$	36	0	1	1	51
38	$D_s^+ \rightarrow \pi^0 \pi^+ \phi, \phi \rightarrow \eta \gamma, \eta \rightarrow \pi^0 \pi^+ \pi^-$	37	0	1	1	52
39	$D_s^+ \rightarrow e^+ \nu_e \eta, \eta \rightarrow \gamma \gamma$	38	0	1	1	53
40	$D_s^+ \rightarrow \pi^+ \pi^+ \pi^+ \pi^- \pi^- \eta, \eta \rightarrow \gamma \gamma$	39	1	0	1	54
41	$D_s^+ \rightarrow \pi^+ \pi^- \eta K^+, \eta \rightarrow \pi^0 \pi^0 \pi^0$	40	0	1	1	55
42	$D_s^+ \rightarrow \bar{K}^* K^{*+}, \bar{K}^* \rightarrow \pi^+ K^-, K^{*+} \rightarrow \pi^+ K^0, K^0 \rightarrow K_L^0$	41	0	1	1	56
43	$D_s^+ \rightarrow \bar{K}^0 K^{*+}, \bar{K}^0 \rightarrow K_L^0, K^{*+} \rightarrow \pi^+ K^0, K^0 \rightarrow K_L^0$	8	1	0	1	57
44	$D_s^+ \rightarrow \pi^+ \eta \omega, \eta \rightarrow \pi^+ \pi^-, \omega \rightarrow \pi^0 \pi^+ \pi^-$	43	0	1	1	58
45	$D_s^+ \rightarrow \rho^+ \eta', \rho^+ \rightarrow \pi^0 \pi^+, \eta' \rightarrow \pi^+ \pi^- \eta, \eta \rightarrow \pi^0 \pi^+ \pi^-$	9	1	0	1	59
46	$D_s^+ \rightarrow K_L^0 \pi^+ \pi^- K^+$	45	1	0	1	60
47	$D_s^+ \rightarrow \pi^0 \pi^+ K_S^0, \pi^0 \rightarrow e^+ e^-, K_S^0 \rightarrow \pi^+ \pi^-$	46	0	1	1	61
48	$D_s^+ \rightarrow \mu^+ \nu_\mu \eta, \eta \rightarrow \gamma \gamma$	47	1	0	1	62
49	$D_s^+ \rightarrow \pi^+ \eta \omega, \eta \rightarrow e^+ e^-, \omega \rightarrow \pi^0 \pi^+ \pi^-$	48	1	0	1	63
50	$D_s^+ \rightarrow \tau^+ \nu_\tau, \tau^+ \rightarrow e^+ \nu_e \bar{\nu}_\tau$	49	0	1	1	64

Table 9: Cascade decay branches of D^{*+} .

rowNo	cascade decay branch of D^{*+}	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
1	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^+ K^-$	0	24	31	55	55
2	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^+ K^-$	5	4	9	13	68
3	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \mu^+ \nu_\mu K^-$	2	3	1	4	72
4	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^0 \pi^+ K^-$	1	1	3	4	76
5	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow e^+ \nu_e K^-$	27	0	3	3	79
6	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^-$	40	2	1	3	82
7	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 K_L^0$	15	0	2	2	84
8	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow K_L^0 \pi^+ \pi^-$	17	0	2	2	86
9	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow e^+ \nu_e \bar{K}^*, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	18	2	0	2	88
10	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow e^+ \nu_e K^{*-}, K^{*-} \rightarrow \pi^0 K^-$	19	1	1	2	90
11	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow e^+ \nu_e \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	25	1	1	2	92
12	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow \pi^0 \pi^+ K^+ K^-$	26	2	0	2	94
13	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow \pi^+ \pi^+ \pi^- \eta, \eta \rightarrow \gamma \gamma$	7	1	1	2	96
14	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow \pi^+ \pi^+ K^-$	31	1	1	2	98
15	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \pi^0 \rho^+, \rho^+ \rightarrow \pi^0 \pi^+$	35	2	0	2	100
16	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow \pi^0 \pi^+ K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	14	0	2	2	102
17	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^+ \pi^-$	49	1	1	2	104
18	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	51	0	2	2	106
19	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^+ \omega K^-, \omega \rightarrow \pi^0 \pi^+ \pi^-$	57	2	0	2	108
20	$D^{*+} \rightarrow \pi^0 D^+, \pi^0 \rightarrow e^+ e^-, D^+ \rightarrow \pi^+ \pi^+ K^-$	9	0	1	1	109
21	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow K_S^0 a_1^+, K_S^0 \rightarrow \pi^0 \pi^0, a_1^+ \rightarrow \rho^0 \pi^+, \rho^0 \rightarrow \pi^+ \pi^-$	20	1	0	1	110
22	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \eta, \eta \rightarrow \pi^0 \pi^0 \pi^0, \pi^0 \rightarrow e^+ e^-$	21	1	0	1	111
23	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^+ \pi^+ \pi^- \pi^- K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	22	1	0	1	112
24	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 K^+ K^-$	23	1	0	1	113
25	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow K^+ K^-$	24	0	1	1	114
26	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^- K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	10	0	1	1	115
27	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^0 \pi^0 K_L^0$	11	1	0	1	116
28	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow K_S^0 K^+ K^-, K_S^0 \rightarrow \pi^+ \pi^-$	12	0	1	1	117
29	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow K_S^0 a_1^+, K_S^0 \rightarrow \pi^+ \pi^-, a_1^+ \rightarrow \pi^0 \rho^+, \rho^+ \rightarrow \pi^0 \pi^+$	28	0	1	1	118
30	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow \pi^0 \pi^+ \omega, \omega \rightarrow \pi^0 \pi^+ \pi^-$	29	1	0	1	119

rowNo	cascade decay branch of D^{*+}	iCascDeyBrP	nCase	nCcCase	nAllCase	nCCase
31	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	30	0	1	1	120
32	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \rho^0 \pi^+, \rho^0 \rightarrow \pi^+ \pi^-$	13	0	1	1	121
33	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \eta, \eta \rightarrow \gamma \gamma$	32	1	0	1	122
34	$D^{*+} \rightarrow D^+ \gamma, D^+ \rightarrow \pi^+ \pi^+ K^-$	33	0	1	1	123
35	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^0 K_L^0$	34	1	0	1	124
36	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^+ \pi^+ \pi^- \pi^-$	3	1	0	1	125
37	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^+ K_1^-, K_1^- \rightarrow \rho^- \bar{K}^0, \rho^- \rightarrow \pi^0 \pi^-, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	36	1	0	1	126
38	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow K_L^0 \pi^+ \pi^-, K_L^0 \rightarrow e^- \nu_e \pi^+$	37	1	0	1	127
39	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^- \bar{K}^0, \pi^0 \rightarrow e^+ e^-, \bar{K}^0 \rightarrow K_L^0$	38	1	0	1	128
40	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^- K^+$	39	1	0	1	129
41	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow K_L^0 \pi^+ \pi^- K^+$	6	0	1	1	130
42	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_L^0$	41	1	0	1	131
43	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow K_L^0 \omega, \omega \rightarrow \pi^0 \pi^+ \pi^-$	42	1	0	1	132
44	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow \mu^+ \nu_\mu \bar{K}^*, \bar{K}^* \rightarrow \pi^+ K^-$	43	1	0	1	133
45	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow \pi^0 \pi^+ \bar{K}^*, \bar{K}^* \rightarrow \pi^+ K^-$	44	1	0	1	134
46	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \pi^+ f_0(600), f_0(600) \rightarrow \pi^+ \pi^-$	45	1	0	1	135
47	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow e^+ \nu_e K^{*-}, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	46	0	1	1	136
48	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow \pi^+ \pi^+ \pi^- \eta, \eta \rightarrow e^+ e^-$	47	1	0	1	137
49	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow \pi^0 \pi^0 \pi^+$	48	1	0	1	138
50	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^+ \pi^- \bar{K}^*, \bar{K}^* \rightarrow \pi^+ K^-$	16	0	1	1	139
51	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	50	1	0	1	140
52	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \eta K_S^0, \eta \rightarrow \gamma \gamma, K_S^0 \rightarrow \pi^+ \pi^-$	4	0	1	1	141
53	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^+ K^{*-}, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	52	1	0	1	142
54	$D^{*+} \rightarrow \pi^0 D^+, \pi^0 \rightarrow e^+ e^-, D^+ \rightarrow \pi^0 \pi^+ \eta, \eta \rightarrow \pi^0 \pi^0 \pi^0$	53	0	1	1	143
55	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^- K_S^0, \pi^0 \rightarrow e^+ e^-, K_S^0 \rightarrow \pi^0 \pi^0$	54	0	1	1	144
56	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	55	0	1	1	145
57	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow \pi^0 \pi^+ \bar{K}^*, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	56	1	0	1	146
58	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^0 \pi^0 K_L^0, \pi^0 \rightarrow e^+ e^-$	8	1	0	1	147
59	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^+ \pi^- \eta', \eta' \rightarrow \rho^0 \gamma, \rho^0 \rightarrow \pi^+ \pi^-$	58	1	0	1	148

rowNo	cascade decay branch of D^{*+}	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
60	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^+ \pi^- \bar{K}^*, \bar{K}^* \rightarrow \pi^+ K^-$	59	0	1	1	149
61	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^+ \pi^+ \pi^- K^-$	60	0	1	1	150
62	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^+ \pi^- K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	61	0	1	1	151
63	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^+ \pi^- \phi, \phi \rightarrow K_L^0 K_S^0, K_L^0 \rightarrow e^+ \bar{\nu}_e \pi^-, K_S^0 \rightarrow \pi^+ \pi^-$	62	0	1	1	152
64	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow \pi^0 K_L^0 K^+$	63	1	0	1	153
65	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^0 K^-$	64	1	0	1	154
66	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \mu^+ \nu_\mu K^{*-}, K^{*-} \rightarrow \pi^0 K^-$	65	1	0	1	155
67	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow e^+ \nu_e \bar{K}^*, \bar{K}^* \rightarrow \pi^+ K^-$	66	1	0	1	156
68	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow \mu^+ \nu_\mu \bar{K}^*, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	67	1	0	1	157
69	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow e^+ \nu_e \eta, \eta \rightarrow \pi^0 \pi^+ \pi^-$	68	0	1	1	158
70	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow \pi^+ \omega \bar{K}^*, \omega \rightarrow \pi^0 \pi^+ \pi^-, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	69	1	0	1	159
71	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow K_S^0 K^{*+}, K_S^0 \rightarrow \pi^0 \pi^0, K^{*+} \rightarrow \pi^+ K^0, K^0 \rightarrow K_L^0, K_L^0 \rightarrow e^- \nu_e \pi^+$	70	1	0	1	160
72	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow K_L^0 \pi^+ K^-$	71	0	1	1	161
73	$D^{*+} \rightarrow D^+ \gamma, D^+ \rightarrow \pi^0 \pi^+ \bar{K}^*, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, \bar{K}^0 \rightarrow K_L^0$	72	0	1	1	162

Table 10: Cascade decay branches of D^{*0} .

rowNo	cascade decay branch of D^{*0}	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
1	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^+ K^-$	0	29	23	52	52
2	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \pi^+ K^-$	2	16	11	27	79
3	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^0 \pi^+ K^-$	4	7	1	8	87
4	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow e^+ \nu_e K^-$	22	3	4	7	94
5	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \pi^0 \pi^+ K^-$	11	1	2	3	97
6	$D^{*0} \rightarrow \pi^0 D^0, \pi^0 \rightarrow e^+ e^-, D^0 \rightarrow \pi^0 \pi^+ K^-$	18	1	2	3	100
7	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow e^+ \nu_e K^{*-}, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_L^0$	7	1	2	3	103
8	$D^{*0} \rightarrow \pi^0 D^0, \pi^0 \rightarrow e^+ e^-, D^0 \rightarrow \pi^+ K^-$	36	2	1	3	106
9	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \pi^0 \rho^+, \rho^+ \rightarrow \pi^0 \pi^+$	29	1	1	2	108
10	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow K_L^0 \pi^+ \pi^-$	31	2	0	2	110
11	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \mu^+ \nu_\mu K^-$	32	1	1	2	112
12	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^0 \pi^0 \pi^+ K^-$	10	1	1	2	114
13	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow e^+ \nu_e \pi^-$	37	1	1	2	116
14	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \pi^0 \pi^0 K_L^0$	38	1	1	2	118
15	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow K_L^0 \pi^+ \pi^-$	44	2	0	2	120
16	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^0 K^-$	45	0	2	2	122
17	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \rho^0 \pi^+, \rho^0 \rightarrow \pi^+ \pi^-$	16	0	1	1	123
18	$D^{*0} \rightarrow \pi^0 D^0, \pi^0 \rightarrow e^+ e^-, D^0 \rightarrow \pi^0 K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	17	0	1	1	124
19	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow e^+ \nu_e K^{*-}, K^{*-} \rightarrow \pi^0 K^-$	6	1	0	1	125
20	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \pi^+ \pi^- \bar{K}^*, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, \bar{K}^0 \rightarrow K_S^0,$ $K_S^0 \rightarrow \pi^+ \pi^-$	19	0	1	1	126
21	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^0 \pi^+ \pi^- \bar{K}^*, \bar{K}^* \rightarrow \pi^+ K^-$	20	0	1	1	127
22	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \pi^+ \pi^- \bar{K}^*, \bar{K}^* \rightarrow \pi^+ K^-$	21	0	1	1	128
23	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow e^+ \nu_e K^{*-}, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S^0,$ $K_S^0 \rightarrow \pi^+ \pi^-$	3	1	0	1	129
24	$D^{*0} \rightarrow \pi^0 D^0, \pi^0 \rightarrow e^+ e^-, D^0 \rightarrow \pi^- K^+$	23	1	0	1	130
25	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^0 \pi^0 \bar{K}^*, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, \bar{K}^0 \rightarrow K_S^0,$ $K_S^0 \rightarrow \pi^0 \pi^0$	24	0	1	1	131
26	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \mu^+ \nu_\mu K^-$	25	1	0	1	132
27	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^- \bar{K}^0,$ $\pi^0 \rightarrow e^+ e^-, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	26	0	1	1	133
28	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow K_S^0 \eta', K_S^0 \rightarrow \pi^+ \pi^-, \eta' \rightarrow \rho^0 \gamma,$ $\rho^0 \rightarrow \pi^+ \pi^-$	27	0	1	1	134

rowNo	cascade decay branch of D^{*0}	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
29	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^+ \pi^- K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	28	0	1	1	135
30	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow K_S^0 \eta', K_S^0 \rightarrow \pi^+ \pi^-, \eta' \rightarrow \pi^+ \pi^- \eta, \eta \rightarrow \pi^0 \pi^0$	8	1	0	1	136
31	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \rho^0 \rho^0, \rho^0 \rightarrow \pi^+ \pi^-, \rho^0 \rightarrow \pi^+ \pi^-$	30	0	1	1	137
32	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \mu^+ \nu_\mu K^{*-}, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	9	1	0	1	138
33	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow K_L^0 \eta', \eta' \rightarrow \pi^+ \pi^- \eta, \eta \rightarrow \pi^0 \pi^+ \pi^-$	1	0	1	1	139
34	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow K_L^0 \eta', \eta' \rightarrow \rho^0 \gamma, \rho^0 \rightarrow \pi^+ \pi^-$	33	0	1	1	140
35	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \pi^+ \pi^+ \pi^-$	34	1	0	1	141
36	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^0 K^+ K^-$	35	0	1	1	142
37	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow e^+ \nu_e K^{*-}, K^{*-} \rightarrow \pi^0 K^-$	5	0	1	1	143
38	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^- K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	12	0	1	1	144
39	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^+ K^- \eta', \eta' \rightarrow \rho^0 \gamma, \rho^0 \rightarrow \pi^+ \pi^-$	13	0	1	1	145
40	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \pi^+ \pi^+ \pi^+ \pi^- \pi^- K^-$	39	0	1	1	146
41	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^+ \pi^+ \pi^- K^-$	40	1	0	1	147
42	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \pi^0 \pi^0 \pi^0$	41	1	0	1	148
43	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow K_L^0 \phi, \phi \rightarrow \pi^0 \rho^0, \rho^0 \rightarrow \pi^+ \pi^-$	42	0	1	1	149
44	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow e^+ \nu_e \rho^-, \rho^- \rightarrow \pi^0 \pi^-, \pi^0 \rightarrow e^+ e^-$	43	0	1	1	150
45	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \pi^- K^+$	14	0	1	1	151
46	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \pi^0 \bar{K}_1^0, \bar{K}_1^0 \rightarrow \rho^+ K^-, \rho^+ \rightarrow \pi^0 \pi^+$	15	1	0	1	152
47	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \pi^0 \pi^+ \pi^- \bar{K}^*, \bar{K}^* \rightarrow \pi^+ K^-$	46	0	1	1	153
48	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \pi^+ f_0(600), f_0(600) \rightarrow \pi^0 \pi^0$	47	1	0	1	154
49	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	48	0	1	1	155
50	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	49	1	0	1	156
51	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^0 K_L^0$	50	1	0	1	157
52	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^+ \omega K^-, \omega \rightarrow \pi^0 \pi^+ \pi^-$	51	0	1	1	158
53	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^+ \pi^+ \pi^- \pi^-$	52	1	0	1	159
54	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^0 \pi^0 K^+ K^-$	53	1	0	1	160
55	$D^{*0} \rightarrow \pi^0 D^0, \pi^0 \rightarrow e^+ e^-, D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	54	0	1	1	161
56	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^+ \pi^- \bar{K}^*, \bar{K}^* \rightarrow \pi^+ K^-$	55	1	0	1	162
57	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \pi^+ f_0(600), f_0(600) \rightarrow \pi^+ \pi^-$	56	0	1	1	163
58	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \omega K_S^0, \omega \rightarrow \pi^0 \pi^+ \pi^-, K_S^0 \rightarrow \pi^+ \pi^-$	57	1	0	1	164

rowNo	cascade decay branch of D^{*0}	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
59	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \mu^+ \nu_\mu K^{*-}, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S^0,$ $K_S^0 \rightarrow \pi^0 \pi^0$	58	0	1	1	165
60	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \omega K_S^0, \omega \rightarrow \pi^0 \gamma, K_S^0 \rightarrow \pi^0 \pi^0$	59	1	0	1	166
61	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow K_L^0 K_L^0 \pi^+ K^-$	60	0	1	1	167
62	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \pi^+ \pi^- K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	61	0	1	1	168
63	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow K_L^0 \omega, \omega \rightarrow \pi^0 \pi^+ \pi^-$	62	1	0	1	169
64	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^0 \rho^+ K^-, \rho^+ \rightarrow \pi^0 \pi^+$	63	0	1	1	170
65	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow K_S^0 \eta', K_S^0 \rightarrow \pi^+ \pi^-, \eta' \rightarrow \rho^0 \gamma,$ $\rho^0 \rightarrow \pi^+ \pi^-$	64	0	1	1	171
66	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \pi^0 \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	65	0	1	1	172
67	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^0 K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	66	1	0	1	173
68	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^0 K^-$	67	1	0	1	174

Table 11: Cascade decay branches of D^0 .

rowNo	cascade decay branch of D^0	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
1	$D^0 \rightarrow \pi^+ K^-$	0	129	108	237	237
2	$D^0 \rightarrow \pi^0 \pi^+ K^-$	9	20	23	43	280
3	$D^0 \rightarrow e^+ \nu_e K^-$	4	8	17	25	305
4	$D^0 \rightarrow \mu^+ \nu_\mu K^-$	3	8	6	14	319
5	$D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \pi^0 \rho^+, \rho^+ \rightarrow \pi^0 \pi^+$	29	5	4	9	328
6	$D^0 \rightarrow K_L^0 \pi^+ \pi^-$	40	5	3	8	336
7	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ K^-$	2	3	4	7	343
8	$D^0 \rightarrow \pi^+ \pi^- \bar{K}^*, \bar{K}^* \rightarrow \pi^+ K^-$	1	3	4	7	350
9	$D^0 \rightarrow \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	28	2	3	5	355
10	$D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	17	4	1	5	360
11	$D^0 \rightarrow \pi^0 \pi^+ \pi^- \bar{K}^*, \bar{K}^* \rightarrow \pi^+ K^-$	35	1	4	5	365
12	$D^0 \rightarrow \pi^0 \pi^+ \pi^-$	27	2	3	5	370
13	$D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \pi^+ f_0(600), f_0(600) \rightarrow \pi^+ \pi^-$	45	2	3	5	375
14	$D^0 \rightarrow \pi^0 \pi^0 K_L^0$	51	3	2	5	380
15	$D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^0 K^-$	84	3	2	5	385
16	$D^0 \rightarrow e^+ \nu_e K^{*-}, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_L^0$	18	1	3	4	389
17	$D^0 \rightarrow \pi^- K^+$	38	3	1	4	393
18	$D^0 \rightarrow \pi^+ \pi^- K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	26	1	3	4	397
19	$D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \pi^+ \pi^+ \pi^-$	12	1	3	4	401
20	$D^0 \rightarrow e^+ \nu_e K^{*-}, K^{*-} \rightarrow \pi^0 K^-$	15	2	2	4	405
21	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^-$	62	2	2	4	409
22	$D^0 \rightarrow \pi^+ \pi^+ \pi^- \pi^-$	5	2	2	4	413
23	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 K_L^0$	23	1	2	3	416
24	$D^0 \rightarrow \pi^0 \pi^+ K^-, \pi^0 \rightarrow e^+ e^-$	39	1	2	3	419
25	$D^0 \rightarrow \omega K_S^0, \omega \rightarrow \pi^0 \pi^+ \pi^-, K_S^0 \rightarrow \pi^+ \pi^-$	7	1	2	3	422
26	$D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	31	0	3	3	425
27	$D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \rho^0 \pi^+, \rho^0 \rightarrow \pi^+ \pi^-$	32	1	2	3	428
28	$D^0 \rightarrow \pi^0 K_L^0$	34	1	2	3	431
29	$D^0 \rightarrow K_L^0 \omega, \omega \rightarrow \pi^0 \pi^+ \pi^-$	68	3	0	3	434
30	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^- K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	22	1	2	3	437
31	$D^0 \rightarrow \pi^+ \omega K^-, \omega \rightarrow \pi^0 \pi^+ \pi^-$	91	2	1	3	440

rowNo	cascade decay branch of D^0	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
32	$D^0 \rightarrow \pi^0 K^+ K^-$	44	1	1	2	442
33	$D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_L^0$	24	2	0	2	444
34	$D^0 \rightarrow \pi^0 K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	46	0	2	2	446
35	$D^0 \rightarrow \pi^+ \pi^-$	47	1	1	2	448
36	$D^0 \rightarrow \pi^+ \pi^- \bar{K}^*, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	50	1	1	2	450
37	$D^0 \rightarrow \pi^0 \pi^+ \pi^- K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	36	1	1	2	452
38	$D^0 \rightarrow \mu^+ \nu_\mu K^{*-}, K^{*-} \rightarrow \pi^0 K^-$	55	2	0	2	454
39	$D^0 \rightarrow \pi^+ \pi^- \bar{K}^*, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, \bar{K}^0 \rightarrow K_L^0$	60	2	0	2	456
40	$D^0 \rightarrow \mu^+ \nu_\mu K^{*-}, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	21	2	0	2	458
41	$D^0 \rightarrow K_S^0 \eta', K_S^0 \rightarrow \pi^+ \pi^-, \eta' \rightarrow \rho^0 \gamma, \rho^0 \rightarrow \pi^+ \pi^-$	67	0	2	2	460
42	$D^0 \rightarrow K_S^0 \eta', K_S^0 \rightarrow \pi^+ \pi^-, \eta' \rightarrow \pi^+ \pi^- \eta, \eta \rightarrow \gamma\gamma$	14	0	2	2	462
43	$D^0 \rightarrow \pi^0 \rho^+ K^-, \rho^+ \rightarrow \pi^0 \pi^+$	72	0	2	2	464
44	$D^0 \rightarrow e^+ \nu_e \pi^-$	74	1	1	2	466
45	$D^0 \rightarrow \pi^+ \pi^- K^-$	79	1	1	2	468
46	$D^0 \rightarrow \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	83	1	1	2	470
47	$D^0 \rightarrow e^+ \nu_e K^{*-}, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	10	1	1	2	472
48	$D^0 \rightarrow \pi^0 K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	88	1	1	2	474
49	$D^0 \rightarrow \pi^+ \eta K^-, \eta \rightarrow \pi^0 \pi^0 \pi^0$	43	0	2	2	476
50	$D^0 \rightarrow \pi^0 \pi^0 K^+ K^-$	95	1	1	2	478
51	$D^0 \rightarrow K_S^0 K^+ K^-, K_S^0 \rightarrow \pi^+ \pi^-$	25	0	1	1	479
52	$D^0 \rightarrow \pi^0 \pi^0 K_L^0, \pi^0 \rightarrow e^+ e^-$	13	1	0	1	480
53	$D^0 \rightarrow \pi^+ \pi^- K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	52	0	1	1	481
54	$D^0 \rightarrow \pi^0 \eta, \eta \rightarrow \gamma\gamma$	53	1	0	1	482
55	$D^0 \rightarrow \eta \eta', \eta \rightarrow \pi^0 \pi^0, \eta' \rightarrow \pi^+ \pi^- \eta, \eta \rightarrow \gamma\gamma$	54	1	0	1	483
56	$D^0 \rightarrow \pi^+ K^- \eta', \eta' \rightarrow \rho^0 \gamma, \rho^0 \rightarrow \pi^+ \pi^-$	37	0	1	1	484
57	$D^0 \rightarrow \pi^0 \pi^0 \bar{K}^*, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	56	0	1	1	485
58	$D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \pi^0 \rho^+, \pi^0 \rightarrow e^+ e^-, \rho^+ \rightarrow \pi^0 \pi^+$	57	1	0	1	486
59	$D^0 \rightarrow K^- K^{*+}, K^{*+} \rightarrow \pi^0 K^+$	58	0	1	1	487
60	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^-, \pi^0 \rightarrow e^+ e^-$	59	1	0	1	488
61	$D^0 \rightarrow K_S^0 \eta', K_S^0 \rightarrow \pi^+ \pi^-, \eta' \rightarrow \pi^+ \pi^- \eta, \eta \rightarrow \pi^0 \pi^0 \pi^0$	19	1	0	1	489
62	$D^0 \rightarrow \pi^0 \pi^+ \pi^- K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	61	0	1	1	490
63	$D^0 \rightarrow \pi^+ \omega K^-, \omega \rightarrow \pi^0 \gamma$	20	0	1	1	491
64	$D^0 \rightarrow \pi^+ K_1^-, K_1^- \rightarrow \rho^- \bar{K}^0, \rho^- \rightarrow \pi^0 \pi^-, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	63	1	0	1	492
65	$D^0 \rightarrow K_L^0 \pi^+ \pi^-, K_L^0 \rightarrow e^- \nu_e \pi^+$	64	1	0	1	493

rowNo	cascade decay branch of D^0	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
66	$D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^- \bar{K}^0, \pi^0 \rightarrow e^+ e^-,$ $\bar{K}^0 \rightarrow K_L^0$	65	1	0	1	494
67	$D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^- \bar{K}^0, \pi^0 \rightarrow e^+ e^-,$ $\bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	66	0	1	1	495
68	$D^0 \rightarrow \pi^0 \eta K_S^0, \eta \rightarrow \gamma\gamma, K_S^0 \rightarrow \pi^+ \pi^-$	8	0	1	1	496
69	$D^0 \rightarrow \pi^0 \bar{K}_1^0, \bar{K}_1^0 \rightarrow \rho^+ K^-, \rho^+ \rightarrow \pi^0 \pi^+$	41	1	0	1	497
70	$D^0 \rightarrow \omega K_S^0, \omega \rightarrow \pi^0 \pi^+ \pi^-, K_S^0 \rightarrow \pi^0 \pi^0$	69	0	1	1	498
71	$D^0 \rightarrow \rho^0 \rho^0, \rho^0 \rightarrow \pi^+ \pi^-, \rho^0 \rightarrow \pi^+ \pi^-$	70	0	1	1	499
72	$D^0 \rightarrow K_L^0 \eta', \eta' \rightarrow \rho^0 \gamma, \rho^0 \rightarrow \pi^+ \pi^-$	71	0	1	1	500
73	$D^0 \rightarrow \pi^+ \pi^+ \pi^- \pi^- K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	42	1	0	1	501
74	$D^0 \rightarrow \pi^0 \bar{K}^*, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	73	0	1	1	502
75	$D^0 \rightarrow \pi^0 \pi^0 \bar{K}^*, \pi^0 \rightarrow e^+ e^-, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, \bar{K}^0 \rightarrow K_S^0,$ $K_S^0 \rightarrow \pi^0 \pi^0$	30	0	1	1	503
76	$D^0 \rightarrow \pi^0 \pi^+ \pi^- K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	75	1	0	1	504
77	$D^0 \rightarrow \pi^0 \pi^+ K^{*-}, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	76	1	0	1	505
78	$D^0 \rightarrow \pi^+ K_1^-, K_1^- \rightarrow \pi^- \bar{K}^*, \bar{K}^* \rightarrow \pi^+ K^-$	77	1	0	1	506
79	$D^0 \rightarrow \pi^+ \pi^+ \pi^+ \pi^- \pi^- K^-$	78	0	1	1	507
80	$D^0 \rightarrow \omega \bar{K}^*, \omega \rightarrow \pi^0 \gamma, \bar{K}^* \rightarrow \pi^+ K^-$	11	0	1	1	508
81	$D^0 \rightarrow \pi^0 \pi^0 \pi^0$	80	1	0	1	509
82	$D^0 \rightarrow K_L^0 \phi, \phi \rightarrow \pi^0 \rho^0, \rho^0 \rightarrow \pi^+ \pi^-$	81	0	1	1	510
83	$D^0 \rightarrow e^+ \nu_e \rho^-, \rho^- \rightarrow \pi^0 \pi^-, \pi^0 \rightarrow e^+ e^-$	82	0	1	1	511
84	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^- K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	16	1	0	1	512
85	$D^0 \rightarrow \pi^+ \omega K^-, \omega \rightarrow \pi^0 \pi^+ \pi^-, \pi^0 \rightarrow e^+ e^-$	33	0	1	1	513
86	$D^0 \rightarrow \pi^0 \bar{K}_1^0, \bar{K}_1^0 \rightarrow \rho^0 \bar{K}^0, \rho^0 \rightarrow \pi^+ \pi^-, \bar{K}^0 \rightarrow K_L^0$	85	1	0	1	514
87	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^- K_S^0, \pi^0 \rightarrow e^+ e^-, K_S^0 \rightarrow \pi^0 \pi^0$	86	0	1	1	515
88	$D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \pi^+ f_0(600), f_0(600) \rightarrow \pi^0 \pi^0$	87	1	0	1	516
89	$D^0 \rightarrow K_L^0 \eta', \eta' \rightarrow \pi^+ \pi^- \eta, \eta \rightarrow \pi^0 \pi^+ \pi^-$	6	0	1	1	517
90	$D^0 \rightarrow \bar{K}^* \eta', \bar{K}^* \rightarrow \pi^+ K^-, \eta' \rightarrow \pi^+ \pi^- \eta, \eta \rightarrow \gamma\gamma$	89	1	0	1	518
91	$D^0 \rightarrow \pi^0 \eta K_S^0, \eta \rightarrow \pi^0 \pi^0 \pi^0, K_S^0 \rightarrow \pi^0 \pi^0$	90	1	0	1	519
92	$D^0 \rightarrow K^+ K^-$	48	0	1	1	520
93	$D^0 \rightarrow \pi^0 \bar{K}_1^0, \bar{K}_1^0 \rightarrow \pi^+ \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S^0$	92	1	0	1	521
94	$D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^0 K^-, \pi^0 \rightarrow e^+ e^-$	93	1	0	1	522
95	$D^0 \rightarrow \pi^+ \pi^- \eta', \eta' \rightarrow \rho^0 \gamma, \rho^0 \rightarrow \pi^+ \pi^-$	94	1	0	1	523
96	$D^0 \rightarrow \pi^+ \pi^- K^+ K^-$	49	1	0	1	524
97	$D^0 \rightarrow \pi^0 K_L^0, K_L^0 \rightarrow \pi^0 \pi^+ \pi^-$	96	1	0	1	525

rowNo	cascade decay branch of D^0	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
98	$D^0 \rightarrow \pi^+ \pi^- \phi, \phi \rightarrow K_L^0 K_S^0, K_L^0 \rightarrow e^+ \bar{\nu}_e \pi^-, K_S^0 \rightarrow \pi^+ \pi^-$	97	0	1	1	526
99	$D^0 \rightarrow \pi^+ K^- \eta', \eta' \rightarrow \pi^0 \pi^0 \eta, \eta \rightarrow \gamma\gamma$	98	0	1	1	527
100	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	99	0	1	1	528
rest	$D^0 \rightarrow \text{others (10 in total)}$	—	4	6	10	538

Table 12: Cascade decay branches of π^0 .

rowNo	cascade decay branch of π^0	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
1	$\pi^0 \rightarrow e^+e^-$	0	49533	—	49533	49533
2	$\pi^0 \rightarrow e^+e^+e^-e^-$	1	256	—	256	49789

Table 13: Decay final states of D^{*+} .

rowNo	decay final state of D^{*+}	iDcyFStP	nCase	nCcCase	nAllCase	nCCase
1	$D^{*+} \rightarrow \pi^+ \pi^+ K^-$	0	24	31	55	55
2	$D^{*+} \rightarrow \pi^0 \pi^+ \pi^+ K^-$	5	5	10	15	70
3	$D^{*+} \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ K^-$	1	5	3	8	78
4	$D^{*+} \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^-$	13	2	3	5	83
5	$D^{*+} \rightarrow \pi^+ \pi^+ \pi^+ \pi^- K^-$	12	1	3	4	87
6	$D^{*+} \rightarrow \mu^+ \nu_\mu \pi^+ K^-$	2	3	1	4	91
7	$D^{*+} \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^-$	18	3	1	4	95
8	$D^{*+} \rightarrow e^+ \nu_e \pi^0 \pi^0 \pi^+ \pi^-$	16	2	1	3	98
9	$D^{*+} \rightarrow e^+ \nu_e \pi^0 \pi^+ K^-$	17	2	1	3	101
10	$D^{*+} \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \gamma\gamma$	4	1	2	3	104
11	$D^{*+} \rightarrow e^+ \nu_e \pi^+ K^-$	25	0	3	3	107
12	$D^{*+} \rightarrow \pi^0 \pi^+ \pi^+ \pi^+ \pi^-$	30	3	0	3	110
13	$D^{*+} \rightarrow \pi^0 \pi^+ \pi^+ \pi^-$	38	1	2	3	113
14	$D^{*+} \rightarrow \pi^0 \pi^+ \pi^+ \pi^+ \pi^- K^-$	42	2	1	3	116
15	$D^{*+} \rightarrow \pi^0 \pi^0 \pi^+ K^+ K^-$	24	2	0	2	118
16	$D^{*+} \rightarrow \pi^+ \pi^+ \pi^+ \pi^- \pi^-$	3	1	1	2	120
17	$D^{*+} \rightarrow \pi^0 \pi^0 \pi^0 \pi^+$	26	1	1	2	122
18	$D^{*+} \rightarrow \pi^0 K_L^0 \pi^+$	14	0	2	2	124
19	$D^{*+} \rightarrow \pi^0 K_L^0 \pi^+ \pi^+ \pi^-$	34	2	0	2	126
20	$D^{*+} \rightarrow \mu^+ \nu_\mu \pi^0 \pi^+ K^-$	35	2	0	2	128
21	$D^{*+} \rightarrow K_L^0 \pi^+ \pi^+ \pi^-$	15	0	2	2	130
22	$D^{*+} \rightarrow \pi^0 \pi^0 K_L^0 \pi^+ \pi^+ \pi^-$	39	0	2	2	132
23	$D^{*+} \rightarrow e^+ \nu_e \pi^0 \pi^+ \pi^-$	23	1	1	2	134
24	$D^{*+} \rightarrow e^+ e^- \pi^0 \pi^0 K_L^0 \pi^+$	7	1	0	1	135
25	$D^{*+} \rightarrow e^+ e^- \pi^+ \pi^+ K^-$	8	0	1	1	136
26	$D^{*+} \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^+ \pi^+ \pi^- \pi^-$	9	0	1	1	137
27	$D^{*+} \rightarrow \pi^0 \pi^0 \pi^0 K_L^0 \pi^+$	10	1	0	1	138
28	$D^{*+} \rightarrow \pi^0 \pi^+ \gamma\gamma$	27	1	0	1	139
29	$D^{*+} \rightarrow \pi^+ \pi^+ K^- \gamma$	28	0	1	1	140
30	$D^{*+} \rightarrow \pi^0 \pi^0 K_L^0 \pi^+$	29	1	0	1	141
31	$D^{*+} \rightarrow \pi^+ \pi^+ \pi^- K^+ K^-$	11	0	1	1	142
32	$D^{*+} \rightarrow e^- \nu_e \pi^+ \pi^+ \pi^+ \pi^-$	31	1	0	1	143
33	$D^{*+} \rightarrow e^+ e^- K_L^0 \pi^+ \pi^+ \pi^-$	32	1	0	1	144

rowNo	decay final state of D^{*+}	iDcyFStP	nCase	nCcCase	nAllCase	nCCase
34	$D^{*+} \rightarrow \pi^+ \pi^- K^+$	33	1	0	1	145
35	$D^{*+} \rightarrow \pi^0 K_L^0 \pi^+ \pi^- K^+$	6	0	1	1	146
36	$D^{*+} \rightarrow e^+ e^- \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \pi^-$	19	1	0	1	147
37	$D^{*+} \rightarrow e^+ \nu_e \pi^+ \pi^+ \pi^- \pi^-$	36	0	1	1	148
38	$D^{*+} \rightarrow e^+ e^- \pi^0 \pi^+ \pi^+ \pi^-$	37	1	0	1	149
39	$D^{*+} \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^+ \pi^- \pi^-$	20	1	0	1	150
40	$D^{*+} \rightarrow \pi^0 \pi^+ K^+ K^-$	21	1	0	1	151
41	$D^{*+} \rightarrow e^+ e^- \pi^0 \pi^0 \pi^0 \pi^0 \pi^+$	40	0	1	1	152
42	$D^{*+} \rightarrow e^+ e^- \pi^0 \pi^0 \pi^0 \pi^+ \pi^+ \pi^-$	41	0	1	1	153
43	$D^{*+} \rightarrow \pi^+ K^+ K^-$	22	0	1	1	154
44	$D^{*+} \rightarrow \pi^+ \pi^+ \pi^+ \pi^- \pi^- \gamma$	43	1	0	1	155
45	$D^{*+} \rightarrow e^+ \bar{\nu}_e \pi^+ \pi^+ \pi^- \pi^- \pi^-$	44	0	1	1	156
46	$D^{*+} \rightarrow \pi^0 \pi^0 K_L^0 K^+$	45	1	0	1	157
47	$D^{*+} \rightarrow \mu^+ \nu_\mu \pi^0 \pi^0 \pi^+ \pi^-$	46	1	0	1	158
48	$D^{*+} \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \pi^+ \pi^-$	47	1	0	1	159
49	$D^{*+} \rightarrow e^- \nu_e \pi^0 \pi^0 \pi^0 \pi^+ \pi^+$	48	1	0	1	160
50	$D^{*+} \rightarrow K_L^0 \pi^+ \pi^- K^-$	49	0	1	1	161
51	$D^{*+} \rightarrow \pi^0 \pi^0 K_L^0 \pi^+ \gamma$	50	0	1	1	162

Table 14: Decay final states of D^{*0} .

rowNo	decay final state of D^{*0}	iDcyFStP	nCase	nCcCase	nAllCase	nCCase
1	$D^{*0} \rightarrow \pi^0 \pi^+ K^-$	0	29	23	52	52
2	$D^{*0} \rightarrow \pi^+ K^- \gamma$	2	16	11	27	79
3	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^+ K^-$	4	7	1	8	87
4	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ K^-$	10	2	5	7	94
5	$D^{*0} \rightarrow e^+ \nu_e \pi^0 K^-$	22	3	4	7	101
6	$D^{*0} \rightarrow \pi^0 \pi^+ K^- \gamma$	11	1	2	3	104
7	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^+ K^- \gamma$	15	3	0	3	107
8	$D^{*0} \rightarrow \pi^0 \pi^+ \pi^+ \pi^- K^-$	16	2	1	3	110
9	$D^{*0} \rightarrow e^+ e^- \pi^0 \pi^+ K^-$	18	1	2	3	113
10	$D^{*0} \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \pi^- \gamma$	19	1	2	3	116
11	$D^{*0} \rightarrow \pi^+ \pi^+ \pi^- K^- \gamma$	21	1	2	3	119
12	$D^{*0} \rightarrow e^+ \nu_e \pi^0 K_L^0 \pi^-$	7	1	2	3	122
13	$D^{*0} \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \pi^-$	27	1	2	3	125
14	$D^{*0} \rightarrow e^+ e^- \pi^+ K^-$	32	2	1	3	128
15	$D^{*0} \rightarrow \pi^0 \pi^+ \pi^+ \pi^- K^- \gamma$	13	0	2	2	130
16	$D^{*0} \rightarrow K_L^0 \pi^+ \pi^- \gamma$	28	2	0	2	132
17	$D^{*0} \rightarrow \mu^+ \nu_\mu K^- \gamma$	29	1	1	2	134
18	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- K^-$	20	0	2	2	136
19	$D^{*0} \rightarrow e^+ \nu_e \pi^0 \pi^-$	33	1	1	2	138
20	$D^{*0} \rightarrow \pi^0 \pi^0 K_L^0 \gamma$	34	1	1	2	140
21	$D^{*0} \rightarrow \pi^0 K_L^0 \pi^+ \pi^-$	39	2	0	2	142
22	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \pi^-$	12	0	1	1	143
23	$D^{*0} \rightarrow e^+ \nu_e \pi^0 \pi^0 K^-$	6	1	0	1	144
24	$D^{*0} \rightarrow e^+ e^- \pi^- K^+$	23	1	0	1	145
25	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^0$	24	0	1	1	146
26	$D^{*0} \rightarrow \mu^+ \nu_\mu \pi^0 K^-$	25	1	0	1	147
27	$D^{*0} \rightarrow e^+ e^- \pi^0 \pi^0 \pi^+ \pi^- \gamma$	26	0	1	1	148
28	$D^{*0} \rightarrow \pi^- K^+ \gamma$	14	0	1	1	149
29	$D^{*0} \rightarrow e^+ \nu_e \pi^0 \pi^+ \pi^- \pi^-$	3	1	0	1	150
30	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^-$	8	1	0	1	151
31	$D^{*0} \rightarrow K_L^0 \pi^+ \pi^- \gamma \gamma$	30	0	1	1	152
32	$D^{*0} \rightarrow \pi^0 \pi^0 K^+ K^-$	31	0	1	1	153
33	$D^{*0} \rightarrow e^+ e^- \pi^0 \pi^0 \pi^0$	17	0	1	1	154

rowNo	decay final state of D^{*0}	iDcyFStP	nCase	nCcCase	nAllCase	nCCase
34	$D^{*0} \rightarrow \mu^+ \nu_\mu \pi^+ \pi^- \pi^- \gamma$	9	1	0	1	155
35	$D^{*0} \rightarrow \pi^0 K_L^0 \pi^+ \pi^+ \pi^- \pi^- \gamma$	1	0	1	1	156
36	$D^{*0} \rightarrow \pi^+ \pi^+ \pi^+ \pi^- \pi^- K^- \gamma$	35	0	1	1	157
37	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^0 \gamma$	36	1	0	1	158
38	$D^{*0} \rightarrow \pi^0 K_L^0 \pi^+ \pi^- \gamma$	37	0	1	1	159
39	$D^{*0} \rightarrow e^+ e^- \nu_e \pi^0 \pi^-$	38	0	1	1	160
40	$D^{*0} \rightarrow e^+ \nu_e \pi^0 K^- \gamma$	5	0	1	1	161
41	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^-$	40	0	1	1	162
42	$D^{*0} \rightarrow \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	41	1	0	1	163
43	$D^{*0} \rightarrow \pi^0 \pi^0 K_L^0$	42	1	0	1	164
44	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^0 K^+ K^-$	43	1	0	1	165
45	$D^{*0} \rightarrow e^+ e^- \pi^0 \pi^0 \pi^0 \pi^+ \pi^-$	44	0	1	1	166
46	$D^{*0} \rightarrow \mu^+ \nu_\mu \pi^0 \pi^0 \pi^-$	45	0	1	1	167
47	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 \gamma$	46	1	0	1	168
48	$D^{*0} \rightarrow K_L^0 K_L^0 \pi^+ K^- \gamma$	47	0	1	1	169
49	$D^{*0} \rightarrow \pi^+ \pi^+ \pi^- \pi^- \gamma$	48	0	1	1	170
50	$D^{*0} \rightarrow \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	49	1	0	1	171
51	$D^{*0} \rightarrow \pi^+ \pi^+ \pi^- \pi^- \gamma \gamma$	50	0	1	1	172
52	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^0 K_L^0 \pi^+ \pi^- \gamma$	51	0	1	1	173
53	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^+ \pi^-$	52	1	0	1	174

Table 15: Decay final states of D^0 .

rowNo	decay final state of D^0	iDcyFStP	nCase	nCcCase	nAllCase	nCCase
1	$D^0 \rightarrow \pi^+ K^-$	0	129	108	237	237
2	$D^0 \rightarrow \pi^0 \pi^+ K^-$	9	20	23	43	280
3	$D^0 \rightarrow e^+ \nu_e K^-$	4	8	17	25	305
4	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ K^-$	2	13	12	25	330
5	$D^0 \rightarrow \pi^+ \pi^+ \pi^- K^-$	1	9	13	22	352
6	$D^0 \rightarrow \mu^+ \nu_\mu K^-$	3	8	6	14	366
7	$D^0 \rightarrow \pi^0 \pi^+ \pi^+ \pi^-$	7	9	4	13	379
8	$D^0 \rightarrow \pi^+ \pi^+ \pi^- \pi^-$	5	3	6	9	388
9	$D^0 \rightarrow \pi^0 K_L^0 \pi^+ \pi^-$	20	8	1	9	397
10	$D^0 \rightarrow \pi^0 \pi^+ \pi^+ \pi^- K^-$	28	3	5	8	405
11	$D^0 \rightarrow K_L^0 \pi^+ \pi^-$	33	5	3	8	413
12	$D^0 \rightarrow \pi^0 \pi^+ \pi^-$	22	3	4	7	420
13	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^-$	41	3	4	7	427
14	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^-$	25	1	5	6	433
15	$D^0 \rightarrow \pi^0 \pi^0 K_L^0$	40	3	2	5	438
16	$D^0 \rightarrow \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	23	2	3	5	443
17	$D^0 \rightarrow \pi^- K^+$	31	3	1	4	447
18	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^- \pi^-$	17	2	2	4	451
19	$D^0 \rightarrow e^+ \nu_e \pi^0 K^-$	14	2	2	4	455
20	$D^0 \rightarrow e^+ \nu_e K_L^0 \pi^-$	16	1	3	4	459
21	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 K_L^0$	19	1	2	3	462
22	$D^0 \rightarrow \pi^0 K^+ K^-$	36	1	2	3	465
23	$D^0 \rightarrow \pi^0 \pi^0 \pi^0$	37	1	2	3	468
24	$D^0 \rightarrow \pi^0 K_L^0$	27	1	2	3	471
25	$D^0 \rightarrow e^+ e^- \pi^+ K^-$	32	1	2	3	474
26	$D^0 \rightarrow e^+ e^- \pi^0 \pi^+ K^-$	46	2	1	3	477
27	$D^0 \rightarrow \pi^+ \pi^+ \pi^- \pi^- \gamma$	51	1	2	3	480
28	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ K^-$	35	0	2	2	482
29	$D^0 \rightarrow \pi^0 \pi^+ K^- \gamma$	11	0	2	2	484
30	$D^0 \rightarrow \pi^+ \pi^- K^+ K^-$	21	1	1	2	486
31	$D^0 \rightarrow \pi^+ \pi^-$	38	1	1	2	488
32	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \pi^-$	29	1	1	2	490
33	$D^0 \rightarrow \pi^+ \pi^+ \pi^- \pi^- \gamma \gamma$	13	0	2	2	492

rowNo	decay final state of D^0	iDcyFStP	nCase	nCcCase	nAllCase	nCCase
34	$D^0 \rightarrow \mu^+ \nu_\mu \pi^0 K^-$	44	2	0	2	494
35	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^0$	45	0	2	2	496
36	$D^0 \rightarrow \mu^+ \nu_\mu \pi^+ \pi^- \pi^-$	18	2	0	2	498
37	$D^0 \rightarrow e^+ \nu_e \pi^+ \pi^- \pi^-$	10	1	1	2	500
38	$D^0 \rightarrow e^+ \nu_e \pi^-$	53	1	1	2	502
39	$D^0 \rightarrow \pi^+ \pi^+ \pi^- \pi^- K^-$	54	1	1	2	504
40	$D^0 \rightarrow \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	56	1	1	2	506
41	$D^0 \rightarrow \pi^0 \pi^0 K^+ K^-$	61	1	1	2	508
42	$D^0 \rightarrow K_L^0 \pi^+ K^-$	69	0	2	2	510
43	$D^0 \rightarrow \pi^0 \gamma \gamma$	42	1	0	1	511
44	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^- \gamma \gamma$	43	1	0	1	512
45	$D^0 \rightarrow e^+ e^- \pi^+ \pi^+ \pi^- K^-$	26	0	1	1	513
46	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^-$	34	1	0	1	514
47	$D^0 \rightarrow \pi^0 \pi^+ \pi^- \gamma \gamma$	8	0	1	1	515
48	$D^0 \rightarrow e^+ e^- \pi^0 \pi^+ \pi^-$	47	1	0	1	516
49	$D^0 \rightarrow e^- \nu_e \pi^+ \pi^+ \pi^-$	48	1	0	1	517
50	$D^0 \rightarrow e^+ e^- K_L^0 \pi^+ \pi^-$	49	1	0	1	518
51	$D^0 \rightarrow e^+ e^- \pi^0 \pi^0 \pi^+ \pi^-$	50	0	1	1	519
52	$D^0 \rightarrow \pi^0 K_L^0 \pi^+ \pi^+ \pi^- \pi^-$	6	0	1	1	520
53	$D^0 \rightarrow K_L^0 \pi^+ \pi^- \gamma$	52	0	1	1	521
54	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \pi^-$	15	1	0	1	522
55	$D^0 \rightarrow \pi^+ \pi^+ \pi^- K^- \gamma$	30	0	1	1	523
56	$D^0 \rightarrow e^+ e^- e^- \nu_e \pi^-$	55	0	1	1	524
57	$D^0 \rightarrow K^+ K^-$	39	0	1	1	525
58	$D^0 \rightarrow e^+ e^- \pi^0 \pi^0 \pi^0 \pi^+ \pi^-$	57	0	1	1	526
59	$D^0 \rightarrow \pi^+ \pi^+ \pi^- K^- \gamma \gamma$	58	1	0	1	527
60	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^0$	59	1	0	1	528
61	$D^0 \rightarrow \pi^0 \pi^+ \pi^- K_S^0$	60	1	0	1	529
62	$D^0 \rightarrow e^+ e^- \pi^0 \pi^0 \pi^0 \pi^0$	24	0	1	1	530
63	$D^0 \rightarrow e^+ \bar{\nu}_e \pi^+ \pi^+ \pi^- \pi^- \pi^-$	62	0	1	1	531
64	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ K^- \gamma \gamma$	63	0	1	1	532
65	$D^0 \rightarrow \pi^0 \pi^0$	64	1	0	1	533
66	$D^0 \rightarrow \mu^+ \nu_\mu \pi^0 \pi^0 \pi^-$	65	0	1	1	534
67	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 \gamma$	66	1	0	1	535
68	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^- \gamma$	67	0	1	1	536

rowNo	decay final state of D^0	iDcyFStP	nCase	nCcCase	nAllCase	nCCase
69	$D^0 \rightarrow K_L^0 K_L^0 \pi^+ K^-$	68	0	1	1	537
70	$D^0 \rightarrow e^+ e^- \pi^0 \pi^0 K_L^0$	12	1	0	1	538

Table 16: Decay final states of π^0 .

rowNo	decay final state of π^0	iDcyFStP	nCase	nCcCase	nAllCase	nCCase
1	$\pi^0 \rightarrow e^+ e^-$	0	49533	—	49533	49533
2	$\pi^0 \rightarrow e^+ e^+ e^- e^-$	1	256	—	256	49789

Table 17: Production branches of D_s^+ .

rowNo	production branch of D_s^+	iProdBrP	nCase	nCcCase	nAllCase	nCCase
1	$D_s^{*+} \rightarrow \textcolor{blue}{D}_s^+ \gamma$	0	15	11	26	26
2	$D_s^{*+} \rightarrow \pi^0 \textcolor{blue}{D}_s^+$	1	2	0	2	28
3	$e^+ e^- \rightarrow \pi^0 \pi^0 K^- \bar{D}^0 \textcolor{blue}{D}_s^+ \gamma^I \gamma^I$	2	1	0	1	29
4	$e^+ e^- \rightarrow \pi^+ \omega K^- D^{*-} \textcolor{blue}{D}_s^+ \gamma^I$	3	1	0	1	30
5	$e^+ e^- \rightarrow \pi^+ \pi^+ \rho^- K^- D^- \textcolor{blue}{D}_s^+ \gamma^I$	4	1	0	1	31
6	$e^- \rightarrow e^+ \rho^0 \pi^- \bar{K}^* \bar{D}^{*0} \textcolor{blue}{D}_s^+ \gamma^I \gamma^I$	5	0	1	1	32
7	$e^- \rightarrow e^+ \pi^0 \pi^+ \pi^+ \pi^- K^- D^{*-} \textcolor{blue}{D}_s^+ \gamma^I$	6	0	1	1	33
8	$e^- \rightarrow e^+ \pi^0 K^+ K^- K^- \bar{D}^{*0} \textcolor{blue}{D}_s^+ \gamma^I \gamma^I$	7	0	1	1	34
9	$e^+ e^- \rightarrow \pi^+ \pi^- \bar{D}^0 \textcolor{blue}{D}_s^+ \bar{p}\Lambda$	8	1	0	1	35
10	$e^+ e^- \rightarrow \pi^0 \pi^- \bar{K}^0 \bar{D}^0 \textcolor{blue}{D}_s^+$	9	1	0	1	36
11	$e^+ e^- \rightarrow \pi^- \rho^+ K^- \bar{D}^0 \textcolor{blue}{D}_s^+ \gamma^I \gamma^I \gamma^I$	10	1	0	1	37
12	$e^+ e^- \rightarrow \eta K^0 \bar{K}^0 K^- \bar{D}^0 \textcolor{blue}{D}_s^+ \gamma^I$	11	1	0	1	38
13	$e^- \rightarrow e^+ \pi^- \omega \bar{K}^0 \bar{D}^{*0} \textcolor{blue}{D}_s^+ \gamma^I \gamma^I$	12	0	1	1	39
14	$e^- \rightarrow e^+ \omega K^+ K^- \textcolor{blue}{D}_s^+ D_s^{*-}$	13	0	1	1	40
15	$e^+ e^- \rightarrow \pi^+ \rho^- \omega K^- \bar{D}^{*0} \textcolor{blue}{D}_s^+$	14	1	0	1	41
16	$e^- \rightarrow e^+ \pi^- \rho^+ K^- \bar{D}^{*0} \textcolor{blue}{D}_s^+ \gamma^I$	15	0	1	1	42
17	$e^- \rightarrow e^+ \pi^+ \pi^+ \pi^- K^- D^{*-} \textcolor{blue}{D}_s^+$	16	0	1	1	43
18	$e^- \rightarrow e^+ \pi^- \rho^+ K^- \bar{D}^0 \textcolor{blue}{D}_s^+$	17	0	1	1	44
19	$e^- \rightarrow e^+ \pi^+ \eta K^- D^{*-} \textcolor{blue}{D}_s^+$	18	0	1	1	45
20	$e^- \rightarrow e^+ \pi^- \bar{K}^* K^+ K^- \bar{D}^0 \textcolor{blue}{D}_s^+ \gamma^I$	19	0	1	1	46
21	$e^- \rightarrow e^+ \pi^0 \pi^+ \pi^- \omega K^{*-} \bar{D}^{*0} \textcolor{blue}{D}_s^+ \gamma^I$	20	0	1	1	47
22	$e^- \rightarrow e^+ \pi^- \bar{K}^0 K^+ K^- \bar{D}^0 \textcolor{blue}{D}_s^+$	21	0	1	1	48
23	$e^+ e^- \rightarrow \pi^0 \rho^0 \bar{D}^0 \textcolor{blue}{D}_s^+ \bar{p}\Lambda \gamma^I$	22	1	0	1	49
24	$e^- \rightarrow e^+ \rho^0 \pi^+ \pi^- \bar{K}^0 D^{*-} \textcolor{blue}{D}_s^+ \gamma^I$	23	0	1	1	50
25	$e^+ e^- \rightarrow \pi^0 \pi^0 \pi^+ K^- D^{*-} \textcolor{blue}{D}_s^+$	24	1	0	1	51
26	$e^+ e^- \rightarrow \pi^+ \rho^- K^- \bar{D}^{*0} \textcolor{blue}{D}_s^+$	25	1	0	1	52
27	$e^- \rightarrow e^+ \pi^+ \pi^- \pi^- \bar{K}^* \bar{D}^0 \textcolor{blue}{D}_s^+$	26	0	1	1	53
28	$e^- \rightarrow e^+ \pi^0 \pi^0 \pi^- \bar{K}^* \bar{D}^0 \textcolor{blue}{D}_s^+$	27	0	1	1	54
29	$e^- \rightarrow e^+ \pi^0 \pi^+ \pi^- \rho^+ K^{*-} D^{*-} \textcolor{blue}{D}_s^+$	28	0	1	1	55
30	$e^- \rightarrow e^+ \pi^+ \pi^- K^- \bar{D}^0 \textcolor{blue}{D}_s^+ \gamma^I$	29	0	1	1	56
31	$e^+ e^- \rightarrow \pi^0 \pi^- \rho^+ K^- \bar{D}^0 \textcolor{blue}{D}_s^+$	30	1	0	1	57
32	$e^- \rightarrow e^+ \pi^0 \pi^+ \pi^- \bar{K}^* D^- \textcolor{blue}{D}_s^+$	31	0	1	1	58

rowNo	production branch of D_s^+	iProdBrP	nCase	nCcCase	nAllCase	nCCase
33	$e^- \rightarrow e^+ \pi^+ K^* K^- \textcolor{blue}{D}_s^+ D_s^{*-}$	32	0	1	1	59
34	$e^+ e^- \rightarrow \pi^0 \bar{K}^0 K^+ K^- D^- \textcolor{blue}{D}_s^+$	33	1	0	1	60
35	$e^- \rightarrow e^+ \pi^0 \pi^- \bar{K}^0 K^* \bar{K}^* \bar{D}^0 \textcolor{blue}{D}_s^+ \gamma^I$	34	0	1	1	61
36	$e^- \rightarrow e^+ \rho^0 \pi^- \bar{K}^* \bar{D}^0 \textcolor{blue}{D}_s^+$	35	0	1	1	62
37	$e^+ e^- \rightarrow \bar{K}^0 \bar{K}^0 K^* D^{*-} \textcolor{blue}{D}_s^+ \gamma^I$	36	1	0	1	63
38	$e^+ e^- \rightarrow \pi^+ K^- \phi D^- \textcolor{blue}{D}_s^+ \gamma^I$	37	1	0	1	64

Table 18: Production branches of D^{*+} .

rowNo	production branch of D^{*+}	iProdBrP	nCase	nCcCase	nAllCase	nCCase
1	$e^+e^- \rightarrow \pi^0\pi^0\pi^-\textcolor{blue}{D}^{*+}\bar{D}^0\gamma^I$	11	2	0	2	2
2	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\textcolor{blue}{D}^{*+}\gamma^I$	36	2	0	2	4
3	$e^- \rightarrow e^+\pi^0\pi^+\pi^-\pi^-\textcolor{blue}{D}^{*+}\bar{D}^0\gamma^I$	64	0	2	2	6
4	$e^+e^- \rightarrow \pi^+\pi^-\pi^-\textcolor{blue}{D}^{*+}\bar{D}^{*0}\gamma^I$	92	2	0	2	8
5	$e^+e^- \rightarrow \rho^0\pi^-\rho^+\rho^-\textcolor{blue}{D}^{*+}\bar{D}^0\gamma^I$	4	1	0	1	9
6	$e^- \rightarrow e^+\pi^0\pi^-\omega\textcolor{blue}{D}^{*+}\bar{D}^0\gamma^I$	5	0	1	1	10
7	$e^- \rightarrow e^+\pi^0\pi^+\pi^-\rho^-\textcolor{blue}{D}^{*+}\bar{D}^0\gamma^I$	6	0	1	1	11
8	$e^- \rightarrow e^+\pi^-\pi^-\rho^+\omega\textcolor{blue}{D}^{*+}\bar{D}^{*0}\gamma^I\gamma^I$	7	0	1	1	12
9	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\rho^-\textcolor{blue}{D}^{*+}\gamma^I$	8	1	0	1	13
10	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\textcolor{blue}{D}^{*+}\textcolor{blue}{D}^{*-}\gamma^I\gamma^I$	9	1	0	1	14
11	$e^- \rightarrow e^+\pi^0\pi^+\pi^+\pi^-\textcolor{blue}{D}^{*+}\textcolor{blue}{D}^{*-}\gamma^I\gamma^I$	10	0	1	1	15
12	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^-\textcolor{blue}{D}^{*+}$	0	1	0	1	16
13	$e^+e^- \rightarrow \pi^-\bar{K}^*K^+D^-\textcolor{blue}{D}^{*+}\gamma^I\gamma^I$	12	1	0	1	17
14	$e^- \rightarrow e^+\pi^-K^-K^{*+}\textcolor{blue}{D}^{*+}\bar{D}^{*0}\gamma^I$	13	0	1	1	18
15	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-\omega\textcolor{blue}{D}^{*+}\bar{D}^{*0}$	14	1	0	1	19
16	$e^- \rightarrow e^+\pi^-\textcolor{blue}{D}^{*+}\bar{D}^{*0}\gamma^I\gamma^I\gamma^I\gamma^I$	15	0	1	1	20
17	$e^- \rightarrow e^+\rho^-\eta K^0\bar{K}^0\textcolor{blue}{D}^{*+}\bar{D}^{*0}$	16	0	1	1	21
18	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^-\textcolor{blue}{D}^{*+}\bar{D}^0\gamma^I\gamma^I$	17	1	0	1	22
19	$e^- \rightarrow e^+\pi^0\pi^-\pi^-\rho^+\textcolor{blue}{D}^{*+}\bar{D}^0$	18	0	1	1	23
20	$e^- \rightarrow e^+\rho^0\pi^+\pi^-\eta D^-\textcolor{blue}{D}^{*+}\gamma^I\gamma^I$	19	0	1	1	24
21	$e^- \rightarrow e^+\pi^+\pi^-\pi^-\pi^-\rho^+\textcolor{blue}{D}^{*+}\bar{D}^0\gamma^I$	20	0	1	1	25
22	$e^- \rightarrow e^+\pi^0\rho^0\pi^-\eta\textcolor{blue}{D}^{*+}\bar{D}^0$	21	0	1	1	26
23	$e^- \rightarrow e^+\pi^+\pi^-\rho^-\omega\textcolor{blue}{D}^{*+}\bar{D}^{*0}\gamma^I$	22	0	1	1	27
24	$e^+e^- \rightarrow \pi^+\pi^-\eta\textcolor{blue}{D}^{*+}\textcolor{blue}{D}^{*-}\gamma^I$	23	1	0	1	28
25	$e^- \rightarrow e^+\pi^+\pi^-\eta\textcolor{blue}{D}^{*+}\textcolor{blue}{D}^{*-}\gamma^I$	24	0	1	1	29
26	$e^- \rightarrow e^+\pi^0\pi^-\bar{K}^*K^{*+}D^-\textcolor{blue}{D}^{*+}\gamma^I$	25	0	1	1	30
27	$e^- \rightarrow e^+\pi^-\omega K^+\textcolor{blue}{D}^{*+}D_s^-\gamma^I$	26	0	1	1	31
28	$e^- \rightarrow e^+\pi^-\omega\textcolor{blue}{D}^{*+}\bar{D}^0\gamma^I$	27	0	1	1	32
29	$e^+e^- \rightarrow \pi^+\rho^-\omega K^0\textcolor{blue}{D}^{*+}D_s^-\gamma^I\gamma^I$	28	1	0	1	33
30	$e^- \rightarrow e^+\pi^0\pi^0\pi^-\pi^-\rho^+\textcolor{blue}{D}^{*+}\bar{D}^0\gamma^I$	29	0	1	1	34
31	$e^+e^- \rightarrow \pi^0\pi^-\bar{K}^+K^-\textcolor{blue}{D}^{*+}\bar{D}^0$	30	1	0	1	35
32	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-D^-\textcolor{blue}{D}^{*+}\gamma^I$	31	1	0	1	36

rowNo	production branch of D^{*+}	iProdBrP	nCase	nCcCase	nAllCase	nCCase
33	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-K^+\textcolor{blue}{D}^{*+}D_s^-\gamma^I$	32	1	0	1	37
34	$e^+e^- \rightarrow \pi^0\eta K^0K^-\textcolor{blue}{D}^{*+}\bar{D}^{*0}\gamma^I$	33	1	0	1	38
35	$e^+e^- \rightarrow \rho^0\pi^-\bar{K}^0K^+D^-\textcolor{blue}{D}^{*+}\gamma^I$	34	1	0	1	39
36	$e^+e^- \rightarrow \pi^0\pi^-K^+K^-\textcolor{blue}{D}^{*+}\bar{D}^{*0}$	35	1	0	1	40
37	$e^- \rightarrow e^+\pi^0\pi^-K^+\textcolor{blue}{D}^{*+}D_s^*-\gamma^I$	1	0	1	1	41
38	$e^+e^- \rightarrow \pi^+\pi^+\pi^-\pi^-\textcolor{blue}{D}^{*+}\textcolor{blue}{D}^{*-}$	37	1	0	1	42
39	$e^- \rightarrow e^+\pi^+\pi^+\pi^-\pi^-\textcolor{blue}{D}^{*+}\textcolor{blue}{D}^{*-}$	38	0	1	1	43
40	$e^- \rightarrow e^+\pi^0\pi^-\eta\eta\omega\textcolor{blue}{D}^{*+}\bar{D}^0\gamma^I\gamma^I$	39	0	1	1	44
41	$e^- \rightarrow e^+\rho^-K^0\bar{K}^0K^+K^-\textcolor{blue}{D}^{*+}\bar{D}^0$	40	0	1	1	45
42	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\eta\omega\textcolor{blue}{D}^{*+}\textcolor{blue}{D}^{*-}\gamma^I$	41	1	0	1	46
43	$e^- \rightarrow e^+\pi^0\pi^+\pi^-\eta\omega\textcolor{blue}{D}^{*+}\textcolor{blue}{D}^{*-}\gamma^I$	42	0	1	1	47
44	$e^+e^- \rightarrow \pi^-\textcolor{blue}{D}^{*+}\bar{D}^0p\bar{p}$	43	1	0	1	48
45	$e^+e^- \rightarrow \pi^0\pi^0\pi^-\rho^+\omega D^-\textcolor{blue}{D}^{*+}\gamma^I$	44	1	0	1	49
46	$e^- \rightarrow e^+\pi^0\pi^-\rho^+\eta D^-\textcolor{blue}{D}^{*+}$	45	0	1	1	50
47	$e^+e^- \rightarrow \pi^+\pi^-\pi^-\textcolor{blue}{D}^{*+}\bar{D}^{*0}\gamma^I\gamma^I$	46	1	0	1	51
48	$e^+e^- \rightarrow \pi^0\rho^0\pi^-\textcolor{blue}{D}^{*+}\bar{D}^0$	47	1	0	1	52
49	$e^- \rightarrow e^+\pi^0\pi^-\pi^-\rho^+\eta'\textcolor{blue}{D}^{*+}\bar{D}^{*0}\gamma^I\gamma^I$	48	0	1	1	53
50	$e^- \rightarrow e^+\pi^0\pi^+\pi^-\pi^-D^-\textcolor{blue}{D}^{*+}\gamma^I$	49	0	1	1	54
51	$e^- \rightarrow e^+\pi^0\omega K^0K^-\textcolor{blue}{D}^{*+}\bar{D}^0\gamma^I\gamma^I$	50	0	1	1	55
52	$e^+e^- \rightarrow \pi^0\pi^-\bar{K}^0K^+\textcolor{blue}{D}^{*+}\textcolor{blue}{D}^{*-}\gamma^I\gamma^I$	51	1	0	1	56
53	$e^- \rightarrow e^+\pi^0\pi^+K^0K^-\textcolor{blue}{D}^{*+}\textcolor{blue}{D}^{*-}\gamma^I\gamma^I$	52	0	1	1	57
54	$e^+e^- \rightarrow \pi^-\omega\textcolor{blue}{D}^{*+}\bar{D}^{*0}\gamma^I$	53	1	0	1	58
55	$e^+e^- \rightarrow \pi^-\textcolor{blue}{D}^{*+}\textcolor{blue}{D}^{*-}\bar{n}\Delta^+\gamma^I$	54	1	0	1	59
56	$e^- \rightarrow e^+\pi^+\textcolor{blue}{D}^{*+}\textcolor{blue}{D}^{*-}n\bar{\Delta}^-\gamma^I$	55	0	1	1	60
57	$e^+e^- \rightarrow \pi^+\pi^-\pi^-K^+\textcolor{blue}{D}^{*+}D_s^-$	56	1	0	1	61
58	$e^+e^- \rightarrow \pi^0\pi^0\rho^0K^0K^-\textcolor{blue}{D}^{*+}\bar{D}^0$	57	1	0	1	62
59	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-D^-\textcolor{blue}{D}^{*+}\gamma^I$	58	1	0	1	63
60	$e^- \rightarrow e^+\pi^0\pi^-\rho^+\rho^-\textcolor{blue}{D}^{*+}\bar{D}^0$	59	0	1	1	64
61	$e^- \rightarrow e^+\pi^0\pi^+\pi^-\pi^-\textcolor{blue}{D}^{*+}\bar{D}^{*0}\gamma^I$	60	0	1	1	65
62	$e^- \rightarrow e^+\pi^-K^+\textcolor{blue}{D}^{*+}D_s^*-\gamma^I\gamma^I$	61	0	1	1	66
63	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\rho^-\textcolor{blue}{D}^{*+}\bar{D}^{*0}\gamma^I$	62	1	0	1	67
64	$e^+e^- \rightarrow \pi^0\pi^0\pi^+K^0K^-D^-\textcolor{blue}{D}^{*+}$	63	1	0	1	68
65	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-\rho^+\textcolor{blue}{D}^{*+}\textcolor{blue}{D}^{*-}$	2	1	0	1	69
66	$e^+e^- \rightarrow \pi^0\pi^+\rho^-D^-\textcolor{blue}{D}^{*+}\gamma^I$	65	1	0	1	70

rowNo	production branch of D^{*+}	iProdBrP	nCase	nCcCase	nAllCase	nCCase
67	$e^+e^- \rightarrow \pi^0\pi^-\pi^-\rho^+\textcolor{blue}{D}^{*+}\bar{D}^0\gamma^I$	66	1	0	1	71
68	$e^+e^- \rightarrow \pi^0\pi^0\pi^-\textcolor{blue}{D}^{*+}\bar{D}^{*0}$	67	1	0	1	72
69	$e^+e^- \rightarrow \pi^0\pi^0\pi^-\omega\textcolor{blue}{D}^{*+}\bar{D}^0\gamma^I\gamma^I$	68	1	0	1	73
70	$e^- \rightarrow e^+\pi^0\rho^0\pi^-\rho^+D^-\textcolor{blue}{D}^{*+}\gamma^I$	69	0	1	1	74
71	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-\textcolor{blue}{D}^{*+}\bar{D}^0\gamma^I$	70	1	0	1	75
72	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-D^-\textcolor{blue}{D}^{*+}$	71	1	0	1	76
73	$e^- \rightarrow e^+\pi^-\pi^-\rho^+\omega\textcolor{blue}{D}^{*+}\bar{D}^0$	72	0	1	1	77
74	$e^+e^- \rightarrow \textcolor{blue}{D}^{*+}\bar{D}^{*0}\Sigma^0\bar{\Sigma}^-$	73	1	0	1	78
75	$e^+e^- \rightarrow \pi^0\pi^-\rho^+\omega D^-\textcolor{blue}{D}^{*+}\gamma^I\gamma^I$	74	1	0	1	79
76	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\rho^-\textcolor{blue}{D}^{*+}\bar{D}^{*-}\gamma^I\gamma^I\gamma^I$	75	1	0	1	80
77	$e^- \rightarrow e^+\pi^0\rho^0\pi^-\rho^+\textcolor{blue}{D}^{*+}\bar{D}^{*-}\gamma^I\gamma^I\gamma^I$	76	0	1	1	81
78	$e^+e^- \rightarrow \pi^0\pi^+\pi^-D^-\textcolor{blue}{D}^{*+}\gamma^I\gamma^I$	77	1	0	1	82
79	$e^- \rightarrow e^+\pi^+\pi^+\pi^-\rho^-D^-\textcolor{blue}{D}^{*+}$	78	0	1	1	83
80	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\omega\textcolor{blue}{D}^{*+}\bar{D}^{*-}$	79	1	0	1	84
81	$e^- \rightarrow e^+\pi^0\pi^+\pi^-\omega\textcolor{blue}{D}^{*+}\bar{D}^{*-}$	80	0	1	1	85
82	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-\eta\textcolor{blue}{D}^{*+}\bar{D}^0$	81	1	0	1	86
83	$e^+e^- \rightarrow \pi^0\pi^-\textcolor{blue}{D}^{*+}\bar{D}^{*-}$	82	1	0	1	87
84	$e^- \rightarrow e^+\pi^0\pi^-\textcolor{blue}{D}^{*+}\bar{D}^{*-}$	83	0	1	1	88
85	$e^- \rightarrow e^+\pi^0\pi^-\bar{K}^*K^+D^-\textcolor{blue}{D}^{*+}$	84	0	1	1	89
86	$e^- \rightarrow e^+\pi^0\pi^+\pi^-\rho^-\textcolor{blue}{D}^{*+}\bar{D}^{*0}\gamma^I$	85	0	1	1	90
87	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-\textcolor{blue}{D}^{*+}\bar{D}^{*0}\gamma^I$	86	1	0	1	91
88	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\textcolor{blue}{D}^{*+}\bar{D}^{*-}\gamma^I$	87	1	0	1	92
89	$e^- \rightarrow e^+\pi^0\pi^0\pi^+\pi^-\textcolor{blue}{D}^{*+}\bar{D}^{*-}\gamma^I$	88	0	1	1	93
90	$e^- \rightarrow e^+\pi^-\rho^+\omega D^-\textcolor{blue}{D}^{*+}\gamma^I$	89	0	1	1	94
91	$e^+e^- \rightarrow \rho^0\rho^0\pi^-\textcolor{blue}{D}^{*+}\bar{D}^0$	90	1	0	1	95
92	$e^+e^- \rightarrow \pi^-K^+K^-\textcolor{blue}{D}^{*+}\bar{D}^{*0}$	91	1	0	1	96
93	$e^- \rightarrow e^+\pi^0\pi^+\pi^-\rho^-\textcolor{blue}{D}^{*+}\bar{D}^{*-}$	92	0	1	1	97
94	$e^+e^- \rightarrow \pi^+\pi^+\pi^-\rho^-\textcolor{blue}{D}^{*+}\bar{D}^{*-}\gamma^I$	93	1	0	1	98
95	$e^- \rightarrow e^+\pi^+\pi^-\pi^-\rho^+\textcolor{blue}{D}^{*+}\bar{D}^{*-}\gamma^I$	94	0	1	1	99
96	$e^+e^- \rightarrow \pi^-\eta K^+\textcolor{blue}{D}^{*+}D_s^-$	95	1	0	1	100
97	$e^- \rightarrow e^+\pi^0\pi^+\pi^-\pi^-\textcolor{blue}{D}^{*+}\bar{D}^{*0}$	96	0	1	1	101
98	$e^+e^- \rightarrow \pi^0\rho^-K^+K^-\textcolor{blue}{D}^{*+}\bar{D}^0\gamma^I$	97	1	0	1	102
99	$e^- \rightarrow e^+\pi^+\pi^-\rho^-\textcolor{blue}{D}^{*+}\bar{D}^0\gamma^I$	98	0	1	1	103
100	$e^- \rightarrow e^+\pi^+\pi^-\pi^-\omega\textcolor{blue}{D}^{*+}\bar{D}^0\gamma^I$	99	0	1	1	104

rowNo	production branch of D^{*+}		iProdBrP	nCase	nCcCase	nAllCase	nCCase
rest	others	(58 in total)	—	23	35	58	162

Table 19: Production branches of D^{*0} .

rowNo	production branch of D^{*0}	iProdBrP	nCase	nCcCase	nAllCase	nCCase
1	$e^- \rightarrow e^+ \pi^+ \pi^+ \pi^- \eta D^- \textcolor{blue}{D}^{*0}$	31	0	2	2	2
2	$e^- \rightarrow e^+ \pi^+ \pi^+ \pi^- \pi^- \bar{D}^0 \textcolor{blue}{D}^{*0} \gamma^I$	42	0	2	2	4
3	$e^- \rightarrow e^+ \pi^0 \pi^+ \pi^- \rho^+ D^- \textcolor{blue}{D}^{*0}$	49	0	2	2	6
4	$e^+ e^- \rightarrow \rho^0 \pi^+ \pi^- \textcolor{blue}{D}^{*0} \bar{D}^{*0}$	78	2	0	2	8
5	$e^- \rightarrow e^+ \rho^0 \pi^+ \pi^- \textcolor{blue}{D}^{*0} \bar{D}^{*0}$	79	0	2	2	10
6	$e^- \rightarrow e^+ \pi^+ \pi^+ \pi^- D^{*-} \textcolor{blue}{D}^{*0} \gamma^I$	92	0	2	2	12
7	$e^+ e^- \rightarrow \pi^+ \rho^- \eta \bar{D}^0 \textcolor{blue}{D}^{*0} \gamma^I \gamma^I$	6	1	0	1	13
8	$e^- \rightarrow e^+ \pi^0 \rho^0 \pi^+ D^- \textcolor{blue}{D}^{*0} \gamma^I$	7	0	1	1	14
9	$e^+ e^- \rightarrow \pi^+ \pi^+ \pi^- \pi^- K^{*+} \textcolor{blue}{D}^{*0} D_s^{*-}$	8	1	0	1	15
10	$e^+ e^- \rightarrow K^+ K^{*-} \textcolor{blue}{D}^{*0} p \bar{\Lambda}_c^-$	9	1	0	1	16
11	$e^- \rightarrow e^+ \pi^+ D^- \textcolor{blue}{D}^{*0} \gamma^I$	10	0	1	1	17
12	$e^+ e^- \rightarrow \pi^0 \pi^0 \pi^+ \pi^- D^- \textcolor{blue}{D}^{*0} \gamma^I$	11	1	0	1	18
13	$e^- \rightarrow e^+ \pi^+ \pi^+ \pi^- \pi^- \omega \bar{D}^0 \textcolor{blue}{D}^{*0} \gamma^I \gamma^I$	12	0	1	1	19
14	$e^+ e^- \rightarrow \pi^+ K^+ K^{*-} D^{*-} \textcolor{blue}{D}^{*0} \gamma^I$	13	1	0	1	20
15	$e^- \rightarrow e^+ \pi^0 \pi^0 \pi^0 \pi^+ \pi^- \bar{D}^0 \textcolor{blue}{D}^{*0} \gamma^I$	14	0	1	1	21
16	$e^- \rightarrow e^+ \pi^0 \pi^+ \pi^+ \pi^- \omega D^{*-} \textcolor{blue}{D}^{*0}$	15	0	1	1	22
17	$e^+ e^- \rightarrow \pi^0 \pi^0 \rho^0 \pi^+ \pi^- \bar{D}^0 \textcolor{blue}{D}^{*0} \gamma^I$	16	1	0	1	23
18	$e^+ e^- \rightarrow \pi^0 \pi^0 K^+ K^- \bar{D}^0 \textcolor{blue}{D}^{*0}$	17	1	0	1	24
19	$e^+ e^- \rightarrow \pi^+ D^{*-} \textcolor{blue}{D}^{*0} \gamma^I \gamma^I \gamma^I \gamma^I$	18	1	0	1	25
20	$e^+ e^- \rightarrow \rho^+ \eta K^0 \bar{K}^0 D^{*-} \textcolor{blue}{D}^{*0}$	19	1	0	1	26
21	$e^+ e^- \rightarrow \pi^0 \pi^- \eta \bar{K}^0 K^+ \bar{D}^0 \textcolor{blue}{D}^{*0}$	20	1	0	1	27
22	$e^+ e^- \rightarrow \pi^- \rho^+ \bar{D}^0 \textcolor{blue}{D}^{*0} \gamma^I$	21	1	0	1	28
23	$e^+ e^- \rightarrow \pi^+ \pi^- \rho^+ \omega D^{*-} \textcolor{blue}{D}^{*0} \gamma^I$	22	1	0	1	29
24	$e^+ e^- \rightarrow \pi^+ \rho^- K^- K^{*+} \bar{D}^0 \textcolor{blue}{D}^{*0} \gamma^I$	23	1	0	1	30
25	$e^- \rightarrow e^+ \pi^0 \pi^0 \pi^+ \pi^- \bar{D}^0 \textcolor{blue}{D}^{*0} \gamma^I \gamma^I$	24	0	1	1	31
26	$e^+ e^- \rightarrow \pi^+ \pi^- \rho^+ K^0 \textcolor{blue}{D}^{*0} D_s^{*-} \gamma^I$	25	1	0	1	32
27	$e^+ e^- \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \pi^- \textcolor{blue}{D}^{*0} \bar{D}^{*0}$	26	1	0	1	33
28	$e^- \rightarrow e^+ \pi^0 \pi^+ \pi^+ \pi^- \pi^- \textcolor{blue}{D}^{*0} \bar{D}^{*0}$	27	0	1	1	34
29	$e^- \rightarrow e^+ \pi^0 \rho^0 K^+ K^- \bar{D}^0 \textcolor{blue}{D}^{*0} \gamma^I$	28	0	1	1	35
30	$e^- \rightarrow e^+ \pi^0 \pi^0 \rho^+ K^* \textcolor{blue}{D}^{*0} D_s^{*-}$	29	0	1	1	36
31	$e^- \rightarrow e^+ \pi^+ \pi^- \eta K^+ \textcolor{blue}{D}^{*0} D_s^{*-} \gamma^I$	30	0	1	1	37
32	$e^- \rightarrow e^+ \pi^0 \pi^+ \pi^- K^+ \textcolor{blue}{D}^{*0} D_s^{*-}$	0	0	1	1	38

rowNo	production branch of D^{*0}	iProdBrP	nCase	nCcCase	nAllCase	nCCase
33	$e^- \rightarrow e^+ \rho^0 \bar{D}^0 \textcolor{blue}{D}^{*0}$	32	0	1	1	39
34	$e^+ e^- \rightarrow \rho^0 \pi^+ K^* \textcolor{blue}{D}^{*0} D_s^- \gamma^I \gamma^I$	33	1	0	1	40
35	$e^+ e^- \rightarrow \pi^0 \pi^+ \rho^- \omega \bar{D}^0 \textcolor{blue}{D}^{*0} \gamma^I$	34	1	0	1	41
36	$e^- \rightarrow e^+ \pi^0 \eta \bar{K}^0 K^+ D^{*-} \textcolor{blue}{D}^{*0} \gamma^I$	35	0	1	1	42
37	$e^+ e^- \rightarrow \pi^0 K^+ K^- \textcolor{blue}{D}^{*0} D_s^- \gamma^I \gamma^I$	36	1	0	1	43
38	$e^- \rightarrow e^+ \pi^0 K^+ \textcolor{blue}{D}^{*0} D_s^{*-} \gamma^I \gamma^I$	37	0	1	1	44
39	$e^- \rightarrow e^+ \pi^0 \pi^+ K^+ K^- D^{*-} \textcolor{blue}{D}^{*0}$	38	0	1	1	45
40	$e^+ e^- \rightarrow \pi^- \rho^+ \bar{D}^0 \textcolor{blue}{D}^{*0}$	39	1	0	1	46
41	$e^+ e^- \rightarrow \pi^0 \rho^0 \pi^+ \pi^- \pi^- D^- \textcolor{blue}{D}^{*0}$	40	1	0	1	47
42	$e^- \rightarrow e^+ \pi^0 \pi^0 \pi^- \rho^+ \bar{D}^0 \textcolor{blue}{D}^{*0}$	41	0	1	1	48
43	$e^+ e^- \rightarrow \pi^0 \pi^+ \pi^- \rho^+ \rho^- \textcolor{blue}{D}^{*0} \bar{D}^{*0}$	1	1	0	1	49
44	$e^+ e^- \rightarrow \pi^+ \omega K^0 \textcolor{blue}{D}^{*0} D_s^- \gamma^I \gamma^I$	43	1	0	1	50
45	$e^- \rightarrow e^+ \pi^0 \pi^+ \rho^+ \rho^- D^- \textcolor{blue}{D}^{*0} \gamma^I \gamma^I$	44	0	1	1	51
46	$e^- \rightarrow e^+ \pi^0 \pi^- \rho^+ \rho^+ \textcolor{blue}{D}^{*0} n \bar{\Lambda}_c^- \gamma^I$	45	0	1	1	52
47	$e^- \rightarrow e^+ \pi^0 \pi^+ \pi^- \rho^+ \rho^- \bar{D}^0 \textcolor{blue}{D}^{*0}$	46	0	1	1	53
48	$e^- \rightarrow e^+ \pi^+ \pi^+ \pi^- D^{*-} \textcolor{blue}{D}^{*0} \gamma^I \gamma^I$	47	0	1	1	54
49	$e^+ e^- \rightarrow \pi^0 \pi^0 \omega \bar{D}^0 \textcolor{blue}{D}^{*0}$	48	1	0	1	55
50	$e^- \rightarrow e^+ \pi^0 \pi^+ \pi^- \rho^+ \rho^- \textcolor{blue}{D}^{*0} \bar{D}^{*0}$	2	0	1	1	56
51	$e^+ e^- \rightarrow \pi^0 \pi^+ \pi^+ \rho^- \eta' D^{*-} \textcolor{blue}{D}^{*0} \gamma^I \gamma^I$	50	1	0	1	57
52	$e^- \rightarrow e^+ \pi^- \rho^+ \omega K^+ \textcolor{blue}{D}^{*0} D_s^-$	51	0	1	1	58
53	$e^+ e^- \rightarrow \pi^0 \pi^0 \rho^0 \bar{D}^0 \textcolor{blue}{D}^{*0}$	52	1	0	1	59
54	$e^- \rightarrow e^+ \pi^+ \pi^+ \pi^- \pi^- K^+ K^- \bar{D}^0 \textcolor{blue}{D}^{*0}$	53	0	1	1	60
55	$e^+ e^- \rightarrow \pi^+ \rho^- K^+ \textcolor{blue}{D}^{*0} D_s^- \gamma^I$	54	1	0	1	61
56	$e^- \rightarrow e^+ \pi^+ \omega D^{*-} \textcolor{blue}{D}^{*0} \gamma^I$	55	0	1	1	62
57	$e^+ e^- \rightarrow \rho^+ \textcolor{blue}{D}^{*0} \Sigma^- \bar{\Xi}_c^0 \gamma^I$	56	1	0	1	63
58	$e^+ e^- \rightarrow \pi^+ \pi^+ \pi^- \pi^- \textcolor{blue}{D}^{*0} \bar{D}^{*0} \gamma^I$	57	1	0	1	64
59	$e^- \rightarrow e^+ \pi^+ \pi^+ \pi^- \pi^- \textcolor{blue}{D}^{*0} \bar{D}^{*0} \gamma^I$	58	0	1	1	65
60	$e^+ e^- \rightarrow \pi^0 \pi^0 \pi^0 \bar{D}^0 \textcolor{blue}{D}^{*0}$	59	1	0	1	66
61	$e^- \rightarrow e^+ \pi^0 \rho^0 \pi^+ \pi^- \bar{D}^0 \textcolor{blue}{D}^{*0}$	60	0	1	1	67
62	$e^+ e^- \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- D^{*-} \textcolor{blue}{D}^{*0} \gamma^I$	61	1	0	1	68
63	$e^- \rightarrow e^+ \pi^0 \pi^+ \pi^- \bar{D}^0 \textcolor{blue}{D}^{*0} \gamma^I \gamma^I$	62	0	1	1	69
64	$e^- \rightarrow e^+ \pi^0 \rho^0 \pi^+ \pi^- \eta \bar{D}^0 \textcolor{blue}{D}^{*0} \gamma^I$	63	0	1	1	70
65	$e^- \rightarrow e^+ \pi^0 \pi^+ \pi^- \rho^+ D^{*-} \textcolor{blue}{D}^{*0} \gamma^I$	64	0	1	1	71
66	$e^+ e^- \rightarrow \pi^0 \rho^+ D^- \textcolor{blue}{D}^{*0} \gamma^I \gamma^I$	65	1	0	1	72

rowNo	production branch of D^{*0}	iProdBrP	nCase	nCcCase	nAllCase	nCCase
67	$e^+e^- \rightarrow \pi^+\pi^-\rho^+\omega D^- \textcolor{blue}{D}^{*0}\gamma^I\gamma^I$	66	1	0	1	73
68	$e^- \rightarrow e^+\pi^0\pi^0\pi^+D^{*-} \textcolor{blue}{D}^{*0}$	67	0	1	1	74
69	$e^+e^- \rightarrow \pi^+\pi^-\omega \bar{D}^0 \textcolor{blue}{D}^{*0}\gamma^I$	68	1	0	1	75
70	$e^- \rightarrow e^+\pi^0\pi^0\pi^0\rho^-\rho^+\omega \bar{D}^0 \textcolor{blue}{D}^{*0}$	69	0	1	1	76
71	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\eta D^- \textcolor{blue}{D}^{*0}\gamma^I$	70	1	0	1	77
72	$e^+e^- \rightarrow \rho^0\pi^-\rho^+\textcolor{blue}{D}^{*0}\bar{D}^{*0}\gamma^I\gamma^I$	71	1	0	1	78
73	$e^- \rightarrow e^+\rho^0\pi^+\rho^-\textcolor{blue}{D}^{*0}\bar{D}^{*0}\gamma^I\gamma^I$	72	0	1	1	79
74	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\textcolor{blue}{D}^{*0}\bar{D}^{*0}\gamma^I\gamma^I$	73	1	0	1	80
75	$e^- \rightarrow e^+\pi^0\pi^+\pi^+\pi^-\pi^-\textcolor{blue}{D}^{*0}\bar{D}^{*0}\gamma^I\gamma^I$	74	0	1	1	81
76	$e^- \rightarrow e^+D^{*-} \textcolor{blue}{D}^{*0}\bar{\Sigma}^0\Sigma^+$	75	0	1	1	82
77	$e^+e^- \rightarrow \pi^+\omega\omega D^- \textcolor{blue}{D}^{*0}\gamma^I$	76	1	0	1	83
78	$e^+e^- \rightarrow \pi^+\pi^+\pi^-\pi^-\bar{D}^0 \textcolor{blue}{D}^{*0}$	77	1	0	1	84
79	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^-\rho^+\bar{D}^0 \textcolor{blue}{D}^{*0}$	3	1	0	1	85
80	$e^+e^- \rightarrow \pi^+\pi^+\rho^-\omega D^{*-} \textcolor{blue}{D}^{*0}\gamma^I\gamma^I$	4	1	0	1	86
81	$e^- \rightarrow e^+\pi^0\pi^+\pi^-\omega \bar{D}^0 \textcolor{blue}{D}^{*0}\gamma^I$	80	0	1	1	87
82	$e^+e^- \rightarrow \pi^+\pi^+\pi^-\pi^-\textcolor{blue}{D}^{*0}\bar{D}^{*0}$	81	1	0	1	88
83	$e^- \rightarrow e^+\pi^+\pi^+\pi^-\pi^-\textcolor{blue}{D}^{*0}\bar{D}^{*0}$	82	0	1	1	89
84	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\textcolor{blue}{D}^{*0}\bar{D}^{*0}$	83	1	0	1	90
85	$e^- \rightarrow e^+\pi^0\pi^0\pi^+\pi^-\textcolor{blue}{D}^{*0}\bar{D}^{*0}$	84	0	1	1	91
86	$e^+e^- \rightarrow \pi^0\pi^0\pi^-\rho^+\bar{D}^0 \textcolor{blue}{D}^{*0}\gamma^I$	85	1	0	1	92
87	$e^+e^- \rightarrow \pi^0\pi^0\pi^-\rho^+D^{*-} \textcolor{blue}{D}^{*0}\gamma^I$	86	1	0	1	93
88	$e^- \rightarrow e^+\pi^0\pi^+\pi^+\pi^-\textcolor{blue}{D}^{*0}\gamma^I$	87	0	1	1	94
89	$e^+e^- \rightarrow \pi^+\rho^-\bar{D}^0 \textcolor{blue}{D}^{*0}$	88	1	0	1	95
90	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-\bar{K}^0K^{*+}\bar{D}^0 \textcolor{blue}{D}^{*0}\gamma^I$	89	1	0	1	96
91	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-\rho^+\bar{D}^0 \textcolor{blue}{D}^{*0}\gamma^I$	90	1	0	1	97
92	$e^- \rightarrow e^+\pi^+K^+K^-D^{*-} \textcolor{blue}{D}^{*0}$	91	0	1	1	98
93	$e^+e^- \rightarrow \eta\omega K^+K^-\bar{D}^0 \textcolor{blue}{D}^{*0}\gamma^I\gamma^I$	5	1	0	1	99
94	$e^- \rightarrow e^+\pi^0\rho^+\eta D^- \textcolor{blue}{D}^{*0}\gamma^I$	93	0	1	1	100
95	$e^- \rightarrow e^+\pi^+\pi^-\rho^+D^- \textcolor{blue}{D}^{*0}$	94	0	1	1	101
96	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\textcolor{blue}{D}^{*0}\gamma^I$	95	1	0	1	102
97	$e^+e^- \rightarrow \pi^0\pi^0\pi^0 \textcolor{blue}{D}^{*0}\bar{D}^{*0}\gamma^I$	96	1	0	1	103
98	$e^- \rightarrow e^+\pi^0\pi^0\pi^0 \textcolor{blue}{D}^{*0}\bar{D}^{*0}\gamma^I$	97	0	1	1	104
99	$e^+e^- \rightarrow \pi^0\rho^0\pi^-\rho^+\bar{D}^0 \textcolor{blue}{D}^{*0}$	98	1	0	1	105
100	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\omega K^{*+} \textcolor{blue}{D}^{*0}D_s^- \gamma^I$	99	1	0	1	106

rowNo	production branch of D^{*0}		iProdBrP	nCase	nCcCase	nAllCase	nCCase
rest	others	(68 in total)	—	36	32	68	174

Table 20: Production branches of D^0 .

rowNo	production branch of D^0	iProdBrP	nCase	nCcCase	nAllCase	nCCase
1	$D^{*+} \rightarrow \pi^+ \textcolor{blue}{D^0}$	0	59	71	130	130
2	$D^{*0} \rightarrow \pi^0 \textcolor{blue}{D^0}$	2	62	54	116	246
3	$D^{*0} \rightarrow \textcolor{blue}{D^0} \gamma$	5	28	30	58	304
4	$e^- \rightarrow e^+ \pi^0 \pi^0 \pi^+ D^{*-} \textcolor{blue}{D^0} \gamma^I$	12	0	2	2	306
5	$e^+ e^- \rightarrow \pi^0 \pi^+ \rho^- \textcolor{blue}{D^0} \bar{D}^0$	45	2	0	2	308
6	$e^- \rightarrow e^+ \pi^0 \pi^- \rho^+ \textcolor{blue}{D^0} \bar{D}^0$	46	0	2	2	310
7	$e^+ e^- \rightarrow \pi^+ \pi^+ \pi^- \textcolor{blue}{D^0} \bar{D}^{*0} \gamma^I$	61	2	0	2	312
8	$e^+ e^- \rightarrow \pi^+ \pi^- \textcolor{blue}{D^0} \bar{D}^0 \gamma^I \gamma^I$	95	2	0	2	314
9	$e^- \rightarrow e^+ \pi^+ \pi^- \textcolor{blue}{D^0} \bar{D}^0 \gamma^I \gamma^I$	96	0	2	2	316
10	$e^+ e^- \rightarrow \pi^0 \pi^+ \pi^+ \pi^- D^{*-} \textcolor{blue}{D^0} \gamma^I$	97	2	0	2	318
11	$e^+ e^- \rightarrow \pi^0 \pi^+ \pi^- \omega \textcolor{blue}{D^0} \bar{D}^0 \gamma^I$	148	2	0	2	320
12	$e^- \rightarrow e^+ \pi^0 \pi^+ \pi^- \omega \textcolor{blue}{D^0} \bar{D}^0 \gamma^I$	149	0	2	2	322
13	$e^+ e^- \rightarrow \pi^0 \pi^0 \bar{K}^0 K^+ D^- \textcolor{blue}{D^0}$	154	2	0	2	324
14	$e^+ e^- \rightarrow \pi^0 \pi^+ K^0 K^- \textcolor{blue}{D^0} \bar{D}^0$	155	2	0	2	326
15	$e^- \rightarrow e^+ \pi^0 \pi^- \bar{K}^0 K^+ \textcolor{blue}{D^0} \bar{D}^0$	156	0	2	2	328
16	$e^- \rightarrow e^+ \eta \omega K^+ K^- \textcolor{blue}{D^0} \bar{D}^{*0} \gamma^I \gamma^I$	10	0	1	1	329
17	$e^- \rightarrow e^+ \pi^- \rho^+ \eta \textcolor{blue}{D^0} \bar{D}^{*0} \gamma^I \gamma^I$	11	0	1	1	330
18	$e^- \rightarrow e^+ \pi^0 \pi^+ \pi^+ \rho^- D^- \textcolor{blue}{D^0} \gamma^I$	3	0	1	1	331
19	$e^- \rightarrow e^+ \rho^+ K^+ K^- D^- \textcolor{blue}{D^0} \gamma^I$	13	0	1	1	332
20	$e^- \rightarrow e^+ \pi^0 \pi^0 K^+ \textcolor{blue}{D^0} D_s^- \gamma^I \gamma^I$	14	0	1	1	333
21	$e^+ e^- \rightarrow \pi^+ \pi^+ \pi^- \pi^- \omega \textcolor{blue}{D^0} \bar{D}^{*0} \gamma^I \gamma^I$	15	1	0	1	334
22	$e^+ e^- \rightarrow \pi^0 \pi^0 \pi^- \rho^+ \rho^+ \rho^- \textcolor{blue}{D^0} \bar{D}^0$	16	1	0	1	335
23	$e^- \rightarrow e^+ \pi^0 \pi^0 \pi^+ \rho^+ \rho^- \rho^- \textcolor{blue}{D^0} \bar{D}^0$	17	0	1	1	336
24	$e^+ e^- \rightarrow \pi^0 \pi^0 \pi^0 \pi^- \textcolor{blue}{D^0} \bar{D}^{*0} \gamma^I$	18	1	0	1	337
25	$e^- \rightarrow e^+ \pi^0 \pi^0 \rho^0 \pi^+ \pi^- \textcolor{blue}{D^0} \bar{D}^{*0} \gamma^I$	19	0	1	1	338
26	$e^+ e^- \rightarrow \pi^0 \pi^- \rho^+ \textcolor{blue}{D^0} \bar{D}^0 \gamma^I$	20	1	0	1	339
27	$e^- \rightarrow e^+ \pi^0 \pi^+ \rho^- \textcolor{blue}{D^0} \bar{D}^0 \gamma^I$	21	0	1	1	340
28	$e^- \rightarrow e^+ \pi^0 \pi^0 K^+ K^- \textcolor{blue}{D^0} \bar{D}^{*0}$	22	0	1	1	341
29	$e^- \rightarrow e^+ \pi^0 \pi^0 \rho^0 \pi^+ \pi^- \rho^+ D^{*-} \textcolor{blue}{D^0} \gamma^I \gamma^I$	23	0	1	1	342
30	$e^+ e^- \rightarrow \pi^0 K^+ K^{*-} \textcolor{blue}{D^0} \bar{D}^0 \gamma^I$	24	1	0	1	343
31	$e^- \rightarrow e^+ \pi^0 K^- K^{*+} \textcolor{blue}{D^0} \bar{D}^0 \gamma^I$	25	0	1	1	344
32	$e^+ e^- \rightarrow \pi^0 \pi^+ \pi^+ \rho^- D^{*-} \textcolor{blue}{D^0}$	26	1	0	1	345

rowNo	production branch of D^0	iProdBrP	nCase	nCcCase	nAllCase	nCCase
33	$e^- \rightarrow e^+ \pi^0 \pi^+ \eta K^0 K^- \textcolor{blue}{D}^0 \bar{D}^{*0}$	27	0	1	1	346
34	$e^+ e^- \rightarrow K^+ K^+ K^- K^{*-} \textcolor{blue}{D}^0 \bar{D}^0 \gamma^I \gamma^I$	28	1	0	1	347
35	$e^- \rightarrow e^+ K^+ K^- K^- K^{*+} \textcolor{blue}{D}^0 \bar{D}^0 \gamma^I \gamma^I$	29	0	1	1	348
36	$e^- \rightarrow e^+ \pi^0 \pi^+ \pi^- \bar{K}^0 K^+ D^- \textcolor{blue}{D}^0$	30	0	1	1	349
37	$e^- \rightarrow e^+ \pi^- \rho^+ K^+ \textcolor{blue}{D}^0 D_s^{*-} \gamma^I$	31	0	1	1	350
38	$e^- \rightarrow e^+ \pi^+ \rho^- \textcolor{blue}{D}^0 \bar{D}^{*0} \gamma^I$	32	0	1	1	351
39	$e^+ e^- \rightarrow \pi^+ \pi^- \omega \textcolor{blue}{D}^0 \bar{D}^0 \gamma^I$	33	1	0	1	352
40	$e^- \rightarrow e^+ \pi^+ \pi^- \omega \textcolor{blue}{D}^0 \bar{D}^0 \gamma^I$	34	0	1	1	353
41	$e^+ e^- \rightarrow \pi^+ \pi^+ \pi^+ \pi^- \rho^- D^{*-} \textcolor{blue}{D}^0 \gamma^I$	35	1	0	1	354
42	$e^- \rightarrow e^+ \pi^+ \pi^+ \pi^+ \pi^- \omega D^- \textcolor{blue}{D}^0 \gamma^I \gamma^I \gamma^I$	36	0	1	1	355
43	$e^+ e^- \rightarrow \pi^0 \rho^0 \pi^+ \eta D^{*-} \textcolor{blue}{D}^0$	37	1	0	1	356
44	$e^- \rightarrow e^+ \pi^- \rho^+ K^+ K^{*-} \textcolor{blue}{D}^0 \bar{D}^{*0} \gamma^I$	38	0	1	1	357
45	$e^- \rightarrow e^+ \pi^0 \pi^+ \pi^+ \rho^- \omega D^- \textcolor{blue}{D}^0 \gamma^I$	39	0	1	1	358
46	$e^+ e^- \rightarrow \pi^0 \pi^0 \pi^+ \pi^- \textcolor{blue}{D}^0 \bar{D}^{*0} \gamma^I \gamma^I$	40	1	0	1	359
47	$e^- \rightarrow e^+ \pi^0 \omega K^+ \textcolor{blue}{D}^0 D_s^{*-} \gamma^I \gamma^I \gamma^I$	41	0	1	1	360
48	$e^+ e^- \rightarrow \pi^+ \omega D^{*-} \textcolor{blue}{D}^0 \gamma^I$	42	1	0	1	361
49	$e^+ e^- \rightarrow \rho^0 \rho^0 \pi^- \rho^+ \rho^+ D^- \textcolor{blue}{D}^0 \gamma^I$	43	1	0	1	362
50	$e^+ e^- \rightarrow \pi^0 \rho^0 K^+ K^- \textcolor{blue}{D}^0 \bar{D}^{*0} \gamma^I$	44	1	0	1	363
51	$e^- \rightarrow e^+ \rho^0 \pi^+ \rho^+ \rho^- D^{*-} \textcolor{blue}{D}^0 \gamma^I$	4	0	1	1	364
52	$e^- \rightarrow e^+ \pi^+ K^0 K^- K^- \textcolor{blue}{D}^0 D_s^{*-} \gamma^I$	1	0	1	1	365
53	$e^+ e^- \rightarrow \pi^+ \pi^- \rho^+ \eta K^- K^{*+} D^- \textcolor{blue}{D}^0 \gamma^I$	47	1	0	1	366
54	$e^+ e^- \rightarrow \rho^0 \textcolor{blue}{D}^0 \bar{D}^{*0}$	48	1	0	1	367
55	$e^+ e^- \rightarrow \pi^0 \pi^0 \pi^+ \pi^- \rho^- D^{*-} \textcolor{blue}{D}^0 \gamma^I$	49	1	0	1	368
56	$e^- \rightarrow e^+ \pi^0 \pi^- \rho^+ \omega \textcolor{blue}{D}^0 \bar{D}^{*0} \gamma^I$	50	0	1	1	369
57	$e^- \rightarrow e^+ \pi^0 \pi^+ K^+ K^- D^{*-} \textcolor{blue}{D}^0$	51	0	1	1	370
58	$e^+ e^- \rightarrow \pi^0 \pi^0 \pi^+ D^- \textcolor{blue}{D}^0 \gamma^I \gamma^I \gamma^I$	52	1	0	1	371
59	$e^- \rightarrow e^+ \rho^0 \rho^+ D^- \textcolor{blue}{D}^0 \gamma^I \gamma^I$	53	0	1	1	372
60	$e^- \rightarrow e^+ \pi^+ \rho^- \textcolor{blue}{D}^0 \bar{D}^{*0}$	54	0	1	1	373
61	$e^- \rightarrow e^+ \pi^0 \pi^+ \eta K^0 \bar{K}^0 D^- \textcolor{blue}{D}^0$	55	0	1	1	374
62	$e^+ e^- \rightarrow \pi^0 \pi^0 \pi^+ \rho^- \textcolor{blue}{D}^0 \bar{D}^{*0}$	56	1	0	1	375
63	$e^- \rightarrow e^+ \pi^+ \pi^- \textcolor{blue}{D}^0 D_s^- p\bar{\Lambda}$	57	0	1	1	376
64	$e^- \rightarrow e^+ \pi^0 \pi^+ \pi^- \textcolor{blue}{D}^0 p\bar{\Lambda}_c^-$	58	0	1	1	377
65	$e^- \rightarrow e^+ \pi^0 \pi^+ K^0 \textcolor{blue}{D}^0 D_s^-$	59	0	1	1	378
66	$e^- \rightarrow e^+ \pi^+ \rho^- K^+ \textcolor{blue}{D}^0 D_s^- \gamma^I \gamma^I \gamma^I$	60	0	1	1	379

rowNo	production branch of D^0	iProdBrP	nCase	nCcCase	nAllCase	nCCase
67	$e^- \rightarrow e^+ \pi^0 \pi^0 \pi^0 \pi^+ \rho^- \textcolor{blue}{D}^0 \bar{D}^{*0}$	6	0	1	1	380
68	$e^- \rightarrow e^+ \eta K^0 \bar{K}^0 K^+ \textcolor{blue}{D}^0 D_s^- \gamma^I$	62	0	1	1	381
69	$e^+ e^- \rightarrow \pi^0 \pi^+ \eta \eta \omega D^{*-} \textcolor{blue}{D}^0 \gamma^I \gamma^I$	63	1	0	1	382
70	$e^+ e^- \rightarrow \pi^0 \pi^0 \pi^+ \pi^- \rho^- \textcolor{blue}{D}^0 \bar{D}^0 \gamma^I$	64	1	0	1	383
71	$e^- \rightarrow e^+ \pi^0 \pi^0 \pi^+ \pi^- \rho^+ \textcolor{blue}{D}^0 \bar{D}^0 \gamma^I$	65	0	1	1	384
72	$e^+ e^- \rightarrow \rho^+ K^0 \bar{K}^0 K^+ K^- D^{*-} \textcolor{blue}{D}^0$	66	1	0	1	385
73	$e^+ e^- \rightarrow \omega \textcolor{blue}{D}^0 \bar{D}^0 \Sigma^+ \bar{\Sigma}^- \gamma^I \gamma^I$	67	1	0	1	386
74	$e^- \rightarrow e^+ \omega \textcolor{blue}{D}^0 \bar{D}^0 \Sigma^+ \bar{\Sigma}^- \gamma^I \gamma^I$	68	0	1	1	387
75	$e^+ e^- \rightarrow \pi^0 \pi^+ \pi^- \rho^+ \rho^- \textcolor{blue}{D}^0 \bar{D}^{*0}$	69	1	0	1	388
76	$e^+ e^- \rightarrow \pi^+ \pi^+ \pi^- D^- \textcolor{blue}{D}^0 \gamma^I$	70	1	0	1	389
77	$e^- \rightarrow e^+ \pi^+ D^{*-} \textcolor{blue}{D}^0 p\bar{p}$	71	0	1	1	390
78	$e^- \rightarrow e^+ \pi^+ K^+ K^- \textcolor{blue}{D}^0 n \bar{\Lambda}_c^- \gamma^I$	72	0	1	1	391
79	$e^- \rightarrow e^+ \pi^0 \pi^0 \omega \omega \textcolor{blue}{D}^0 \bar{D}^{*0}$	73	0	1	1	392
80	$e^+ e^- \rightarrow \pi^0 \rho^0 \rho^0 K^+ K^- \textcolor{blue}{D}^0 \bar{D}^0 \gamma^I$	74	1	0	1	393
81	$e^- \rightarrow e^+ \pi^0 \rho^0 \rho^0 K^+ K^- \textcolor{blue}{D}^0 \bar{D}^0 \gamma^I$	75	0	1	1	394
82	$e^- \rightarrow e^+ \pi^0 \rho^0 \pi^+ D^{*-} \textcolor{blue}{D}^0$	76	0	1	1	395
83	$e^+ e^- \rightarrow \pi^0 \pi^+ \pi^- \omega \omega \textcolor{blue}{D}^0 \bar{D}^0$	77	1	0	1	396
84	$e^- \rightarrow e^+ \pi^0 \pi^+ \pi^- \omega \omega \textcolor{blue}{D}^0 \bar{D}^0$	78	0	1	1	397
85	$e^- \rightarrow e^+ \pi^0 \pi^0 \pi^0 \rho^0 \textcolor{blue}{D}^0 \bar{D}^{*0}$	79	0	1	1	398
86	$e^+ e^- \rightarrow \pi^+ \pi^+ \pi^- \pi^- K^+ K^- \textcolor{blue}{D}^0 \bar{D}^{*0}$	80	1	0	1	399
87	$e^+ e^- \rightarrow \rho^0 \pi^+ \pi^+ \pi^- D^- \textcolor{blue}{D}^0 \gamma^I$	81	1	0	1	400
88	$e^- \rightarrow e^+ \pi^+ \pi^- \rho^+ D^- \textcolor{blue}{D}^0 \gamma^I \gamma^I$	82	0	1	1	401
89	$e^+ e^- \rightarrow \pi^0 \omega \bar{K}^0 K^+ D^{*-} \textcolor{blue}{D}^0 \gamma^I \gamma^I$	83	1	0	1	402
90	$e^- \rightarrow e^+ \pi^0 \pi^0 \rho^0 \bar{K}^0 K^+ D^{*-} \textcolor{blue}{D}^0$	84	0	1	1	403
91	$e^- \rightarrow e^+ \pi^0 \pi^0 \pi^0 \textcolor{blue}{D}^0 \bar{D}^{*0}$	85	0	1	1	404
92	$e^+ e^- \rightarrow \pi^0 \pi^+ \rho^+ \rho^- D^{*-} \textcolor{blue}{D}^0$	86	1	0	1	405
93	$e^- \rightarrow e^+ \pi^0 \pi^0 \bar{K}^* K^+ D^- \textcolor{blue}{D}^0 \gamma^I \gamma^I$	87	0	1	1	406
94	$e^+ e^- \rightarrow \pi^0 \rho^0 \pi^+ \pi^- \textcolor{blue}{D}^0 \bar{D}^{*0}$	88	1	0	1	407
95	$e^+ e^- \rightarrow \pi^0 \pi^+ \pi^- \textcolor{blue}{D}^0 \bar{D}^{*0} \gamma^I \gamma^I$	89	1	0	1	408
96	$e^+ e^- \rightarrow \pi^0 \rho^0 \pi^+ \pi^- \eta \textcolor{blue}{D}^0 \bar{D}^{*0} \gamma^I$	90	1	0	1	409
97	$e^+ e^- \rightarrow \pi^+ \pi^+ \pi^- \pi^- \textcolor{blue}{D}^0 \bar{D}^0 \gamma^I$	91	1	0	1	410
98	$e^- \rightarrow e^+ \pi^+ \pi^+ \pi^- \pi^- \textcolor{blue}{D}^0 \bar{D}^0 \gamma^I$	92	0	1	1	411
99	$e^+ e^- \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \rho^- \textcolor{blue}{D}^0 \bar{D}^0$	93	1	0	1	412
100	$e^- \rightarrow e^+ \pi^0 \pi^0 \pi^+ \pi^- \pi^- \rho^+ \textcolor{blue}{D}^0 \bar{D}^0$	94	0	1	1	413

rowNo	production branch of D^0		iProdBrP	nCase	nCcCase	nAllCase	nCCase
rest	others	(125 in total)	—	69	56	125	538

Table 21: Production branches of π^0 .

rowNo	production branch of π^0	iProdBrP	nCase	nCcCase	nAllCase	nCCase
1	$\omega \rightarrow \pi^0 \pi^+ \pi^-$	4	140328	—	140328	140328
2	$\rho^+ \rightarrow \pi^0 \pi^+$	6	128232	0	128232	268560
3	$\rho^- \rightarrow \pi^0 \pi^-$	2	126720	0	126720	395280
4	$K_S^0 \rightarrow \pi^0 \pi^0$	24	77044	—	77044	472324
5	$\eta \rightarrow \pi^0 \pi^0 \pi^0$	11	67653	—	67653	539977
6	$K^{*-} \rightarrow \pi^0 K^-$	15	23042	0	23042	563019
7	$K^{*+} \rightarrow \pi^0 K^+$	31	22596	0	22596	585615
8	$\eta \rightarrow \pi^0 \pi^+ \pi^-$	16	18001	—	18001	603616
9	$K^* \rightarrow \pi^0 K^0$	53	11934	0	11934	615550
10	$\bar{K}^* \rightarrow \pi^0 \bar{K}^0$	57	11321	0	11321	626871
11	$\omega \rightarrow \pi^0 \gamma$	14	9054	—	9054	635925
12	$\eta' \rightarrow \pi^0 \pi^0 \eta$	34	6890	—	6890	642815
13	$K_L^0 \rightarrow \pi^0 \pi^0 \pi^0$	81	5175	—	5175	647990
14	$\bar{\Lambda} \rightarrow \pi^0 \bar{n}$	46	2975	0	2975	650965
15	$\Lambda \rightarrow \pi^0 n$	100	2896	0	2896	653861
16	$\Delta^+ \rightarrow \pi^0 p$	17	1706	0	1706	655567
17	$\bar{\Delta}^- \rightarrow \pi^0 \bar{p}$	18	1599	0	1599	657166
18	$\bar{\Sigma}^- \rightarrow \pi^0 \bar{p}$	62	1340	0	1340	658506
19	$\Delta^0 \rightarrow \pi^0 n$	71	1320	0	1320	659826
20	$\Sigma^+ \rightarrow \pi^0 p$	61	1288	0	1288	661114
21	$\bar{\Delta}^0 \rightarrow \pi^0 \bar{n}$	32	1280	0	1280	662394
22	$K_L^0 \rightarrow \pi^0 \pi^+ \pi^-$	93	1113	—	1113	663507
23	$\bar{\Xi}^0 \rightarrow \pi^0 \bar{\Lambda}$	199	770	0	770	664277
24	$\phi \rightarrow \pi^0 \rho^0$	212	768	—	768	665045
25	$\Xi^0 \rightarrow \pi^0 \Lambda$	99	711	0	711	665756
26	$\bar{\Sigma}^{*0} \rightarrow \pi^0 \bar{\Lambda}$	526	598	0	598	666354
27	$\Sigma^{*0} \rightarrow \pi^0 \Lambda$	474	492	0	492	666846
28	$\omega \rightarrow e^+ e^- \pi^0$	395	378	—	378	667224
29	$e^+ e^- \rightarrow \pi^0 \pi^0 \pi^+ \pi^- \omega K^+ K^- \gamma^I$	390	320	0	320	667544
30	$e^+ e^- \rightarrow \pi^0 \pi^0 \pi^+ \pi^- \rho^- K^+ K^-$	771	308	0	308	667852
31	$e^+ e^- \rightarrow \pi^0 \pi^0 \pi^+ \pi^- \omega K^+ K^-$	1019	304	0	304	668156
32	$e^+ e^- \rightarrow \pi^0 \pi^0 \pi^+ \pi^- \pi^- K^+ K^-$	373	274	0	274	668430
33	$e^+ e^- \rightarrow \pi^0 \pi^0 \pi^+ \pi^- \rho^+ K^+ K^-$	1676	270	0	270	668700

rowNo	production branch of π^0	iProdBrP	nCase	nCcCase	nAllCase	nCCase
34	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^-K^+K^-$	827	266	0	266	668966
35	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^-K^+K^-\gamma^I$	5235	252	0	252	669218
36	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^-\pi^-\rho^+$	425	234	0	234	669452
37	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^-\omega K^+K^-$	2267	228	0	228	669680
38	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^-\omega$	1269	226	0	226	669906
39	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\rho^0\pi^+\pi^-K^+K^-$	747	222	0	222	670128
40	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^+\pi^-\pi^-\omega\gamma^I$	762	222	0	222	670350
41	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-\rho^+\omega\gamma^I$	1010	220	0	220	670570
42	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I$	5026	218	0	218	670788
43	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^+\pi^-\pi^-\gamma^I$	4196	216	0	216	671004
44	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-\rho^+K^+K^-\gamma^I$	1838	212	0	212	671216
45	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-\omega K^+K^-$	321	211	0	211	671427
46	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^-K^+K^-\gamma^I$	178	210	0	210	671637
47	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^+\pi^-\pi^-K^+K^-$	145	204	0	204	671841
48	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^+\pi^-\rho^-\gamma^I$	2198	204	0	204	672045
49	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\rho^+\rho^-$	2692	204	0	204	672249
50	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^+\pi^-\pi^-\omega$	3239	202	0	202	672451
51	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^-\omega K^+K^-\gamma^I$	1018	201	0	201	672652
52	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\rho^+\rho^-K^+K^-$	1179	201	0	201	672853
53	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^-K^+K^-\gamma^I$	10717	201	0	201	673054
54	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\omega\gamma^I$	405	200	0	200	673254
55	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^+\rho^-K^+K^-$	648	198	0	198	673452
56	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-K^+K^-\gamma^I$	1346	198	0	198	673650
57	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^+\rho^-K^+K^-\gamma^I$	1742	198	0	198	673848
58	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\omega K^+K^-\gamma^I$	555	195	0	195	674043
59	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^+\pi^-\rho^-$	272	194	0	194	674237
60	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^-\omega K^+K^-$	48	192	0	192	674429
61	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\omega K^+K^-$	3	190	0	190	674619
62	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\rho^-\rho^-\gamma^I$	1774	190	0	190	674809
63	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^-\omega K^+K^-\gamma^I$	3951	190	0	190	674999
64	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\rho^0\pi^+\pi^+\pi^-\pi^-$	3495	189	0	189	675188
65	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\rho^-\omega\gamma^I$	650	188	0	188	675376
66	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^-\pi^-\rho^+\gamma^I$	115	186	0	186	675562
67	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^+\pi^-\pi^-$	627	186	0	186	675748

rowNo	production branch of π^0	iProdBrP	nCase	nCcCase	nAllCase	nCCase
68	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^-\pi^-\rho^+\omega$	2218	186	0	186	675934
69	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^-K^+K^-$	2689	177	0	177	676111
70	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\omega$	362	176	0	176	676287
71	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-\rho^+K^+K^-$	1798	176	0	176	676463
72	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^-\rho^+\rho^-$	2647	176	0	176	676639
73	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-K^+K^-\gamma^I$	87	172	0	172	676811
74	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\omega$	2129	171	0	171	676982
75	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\rho^-K^+K^-$	4066	171	0	171	677153
76	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^-\bar{K}^0K^+\gamma^I$	177	170	0	170	677323
77	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\omega K^+K^-\gamma^I$	327	170	0	170	677493
78	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^+\rho^-\omega$	330	168	0	168	677661
79	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\rho^+\rho^-K^+K^-\gamma^I$	967	168	0	168	677829
80	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\omega K^+K^-$	1384	168	0	168	677997
81	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\rho^0\pi^+\pi^-\rho^-$	1671	168	0	168	678165
82	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\rho^-\gamma^I$	539	166	0	166	678331
83	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\rho^-K^+K^-\gamma^I$	168	165	0	165	678496
84	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\rho^0\pi^+\pi^-\pi^-\gamma^I$	1243	165	0	165	678661
85	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-\rho^+K^+K^-\gamma^I$	1408	165	0	165	678826
86	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^-\pi^-\rho^+\omega\gamma^I$	1690	165	0	165	678991
87	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\omega K^+K^-$	350	164	0	164	679155
88	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^-\pi^-\rho^+\omega$	458	164	0	164	679319
89	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\rho^-K^+K^-$	1507	164	0	164	679483
90	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\omega K^0K^-\gamma^I$	2209	164	0	164	679647
91	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^+K^0K^-$	3602	164	0	164	679811
92	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-\rho^+\omega$	3382	162	0	162	679973
93	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^+\rho^-$	6829	162	0	162	680135
94	$e^+e^- \rightarrow \pi^0\pi^0\pi^-\rho^+\omega K^+K^-$	90	160	0	160	680295
95	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\rho^+\gamma^I$	1213	160	0	160	680455
96	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-\omega K^+K^-\gamma^I$	1227	160	0	160	680615
97	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-\rho^+\gamma^I$	1401	160	0	160	680775
98	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\rho^0\pi^+\pi^+\pi^-\pi^-\omega$	1082	159	0	159	680934
99	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^+\pi^-\pi^-\omega$	2093	159	0	159	681093
100	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-\rho^+$	363	158	0	158	681251
rest	others (58454 in total)	—	—	—	326679	1007930

Table 22: Production branches of e^+ .

rowNo	production branch of e^+	iProdBrP	nCase	nCcCase	nAllCase	nCCase
1	$\pi^0 \rightarrow e^+e^-$	0	49533	49533	99066	99066
2	$\eta \rightarrow e^+e^-$	2	1763	1763	3526	102592
3	$K_L^0 \rightarrow e^+\bar{\nu}_e\pi^-$	4	0	1942	1942	104534
4	$K_L^0 \rightarrow e^+\nu_e\pi^-$	1	1894	0	1894	106428
5	$\pi^0 \rightarrow e^+e^+e^-e^-$	7	512	512	1024	107452
6	$\omega \rightarrow e^+e^-\pi^0$	5	378	378	756	108208
7	$\eta' \rightarrow e^+e^-\pi^+\pi^-$	3	156	156	312	108520
8	$\bar{\Sigma}^0 \rightarrow e^+e^-\bar{\Lambda}$	10	62	64	126	108646
9	$\Sigma^0 \rightarrow e^+e^-\Lambda$	11	64	62	126	108772
10	$\eta \rightarrow e^+e^-\pi^+\pi^-$	8	61	61	122	108894
11	$K_S^0 \rightarrow e^+\bar{\nu}_e\pi^-$	9	0	97	97	108991
12	$K_S^0 \rightarrow e^+\nu_e\pi^-$	13	87	0	87	109078
13	$\omega \rightarrow e^+e^-$	16	24	24	48	109126
14	$\bar{\Lambda} \rightarrow e^+\nu_e\bar{p}$	6	20	8	28	109154
15	$\rho^0 \rightarrow e^+e^-$	20	14	14	28	109182
16	$D^0 \rightarrow e^+\nu_eK^-$	15	8	17	25	109207
17	$K_S^0 \rightarrow e^+e^-\pi^+\pi^-$	18	11	11	22	109229
18	$D^+ \rightarrow e^+\nu_e\bar{K}^0$	19	7	8	15	109244
19	$D^0 \rightarrow e^+\nu_eK^{*-}$	17	4	6	10	109254
20	$\phi \rightarrow e^+e^-\eta$	12	5	5	10	109264
21	$\phi \rightarrow e^+e^-$	22	5	5	10	109274
22	$\bar{\Sigma}^+ \rightarrow e^+\nu_e\bar{n}$	23	6	4	10	109284
23	$D^+ \rightarrow e^+\nu_e\bar{K}^*$	24	7	2	9	109293
24	$\bar{\Xi}^0 \rightarrow e^+\nu_e\bar{\Sigma}^-$	29	3	0	3	109296
25	$D^+ \rightarrow e^+\nu_e\eta$	25	0	2	2	109298
26	$D^0 \rightarrow e^+\nu_e\pi^-$	26	1	1	2	109300
27	$\bar{\Sigma}^+ \rightarrow e^+\nu_e\bar{\Lambda}$	27	1	1	2	109302
28	$D_s^+ \rightarrow e^+\nu_e\eta$	21	1	1	2	109304
29	$\bar{\Xi}^+ \rightarrow e^+\nu_e\bar{\Lambda}$	32	1	1	2	109306
30	$\phi \rightarrow e^+e^-\pi^0$	34	1	1	2	109308
31	$K_L^0 \rightarrow e^+\nu_e\pi^0\pi^-$	30	1	0	1	109309
32	$D^+ \rightarrow e^+\nu_e\pi^0\bar{K}^0$	31	1	0	1	109310
33	$D^0 \rightarrow e^+\nu_e\rho^-$	28	0	1	1	109311

rowNo	production branch of e^+	iProdBrP	nCase	nCcCase	nAllCase	nCCase
34	$\tau^+ \rightarrow e^+ \nu_e \bar{\nu}_\tau$	33	0	1	1	109312
35	$D_s^+ \rightarrow e^+ \nu_e \eta'$	14	1	0	1	109313

Table 23: Mothers of D_s^+ .

rowNo	mother of D_s^+	PDGMoth	nCase	nCcCase	nAllCase	nCCase
1	e^+e^-	99999999	15	21	36	36
2	D_s^{*+}	433	17	11	28	64

Table 24: Mothers of D^{*+} .

rowNo	mother of D^{*+}	PDGMoth	nCase	nCcCase	nAllCase	nCCase
1	e^+e^-	99999999	79	83	162	162

Table 25: Mothers of D^{*0} .

rowNo	mother of D^{*0}	PDGMoth	nCase	nCcCase	nAllCase	nCCase
1	e^+e^-	99999999	90	84	174	174

Table 26: Mothers of D^0 .

rowNo	mother of D^0	PDGMoth	nCase	nCcCase	nAllCase	nCCase
1	e^+e^-	99999999	119	115	234	234
2	D^{*0}	423	90	84	174	408
3	D^{*+}	413	59	71	130	538

Table 27: Mothers of π^0 .

rowNo	mother of π^0	PDGMoth	nCase	nCcCase	nAllCase	nCCase
1	e^+e^-	99999999	339564	—	339564	339564
2	ρ^-	-213	126720	128232	254952	594516
3	ω	223	149792	—	149792	744308
4	η	221	85673	—	85673	829981
5	K_S^0	310	77044	—	77044	907025
6	K^{*-}	-323	23042	22596	45638	952663
7	K^*	313	11934	11321	23255	975918
8	η'	331	7014	—	7014	982932
9	K_L^0	130	6289	—	6289	989221
10	$\bar{\Lambda}$	-3122	2975	2896	5871	995092
11	Δ^+	2214	1706	1599	3305	998397
12	Σ^+	3222	1288	1340	2628	1001025
13	$\bar{\Delta}^0$	-2114	1280	1320	2600	1003625
14	Ξ^0	3322	711	770	1481	1005106
15	Σ^{*0}	3214	492	598	1090	1006196
16	ϕ	333	910	—	910	1007106
17	\bar{D}^0	-421	95	84	179	1007285
18	\bar{D}^{*0}	-423	54	62	116	1007401
19	Ξ^{*0}	3324	51	43	94	1007495
20	ρ^0	113	84	—	84	1007579
21	$\bar{\Xi}^{*+}$	-3314	40	36	76	1007655
22	$\bar{\Sigma}^{*-}$	-3224	43	33	76	1007731
23	D^-	-411	28	41	69	1007800
24	$\bar{\Sigma}^{*+}$	-3114	22	32	54	1007854
25	D^{*-}	-413	10	20	30	1007884
26	a_1^-	-20213	8	7	15	1007899
27	D_s^+	431	6	8	14	1007913
28	Ω^-	3334	1	3	4	1007917
29	$f_0(980)$	9010221	4	—	4	1007921
30	τ^-	15	1	1	2	1007923
31	D_s^{*+}	433	2	0	2	1007925
32	$f_0(600)$	9000221	2	—	2	1007927
33	$\bar{\Xi}_c^{*0}$	-4314	1	0	1	1007928

rowNo	mother of π^0	PDGMoth	nCase	nCcCase	nAllCase	nCCase
34	$\bar{\Lambda}_c^-$	-4122	1	0	1	1007929
35	$\bar{K}_1'^0$	-20313	1	0	1	1007930

Table 28: Mothers of e^+ .

rowNo	mother of e^+	PDGMoth	nCase	nCcCase	nAllCase	nCCase
1	π^0	111	50045	50045	100090	100090
2	K_L^0	130	1895	1942	3837	103927
3	η	221	1824	1824	3648	107575
4	ω	223	402	402	804	108379
5	η'	331	156	156	312	108691
6	K_S^0	310	98	108	206	108897
7	$\bar{\Sigma}^0$	-3212	62	64	126	109023
8	Σ^0	3212	64	62	126	109149
9	D^0	421	13	25	38	109187
10	$\bar{\Lambda}$	-3122	20	8	28	109215
11	ρ^0	113	14	14	28	109243
12	D^+	411	15	12	27	109270
13	ϕ	333	11	11	22	109292
14	$\bar{\Sigma}^+$	-3112	7	5	12	109304
15	D_s^+	431	2	1	3	109307
16	$\bar{\Xi}^0$	-3322	3	0	3	109310
17	$\bar{\Xi}^+$	-3312	1	1	2	109312
18	τ^+	-15	0	1	1	109313