

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.

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

rowNo	decay tree (decay initial-final states)	iDcyTr	iDcyIFSts	nEtr	nCcEtr	nAllEtr	nCEtr
1	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\rho^+K^+K^-, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-)$	1100	51	34	41	75	75
2	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\rho^-K^+K^-\gamma^I, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	1354	177	43	32	75	150
3	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^+K^+K^-, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-)$	1179	230	29	36	65	215
4	$e^+e^- \rightarrow \pi^0\pi^-\rho^+\omega K^+K^-\gamma^I, \rho^+ \rightarrow \pi^0\pi^+, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	49	47	33	27	60	275
5	$e^+e^- \rightarrow \pi^0\rho^0\pi^-\rho^+K^+K^-\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	299	177	26	27	53	328
6	$e^+e^- \rightarrow \rho^0\pi^+\pi^-\pi^-\rho^+K^+K^-, \rho^0 \rightarrow \pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	568	334	23	26	49	377
7	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-\rho^+\omega K^+K^-, \rho^+ \rightarrow \pi^0\pi^+, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^+K^-)$	1649	15	28	20	48	425
8	$e^+e^- \rightarrow \pi^+\pi^+\pi^-\rho^-\omega K^+K^-, \rho^- \rightarrow \pi^0\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	3313	14	23	25	48	473
9	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\rho^+\rho^-K^+K^-, \rho^+ \rightarrow \pi^0\pi^+, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	276	230	47	—	47	520
10	$e^+e^- \rightarrow \pi^+K^*K^-\gamma^I, K^* \rightarrow \pi^-K^+$ $(e^+e^- \dashrightarrow \pi^+\pi^-K^+K^-\gamma^I)$	1578	998	22	25	47	567
11	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\omega K^+K^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-)$	5363	51	47	—	47	614
12	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\rho^+K^*K^-, \rho^+ \rightarrow \pi^0\pi^+, K^* \rightarrow \pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-)$	1306	51	27	18	45	659
13	$e^+e^- \rightarrow \pi^0\pi^-\rho^+\omega K^+K^-, \rho^+ \rightarrow \pi^0\pi^+, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-)$	2759	230	21	24	45	704
14	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\rho^-\omega K^+K^-\gamma^I, \rho^- \rightarrow \pi^0\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	670	130	20	24	44	748
15	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^-K^+K^-\gamma^I, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	761	47	21	23	44	792
16	$e^+e^- \rightarrow \pi^+\pi^-\pi^-\rho^+K^+K^-\gamma^I, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	2243	580	22	22	44	836
17	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-\pi^-\rho^+K^+K^-, \rho^0 \rightarrow \pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	732	14	22	21	43	879

rowNo	decay tree (decay initial-final states)	iDcyTr	iDcyIFSts	nEtr	nCcEtr	nAllEtr	nCEtr
18	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\omega K^+K^-\gamma^I, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	2285	177	43	—	43	922
19	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-K^+K^-\gamma^I, \rho^0 \rightarrow \pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	3342	580	43	—	43	965
20	$e^+e^- \rightarrow \pi^+\pi^+\pi^-\rho^-K^+K^-, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	920	392	21	21	42	1007
21	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\rho^+K^0K^-, \rho^+ \rightarrow \pi^0\pi^+, K^0 \rightarrow K_L^0$ $(e^+e^- \dashrightarrow \pi^0\pi^0K_L^0\pi^+\pi^-\pi^-K^-)$	2320	666	20	22	42	1049
22	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-\omega K^+K^-, \rho^0 \rightarrow \pi^+\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	176	14	41	—	41	1090
23	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\rho^-K^+K^-, \rho^0 \rightarrow \pi^+\pi^-, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	3338	51	20	21	41	1131
24	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\omega K^+K^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	260	14	40	—	40	1171
25	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-\rho^-K^+K^-\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	3472	44	20	20	40	1211
26	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\rho^+\omega K^0K^-, \rho^+ \rightarrow \pi^0\pi^+, \omega \rightarrow \pi^0\pi^+\pi^-, K^0 \rightarrow K_L^0$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0K_L^0\pi^+\pi^+\pi^-\pi^-K^-)$	2605	85	23	16	39	1250
27	$e^+e^- \rightarrow \pi^0\pi^+\rho^-K^+K^-\gamma^I, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-K^+K^-\gamma^I)$	4122	913	29	10	39	1289
28	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^-K^+K^-\gamma^I, \rho^0 \rightarrow \pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	215	177	37	—	37	1326
29	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\rho^+\rho^-K^+K^-\gamma^I, \rho^+ \rightarrow \pi^0\pi^+, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	269	47	37	—	37	1363
30	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-K^+K^-, \rho^0 \rightarrow \pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	5094	392	37	—	37	1400
31	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-\omega \bar{K}^*K^+, \omega \rightarrow \pi^0\pi^+\pi^-, \bar{K}^* \rightarrow \pi^+K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	9454	14	18	19	37	1437
32	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\rho^-K^+K^-, \rho^0 \rightarrow \pi^+\pi^-, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	657	230	24	12	36	1473
33	$e^+e^- \rightarrow \rho^0\pi^+\pi^-\omega K^+K^-\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I)$	1135	119	36	—	36	1509
34	$e^+e^- \rightarrow \pi^0\pi^0\pi^-\rho^+K^+K^-\gamma^I, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	348	286	18	17	35	1544
35	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\rho^-\omega K^+K^-\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \rho^- \rightarrow \pi^0\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	818	130	19	16	35	1579

rowNo	decay tree (decay initial-final states)	iDcyTr	iDcyIFSts	nEtr	nCcEtr	nAllEtr	nCEtr
36	$e^+e^- \rightarrow \pi^0\pi^0\pi^-\rho^+\omega K^+K^-$, $\rho^+ \rightarrow \pi^0\pi^+$, $\omega \rightarrow \pi^0\pi^+\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-$)	3499	118	16	19	35	1614
37	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-\omega K^+K^-\gamma^I$, $\rho^0 \rightarrow \pi^+\pi^-$, $\omega \rightarrow \pi^0\pi^+\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I$)	5274	44	35	—	35	1649
38	$e^+e^- \rightarrow \pi^+\pi^-\omega K^+K^-\gamma^I$, $\omega \rightarrow \pi^0\pi^+\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I$)	3503	580	34	—	34	1683
39	$e^+e^- \rightarrow \pi^+\pi^-\rho^-\bar{K}^0K^+\gamma^I$, $\rho^- \rightarrow \pi^0\pi^+$, $\rho^- \rightarrow \pi^0\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I$)	1861	177	33	—	33	1716
40	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\rho^-\bar{K}^0K^+\gamma^I$, $\rho^- \rightarrow \pi^0\pi^-$, $\bar{K}^0 \rightarrow K_L^0$ ($e^+e^- \dashrightarrow \pi^0\pi^0K_L^0\pi^+\pi^-\pi^-K^+\gamma^I$)	6572	439	15	18	33	1749
41	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\omega K^*K^-\gamma^I$, $\omega \rightarrow \pi^0\pi^+\pi^-$, $K^* \rightarrow \pi^-K^+$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I$)	304	44	18	14	32	1781
42	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\omega\omega K^+K^-$, $\omega \rightarrow \pi^0\pi^+\pi^-$, $\omega \rightarrow \pi^0\pi^+\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$)	3278	15	32	—	32	1813
43	$e^+e^- \rightarrow \pi^0\pi^+\pi^-K^+K^-\gamma^I$ ($e^+e^- \dashrightarrow \pi^0\pi^+\pi^-K^+K^-\gamma^I$)	3741	132	32	—	32	1845
44	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^+\pi^-\pi^-K^+K^-$, $\rho^0 \rightarrow \pi^+\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$)	4571	334	32	—	32	1877
45	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-\bar{K}^*K^+$, $\rho^0 \rightarrow \pi^+\pi^-$, $\bar{K}^* \rightarrow \pi^+K^-$ ($e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$)	8735	334	20	12	32	1909
46	$e^+e^- \rightarrow \pi^+\pi^-\rho^-\omega K^+K^-\gamma^I$, $\rho^- \rightarrow \pi^0\pi^-$, $\omega \rightarrow \pi^0\pi^+\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I$)	239	44	15	16	31	1940
47	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\rho^+K^*K^-\gamma^I$, $\rho^+ \rightarrow \pi^0\pi^+$, $K^* \rightarrow \pi^-K^+$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I$)	558	177	8	23	31	1971
48	$e^+e^- \rightarrow \pi^+K^*K^-\gamma^I\gamma^I$, $K^* \rightarrow \pi^-K^+$ ($e^+e^- \dashrightarrow \pi^+\pi^-K^+K^-\gamma^I\gamma^I$)	1000	708	17	14	31	2002
49	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^-K^+K^-$, $\rho^0 \rightarrow \pi^+\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-$)	2108	51	31	—	31	2033
50	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-\omega\bar{K}^0K^+$, $\omega \rightarrow \pi^0\pi^+\pi^-$, $\bar{K}^0 \rightarrow K_L^0$ ($e^+e^- \dashrightarrow \pi^0\pi^0K_L^0\pi^+\pi^-\pi^-\pi^-K^+$)	3677	21	14	17	31	2064
51	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I$, $\omega \rightarrow \pi^0\pi^+\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I$)	322	44	30	—	30	2094
52	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\bar{K}^*K^+$, $\bar{K}^* \rightarrow \pi^+K^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-$)	717	51	20	10	30	2124
53	$e^+e^- \rightarrow \pi^0\pi^0\rho^-\omega K^+K^-\gamma^I$, $\rho^- \rightarrow \pi^0\pi^-$, $\omega \rightarrow \pi^0\pi^+\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I$)	192	166	13	16	29	2153

rowNo	decay tree (decay initial-final states)	iDcyTr	iDcyIFSts	nEtr	nCcEtr	nAllEtr	nCEtr
54	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	1436	392	29	—	29	2182
55	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\rho^-\omega\bar{K}^*K^+, \rho^- \rightarrow \pi^0\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-, \bar{K}^* \rightarrow \pi^+K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-)$	1556	15	17	12	29	2211
56	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-\bar{K}^*K^+\gamma^I, \bar{K}^* \rightarrow \pi^+K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	2296	580	16	13	29	2240
57	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^+K^*K^-\gamma^I, \rho^+ \rightarrow \pi^0\pi^+, K^* \rightarrow \pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	5973	47	10	19	29	2269
58	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\omega K^0K^-\gamma^I, \omega \rightarrow \pi^0\pi^+\pi^-, K^0 \rightarrow K_L^0$ $(e^+e^- \dashrightarrow \pi^0\pi^0K_L^0\pi^+\pi^+\pi^-\pi^-K^-\gamma^I)$	407	268	12	16	28	2297
59	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\omega K^+K^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	468	230	28	—	28	2325
60	$e^+e^- \rightarrow \pi^+\pi^+\pi^-\omega K^*K^-, \omega \rightarrow \pi^0\pi^+\pi^-, K^* \rightarrow \pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	573	334	15	13	28	2353
61	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\omega K^*K^-, \rho^0 \rightarrow \pi^+\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-, K^* \rightarrow \pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	1447	14	11	17	28	2381
62	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-\bar{K}^*K^+, \rho^0 \rightarrow \pi^+\pi^-, \rho^- \rightarrow \pi^0\pi^-, \bar{K}^* \rightarrow \pi^+K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	1779	14	11	17	28	2409
63	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\omega K^+K^-\gamma^I, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	1951	47	28	—	28	2437
64	$e^+e^- \rightarrow \pi^0\pi^+\rho^-K^+K^-\gamma^I\gamma^I, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^-\pi^-K^+K^-\gamma^I\gamma^I)$	2304	117	15	13	28	2465
65	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\bar{K}^*K^+, \bar{K}^* \rightarrow \pi^+K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^-\pi^-K^+K^-)$	4981	392	15	13	28	2493
66	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\rho^-K^+K^-\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	774	47	15	12	27	2520
67	$e^+e^- \rightarrow \rho^0\pi^+\rho^-\omega K^+K^-\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \rho^- \rightarrow \pi^0\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	1079	44	14	13	27	2547
68	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\bar{K}^+K^-\gamma^I\gamma^I$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^-\bar{K}^+K^-\gamma^I\gamma^I)$	1610	40	27	—	27	2574
69	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^+\pi^-K^*K^-\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, K^* \rightarrow \pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	1781	119	20	7	27	2601
70	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-K^+K^-\gamma^I$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-K^+K^-\gamma^I)$	2433	913	27	—	27	2628
71	$e^+e^- \rightarrow \rho^0\pi^+\pi^-\omega K^+K^-, \rho^0 \rightarrow \pi^+\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	3115	334	27	—	27	2655

rowNo	decay tree (decay initial-final states)	iDcyTr	iDcyIFSts	nEtr	nCcEtr	nAllEtr	nCEtr
72	$e^+e^- \rightarrow \pi^-\rho^+\omega K^+K^-, \rho^+ \rightarrow \pi^0\pi^+, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	4084	51	9	18	27	2682
73	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-\rho^-\bar{K}^*K^+\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \rho^- \rightarrow \pi^0\pi^-, \bar{K}^* \rightarrow \pi^+K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I)$	45	44	14	12	26	2708
74	$e^+e^- \rightarrow \pi^0\pi^+K^*K^-\gamma^I, K^* \rightarrow \pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^-K^+K^-\gamma^I)$	149	132	13	13	26	2734
75	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\rho^-K^+K^-, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-K^+K^-)$	1060	335	13	13	26	2760
76	$e^+e^- \rightarrow \rho^0\pi^+\pi^-\rho^-\bar{K}^*K^+, \rho^0 \rightarrow \pi^+\pi^-, \rho^- \rightarrow \pi^0\pi^-, \bar{K}^* \rightarrow \pi^+K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-)$	2599	334	9	17	26	2786
77	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-\rho^+K^+K^-\gamma^I\gamma^I, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma^I)$	3029	274	10	16	26	2812
78	$e^+e^- \rightarrow \pi^0\pi^-\rho^+\omega K^+K^-\gamma^I\gamma^I, \rho^+ \rightarrow \pi^0\pi^+, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma^I)$	3039	195	19	7	26	2838
79	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\rho^-\omega\bar{K}^0K^+\gamma^I, \rho^- \rightarrow \pi^0\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-, \bar{K}^0 \rightarrow K_L^0$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0K_L^0\pi^+\pi^-\pi^-\pi^-K^+\gamma^I)$	3588	4	11	15	26	2864
80	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^-\omega K^+K^-, \rho^- \rightarrow \pi^0\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	3819	38	13	13	26	2890
81	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-)$	5451	51	26	—	26	2916
82	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^+\rho^-\bar{K}^+K^-, \rho^+ \rightarrow \pi^0\pi^+, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-)$	5627	118	26	—	26	2942
83	$e^+e^- \rightarrow \rho^0\pi^+\pi^-\omega K^+K^-\gamma^I\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I\gamma^I)$	36	36	25	—	25	2967
84	$e^+e^- \rightarrow \rho^0\pi^+\pi^-\rho^+K^*K^-\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+, K^* \rightarrow \pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I)$	572	119	12	13	25	2992
85	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-\pi^-K^0K^-, \rho^0 \rightarrow \pi^+\pi^-, K^0 \rightarrow K_L^0$ $(e^+e^- \dashrightarrow \pi^0K_L^0\pi^+\pi^+\pi^-\pi^-K^-)$	742	96	13	12	25	3017
86	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-\pi^-K^+K^-\gamma^I, \rho^0 \rightarrow \pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I)$	906	119	25	—	25	3042
87	$e^+e^- \rightarrow \pi^0\pi^+\omega K^*K^-, \omega \rightarrow \pi^0\pi^+\pi^-, K^* \rightarrow \pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-)$	1835	51	11	14	25	3067
88	$e^+e^- \rightarrow \rho^0\pi^+\pi^+\pi^-\rho^-K^+K^-\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I)$	2126	119	9	16	25	3092
89	$e^+e^- \rightarrow \pi^-\rho^+\omega K^+K^-\gamma^I, \rho^+ \rightarrow \pi^0\pi^+, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	2145	177	19	6	25	3117

rowNo	decay tree (decay initial-final states)	iDcyTr	iDcyIFsts	nEtr	nCcEtr	nAllEtr	nCEtr
90	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\rho^+K^0K^-\gamma^I, \rho^+ \rightarrow \pi^0\pi^+, K^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^-\gamma^I)$	2473	628	12	13	25	3142
91	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-\rho^+K^+K^-, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	2531	14	10	15	25	3167
92	$e^+e^- \rightarrow \pi^+\pi^-\rho^+\omega K^*K^-, \rho^+ \rightarrow \pi^0\pi^+, \omega \rightarrow \pi^0\pi^+\pi^-, K^* \rightarrow \pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	2739	14	11	14	25	3192
93	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^+\pi^-\pi^-K^+K^-, \rho^0 \rightarrow \pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	2820	14	25	—	25	3217
94	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	4119	580	25	—	25	3242
95	$e^+e^- \rightarrow \pi^+\pi^-\omega\omega K^+K^-, \omega \rightarrow \pi^0\pi^+\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	6117	14	25	—	25	3267
96	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-K^+K^-\gamma^I\gamma^I, \rho^0 \rightarrow \pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma^I)$	6199	65	25	—	25	3292
97	$e^+e^- \rightarrow \pi^+\pi^-\rho^-K^+K^-\gamma^I\gamma^I, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma^I)$	7453	65	12	13	25	3317
98	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^-\bar{K}^*K^+, \rho^- \rightarrow \pi^0\pi^-, \bar{K}^* \rightarrow \pi^+K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	10964	230	13	12	25	3342
99	$e^+e^- \rightarrow \pi^+\pi^-\rho^+\omega K^*K^-\gamma^I, \rho^+ \rightarrow \pi^0\pi^+, \omega \rightarrow \pi^0\pi^+\pi^-, K^* \rightarrow \pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	302	44	12	12	24	3366
100	$e^+e^- \rightarrow \pi^0\pi^-\rho^+K^+K^-, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-K^+K^-)$	481	75	12	12	24	3390
rest	$e^+e^- \rightarrow \text{others (63354 in total)}$ $(e^+e^- \dashrightarrow \text{corresponding to others})$	—	—	—	—	89564	92954

Table 2: Decay initial-final states.

rowNo	decay initial-final states	iDcyIFsts	nEtr	nCcEtr	nAllEtr	nCEtr
1	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	15	812	—	812	812
2	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	14	803	—	803	1615
3	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I$	130	708	—	708	2323
4	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I$	44	706	—	706	3029
5	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-$	230	621	—	621	3650
6	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-$	51	593	—	593	4243
7	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I$	177	590	—	590	4833
8	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I$	47	564	—	564	5397
9	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	38	505	—	505	5902
10	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I$	261	456	—	456	6358
11	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-$	334	421	—	421	6779
12	$e^+e^- \rightarrow \pi^0\pi^0K_L^0\pi^+\pi^-\pi^-K^+$	85	178	234	412	7191
13	$e^+e^- \rightarrow \pi^0\pi^0K_L^0\pi^+\pi^+\pi^-\pi^-K^-\gamma^I$	268	202	210	412	7603
14	$e^+e^- \rightarrow \pi^0\pi^0K_L^0\pi^+\pi^+\pi^-\pi^-K^-$	21	215	188	403	8006
15	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-$	118	398	—	398	8404
16	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^-$	28	206	180	386	8790
17	$e^+e^- \rightarrow \pi^0\pi^0\pi^0K_L^0\pi^+\pi^+\pi^-\pi^-K^-\gamma^I$	4	214	171	385	9175
18	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-$	210	381	—	381	9556
19	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I$	119	380	—	380	9936
20	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^-K^+$	194	376	—	376	10312
21	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I$	166	356	—	356	10668
22	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-\pi^-K^+\gamma^I$	95	166	188	354	11022
23	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^-$	235	163	184	347	11369
24	$e^+e^- \rightarrow \pi^0\pi^0K_L^0\pi^+\pi^+\pi^+\pi^-\pi^-K^-$	186	195	147	342	11711
25	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^-K^-\gamma^I\gamma^I$	445	338	—	338	12049
26	$e^+e^- \rightarrow \pi^0\pi^0\pi^0K_L^0\pi^+\pi^+\pi^-\pi^-K^-$	189	156	176	332	12381
27	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^-K^-\gamma^I$	330	328	—	328	12709
28	$e^+e^- \rightarrow \pi^0\pi^0K_L^0\pi^+\pi^+\pi^-\pi^-K^-\gamma^I$	255	173	151	324	13033
29	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^-K^-\gamma^I\gamma^I$	125	314	—	314	13347
30	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^-\gamma^I$	156	140	171	311	13658
31	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^-$	389	134	177	311	13969
32	$e^+e^- \rightarrow \pi^0\pi^0\pi^0K_L^0\pi^+\pi^+\pi^-\pi^-K^-\gamma^I$	279	165	136	301	14270

rowNo	decay initial-final states	iDcyIFSts	nEtr	nCcEtr	nAllEtr	nCEtr
33	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I$	580	296	—	296	14566
34	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+\gamma^I$	87	138	154	292	14858
35	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+\gamma^I$	136	286	—	286	15144
36	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma^I$	274	279	—	279	15423
37	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma^I$	195	254	—	254	15677
38	$e^+e^- \rightarrow \pi^0\pi^0\pi^0K_L^0\pi^+\pi^+\pi^-\pi^-K^+$	320	112	139	251	15928
39	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+$	349	102	148	250	16178
40	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^-$	821	130	118	248	16426
41	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-$	392	247	—	247	16673
42	$e^+e^- \rightarrow \pi^0K_L^0\pi^+\pi^+\pi^-\pi^-K^-\gamma^I$	59	119	124	243	16916
43	$e^+e^- \rightarrow \pi^0\pi^0\pi^0K_L^0\pi^+\pi^+\pi^-\pi^-K^+\gamma^I$	196	119	122	241	17157
44	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+\gamma^I$	70	98	138	236	17393
45	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	260	225	—	225	17618
46	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^-\gamma^I$	468	125	93	218	17836
47	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^+K^-$	211	212	—	212	18048
48	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	80	211	—	211	18259
49	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^-$	756	118	93	211	18470
50	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-\pi^-K^+\gamma^I$	5	95	115	210	18680
51	$e^+e^- \rightarrow \pi^0K_L^0\pi^+\pi^+\pi^-\pi^-K^-$	96	102	107	209	18889
52	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-\pi^-K^+$	495	108	96	204	19093
53	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma^I$	36	203	—	203	19296
54	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+$	625	101	100	201	19497
55	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^-\gamma^I$	46	112	88	200	19697
56	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^-$	162	107	93	200	19897
57	$e^+e^- \rightarrow \pi^0\pi^0K_L^0\pi^+\pi^-\pi^-K^+K^+K^-$	82	102	95	197	20094
58	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I$	154	196	—	196	20290
59	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma^I$	65	194	—	194	20484
60	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^-\pi^-\pi^-K^+\gamma^I$	305	86	108	194	20678
61	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+\gamma^I$	348	90	104	194	20872
62	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-K^-$	258	108	85	193	21065
63	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I\gamma^I$	102	192	—	192	21257
64	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^+K^-K^-$	451	191	—	191	21448
65	$e^+e^- \rightarrow \pi^0\pi^0\pi^0K_L^0\pi^+\pi^+\pi^-\pi^-K^-$	519	96	95	191	21639
66	$e^+e^- \rightarrow \pi^0K_L^0\pi^+\pi^+\pi^-\pi^-K^-$	236	104	85	189	21828

rowNo	decay initial-final states	iDcyIFSts	nEtr	nCcEtr	nAllEtr	nCEtr
67	$e^+e^- \rightarrow \pi^0\pi^0\pi^0K_L^0\pi^+\pi^+\pi^-K^-$	774	111	78	189	22017
68	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I$	315	188	—	188	22205
69	$e^+e^- \rightarrow \pi^0\pi^0K_L^0\pi^+\pi^+\pi^-\pi^-K^+\gamma^I\gamma^I$	7	90	97	187	22392
70	$e^+e^- \rightarrow \pi^0\pi^0K_L^0\pi^+\pi^-\pi^-K^-\gamma^I$	439	97	89	186	22578
71	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+$	157	93	92	185	22763
72	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^+K^-$	310	94	89	183	22946
73	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I$	139	182	—	182	23128
74	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^-\gamma^I$	363	101	80	181	23309
75	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^-\gamma^I\gamma^I$	66	109	71	180	23489
76	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-K^+K^-$	212	179	—	179	23668
77	$e^+e^- \rightarrow \pi^0\pi^0K_L^0\pi^+\pi^-\pi^-K^-\gamma^I$	529	91	86	177	23845
78	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^+K^-K^-\gamma^I$	217	174	—	174	24019
79	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma^I$	661	174	—	174	24193
80	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-K^-$	698	88	86	174	24367
81	$e^+e^- \rightarrow \pi^0\pi^0\pi^0K_L^0\pi^+\pi^+\pi^+\pi^-\pi^-K^-\gamma^I$	71	100	73	173	24540
82	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^-K^+\gamma^I\gamma^I$	356	77	95	172	24712
83	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-K^+K^+K^-$	160	171	—	171	24883
84	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-K^-\gamma^I$	474	170	—	170	25053
85	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^+K^-$	11	82	87	169	25222
86	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^+K^-\gamma^I$	67	86	83	169	25391
87	$e^+e^- \rightarrow \pi^0K_L^0\pi^+\pi^+\pi^+\pi^-\pi^-K^-\gamma^I$	147	103	64	167	25558
88	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-K^-$	220	97	70	167	25725
89	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+\gamma^I$	628	72	93	165	25890
90	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^+K^-K^-\gamma^I$	1451	165	—	165	26055
91	$e^+e^- \rightarrow \pi^0\pi^0K_L^0\pi^+\pi^+\pi^-\pi^-K^+K^-K^-$	337	84	79	163	26218
92	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^+K^-\gamma^I$	383	67	96	163	26381
93	$e^+e^- \rightarrow \pi^0K_L^0\pi^+\pi^-\pi^-K^+K^+K^-\gamma^I$	283	79	81	160	26541
94	$e^+e^- \rightarrow e^+e^-\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-$	78	158	—	158	26699
95	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^+K^-K^-\gamma^I$	576	76	82	158	26857
96	$e^+e^- \rightarrow \pi^0\pi^0K_L^0\pi^+\pi^-\pi^-K^+$	666	76	82	158	27015
97	$e^+e^- \rightarrow \pi^0\pi^0K_L^0\pi^+\pi^+\pi^-K^+K^-K^-\gamma^I$	1124	84	74	158	27173
98	$e^+e^- \rightarrow \pi^0\pi^0\pi^0K_L^0\pi^+\pi^+\pi^+\pi^-\pi^-K^-\gamma^I\gamma^I$	514	83	73	156	27329
99	$e^+e^- \rightarrow \pi^0K_L^0\pi^+\pi^-\pi^-\pi^-K^+K^+K^-$	120	76	79	155	27484
100	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^-\pi^-K^+\gamma^I$	107	66	87	153	27637

rowNo	decay initial-final states		iDcyIFSts	nEtr	nCcEtr	nAllEtr	nCEtr
rest	$e^+e^- \rightarrow$	others (12267 in total)	—	—	—	65317	92954

Table 3: Decay branches of D_s^+ .

rowNo	decay branch of D_s^+	iDcyBrP	nCase	nCcCase	nAllCase	nCCase
1	$D_s^+ \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \eta$	0	2	0	2	2
2	$D_s^+ \rightarrow \pi^+ \eta \omega$	4	2	0	2	4
3	$D_s^+ \rightarrow \pi^0 \pi^+ K_S^0$	2	0	1	1	5
4	$D_s^+ \rightarrow \mu^+ \nu_\mu \eta$	3	1	0	1	6
5	$D_s^+ \rightarrow K_L^0 \pi^+ \pi^- K^+$	1	1	0	1	7
6	$D_s^+ \rightarrow \tau^+ \nu_\tau$	5	0	1	1	8
7	$D_s^+ \rightarrow \pi^+ \pi^+ \pi^- \omega$	6	1	0	1	9

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

rowNo	decay branch of D^{*+}	iDcyBrP	nCase	nCcCase	nAllCase	nCCase
1	$D^{*+} \rightarrow \pi^+ D^0$	0	6	12	18	18
2	$D^{*+} \rightarrow \pi^0 D^+$	1	5	2	7	25
3	$D^{*+} \rightarrow D^+ \gamma$	2	0	1	1	26

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

rowNo	decay branch of D^{*0}	iDcyBrP	nCase	nCcCase	nAllCase	nCCase
1	$D^{*0} \rightarrow \pi^0 D^0$	1	11	4	15	15
2	$D^{*0} \rightarrow D^0 \gamma$	0	3	8	11	26

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	17	14	31	31
2	$D^0 \rightarrow \pi^0 \pi^+ K^-$	4	2	4	6	37
3	$D^0 \rightarrow \rho^+ K^{*-}$	2	3	1	4	41
4	$D^0 \rightarrow K^- a_1^+$	1	2	2	4	45
5	$D^0 \rightarrow \mu^+ \nu_\mu K^{*-}$	9	2	1	3	48
6	$D^0 \rightarrow \pi^+ \pi^- \bar{K}^*$	6	2	0	2	50
7	$D^0 \rightarrow K_L^0 \pi^+ \pi^-$	8	1	1	2	52
8	$D^0 \rightarrow e^+ \nu_e K^-$	3	1	1	2	54
9	$D^0 \rightarrow \omega K_S^0$	11	2	0	2	56
10	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ K^-$	13	0	2	2	58
11	$D^0 \rightarrow \mu^+ \nu_\mu K^-$	22	1	1	2	60
12	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 K_S^0$	5	0	1	1	61
13	$D^0 \rightarrow \pi^0 \pi^0 K_L^0$	12	0	1	1	62
14	$D^0 \rightarrow \pi^0 \pi^0$	7	1	0	1	63
15	$D^0 \rightarrow \eta \eta'$	14	0	1	1	64
16	$D^0 \rightarrow K_L^0 K_L^0 \pi^+ K^-$	15	0	1	1	65
17	$D^0 \rightarrow \pi^+ \pi^- K_S^0$	16	0	1	1	66
18	$D^0 \rightarrow e^+ \nu_e \pi^-$	17	1	0	1	67
19	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^-$	18	1	0	1	68
20	$D^0 \rightarrow \pi^+ \pi^+ \pi^- \pi^-$	19	0	1	1	69
21	$D^0 \rightarrow K_L^0 \omega$	20	1	0	1	70
22	$D^0 \rightarrow \pi^0 \rho^+ K^-$	21	0	1	1	71
23	$D^0 \rightarrow \pi^+ \eta K^-$	10	0	1	1	72
24	$D^0 \rightarrow K_S^0 \eta'$	23	0	1	1	73
25	$D^0 \rightarrow K_L^0 \pi^+ K^-$	24	0	1	1	74
26	$D^0 \rightarrow K^- K^{*+}$	25	0	1	1	75
27	$D^0 \rightarrow \pi^- K^+$	26	1	0	1	76
28	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	27	0	1	1	77
29	$D^0 \rightarrow \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	28	0	1	1	78
30	$D^0 \rightarrow \pi^0 K_S^0$	29	1	0	1	79
31	$D^0 \rightarrow \pi^+ \omega K^-$	30	1	0	1	80

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	12907	—	12907	12907
2	$\pi^0 \rightarrow e^+ e^+ e^- e^-$	1	61	—	61	12968

Table 8: Cascade decay branches of D_s^+ .

rowNo	cascade decay branch of D_s^+	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
1	$D_s^+ \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \eta, \eta \rightarrow \pi^0 \pi^0 \pi^0$	0	2	0	2	2
2	$D_s^+ \rightarrow K_L^0 \pi^+ \pi^- K^+$	1	1	0	1	3
3	$D_s^+ \rightarrow \pi^0 \pi^+ K_S^0, \pi^0 \rightarrow e^+ e^-, K_S^0 \rightarrow \pi^+ \pi^-$	2	0	1	1	4
4	$D_s^+ \rightarrow \mu^+ \nu_\mu \eta, \eta \rightarrow \gamma \gamma$	3	1	0	1	5
5	$D_s^+ \rightarrow \pi^+ \eta \omega, \eta \rightarrow e^+ e^-, \omega \rightarrow \pi^0 \pi^+ \pi^-$	4	1	0	1	6
6	$D_s^+ \rightarrow \pi^+ \eta \omega, \eta \rightarrow \pi^0 \pi^0 \pi^0, \omega \rightarrow \pi^0 \pi^+ \pi^-$	5	1	0	1	7
7	$D_s^+ \rightarrow \tau^+ \nu_\tau, \tau^+ \rightarrow e^+ \nu_e \bar{\nu}_\tau$	6	0	1	1	8
8	$D_s^+ \rightarrow \pi^+ \pi^+ \pi^- \omega, \omega \rightarrow \pi^0 \pi^+ \pi^-$	7	1	0	1	9

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	2	8	10	10
2	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow e^+ \nu_e \bar{K}^*, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	1	1	0	1	11
3	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^+ K^-$	2	0	1	1	12
4	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^0 K^-$	3	1	0	1	13
5	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \mu^+ \nu_\mu K^{*-}, K^{*-} \rightarrow \pi^0 K^-$	4	1	0	1	14
6	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow \pi^0 \pi^+ K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	5	0	1	1	15
7	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^0 \pi^+ K^-$	6	0	1	1	16
8	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow e^+ \nu_e \bar{K}^*, \bar{K}^* \rightarrow \pi^+ K^-$	7	1	0	1	17
9	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow \mu^+ \nu_\mu \bar{K}^*, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	8	1	0	1	18
10	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow e^+ \nu_e \eta, \eta \rightarrow \pi^0 \pi^+ \pi^-$	9	0	1	1	19
11	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow \pi^+ \omega \bar{K}^*, \omega \rightarrow \pi^0 \pi^+ \pi^-, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	10	1	0	1	20
12	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \mu^+ \nu_\mu K^-$	11	1	0	1	21
13	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow K_S^0 K^{*+}, K_S^0 \rightarrow \pi^0 \pi^0, K^{*+} \rightarrow \pi^+ K^0, K^0 \rightarrow K_L^0, K_L^0 \rightarrow e^- \nu_e \pi^+$	12	1	0	1	22
14	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow K_L^0 \pi^+ K^-$	13	0	1	1	23
15	$D^{*+} \rightarrow D^+ \gamma, D^+ \rightarrow \pi^0 \pi^+ \bar{K}^*, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, \bar{K}^0 \rightarrow K_L^0$	14	0	1	1	24
16	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	15	0	1	1	25
17	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^+ \omega K^-, \omega \rightarrow \pi^0 \pi^+ \pi^-$	16	1	0	1	26

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

rowNo	cascade decay branch of D^{*0}	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
1	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^+ K^-$	3	6	1	7	7
2	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \pi^+ K^-$	0	1	1	2	9
3	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^+ \pi^- \bar{K}^*, \bar{K}^* \rightarrow \pi^+ K^-$	2	1	0	1	10
4	$D^{*0} \rightarrow \pi^0 D^0, \pi^0 \rightarrow e^+ e^-, D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	1	0	1	1	11
5	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \pi^+ f_0(600), f_0(600) \rightarrow \pi^+ \pi^-$	4	0	1	1	12
6	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \omega K_S^0, \omega \rightarrow \pi^0 \pi^+ \pi^-, K_S^0 \rightarrow \pi^+ \pi^-$	5	1	0	1	13
7	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \pi^0 \pi^0 K_L^0$	6	0	1	1	14
8	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \mu^+ \nu_\mu K^{*-}, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	7	0	1	1	15
9	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \omega K_S^0, \omega \rightarrow \pi^0 \gamma, K_S^0 \rightarrow \pi^0 \pi^0$	8	1	0	1	16
10	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow K_L^0 K_L^0 \pi^+ K^-$	9	0	1	1	17
11	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \pi^+ \pi^- K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	10	0	1	1	18
12	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow e^+ \nu_e \pi^-$	11	1	0	1	19
13	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow K_L^0 \omega, \omega \rightarrow \pi^0 \pi^+ \pi^-$	12	1	0	1	20
14	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^0 \rho^+ K^-, \rho^+ \rightarrow \pi^0 \pi^+$	13	0	1	1	21
15	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \pi^0 \pi^+ K^-$	14	0	1	1	22
16	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow K_S^0 \eta', K_S^0 \rightarrow \pi^+ \pi^-, \eta' \rightarrow \rho^0 \gamma, \rho^0 \rightarrow \pi^+ \pi^-$	15	0	1	1	23
17	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \pi^0 \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	16	0	1	1	24
18	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^0 K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	17	1	0	1	25
19	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^0 K^-$	18	1	0	1	26

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	17	14	31	31
2	$D^0 \rightarrow \pi^0 \pi^+ K^-$	4	2	4	6	37
3	$D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^0 K^-$	8	3	0	3	40
4	$D^0 \rightarrow \pi^+ \pi^- \bar{K}^*, \bar{K}^* \rightarrow \pi^+ K^-$	6	2	0	2	42
5	$D^0 \rightarrow e^+ \nu_e K^-$	3	1	1	2	44
6	$D^0 \rightarrow K_L^0 \pi^+ \pi^-$	10	1	1	2	46
7	$D^0 \rightarrow \mu^+ \nu_\mu K^-$	28	1	1	2	48
8	$D^0 \rightarrow \pi^0 \pi^0$	7	1	0	1	49
9	$D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	2	0	1	1	50
10	$D^0 \rightarrow \mu^+ \nu_\mu K^{*-}, K^{*-} \rightarrow \pi^0 K^-$	9	1	0	1	51
11	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	5	0	1	1	52
12	$D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \pi^+ f_0(600), f_0(600) \rightarrow \pi^+ \pi^-$	11	0	1	1	53
13	$D^0 \rightarrow \pi^+ \eta K^-, \eta \rightarrow \pi^0 \pi^0 \pi^0$	12	0	1	1	54
14	$D^0 \rightarrow \omega K_S^0, \omega \rightarrow \pi^0 \pi^+ \pi^-, K_S^0 \rightarrow \pi^+ \pi^-$	13	1	0	1	55
15	$D^0 \rightarrow \pi^0 \pi^0 K_L^0$	14	0	1	1	56
16	$D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \pi^+ \rho^0(1450), \rho^0(1450) \rightarrow \pi^+ \pi^+ \pi^- \pi^-$	15	1	0	1	57
17	$D^0 \rightarrow \mu^+ \nu_\mu K^{*-}, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	16	0	1	1	58
18	$D^0 \rightarrow \omega K_S^0, \omega \rightarrow \pi^0 \gamma, K_S^0 \rightarrow \pi^0 \pi^0$	17	1	0	1	59
19	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ K^-$	18	0	1	1	60
20	$D^0 \rightarrow \eta \eta', \eta \rightarrow \pi^0 \pi^0 \pi^0, \eta' \rightarrow \rho^0 \gamma, \rho^0 \rightarrow \pi^+ \pi^-$	19	0	1	1	61
21	$D^0 \rightarrow K_L^0 K_L^0 \pi^+ K^-$	20	0	1	1	62
22	$D^0 \rightarrow \pi^+ \pi^- K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	21	0	1	1	63
23	$D^0 \rightarrow e^+ \nu_e \pi^-$	22	1	0	1	64
24	$D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \pi^0 \rho^+, \rho^+ \rightarrow \pi^0 \pi^+$	23	0	1	1	65
25	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^+$	24	1	0	1	66
26	$D^0 \rightarrow \pi^+ \pi^+ \pi^- \pi^-$	25	0	1	1	67
27	$D^0 \rightarrow K_L^0 \omega, \omega \rightarrow \pi^0 \pi^+ \pi^-$	26	1	0	1	68
28	$D^0 \rightarrow \pi^0 \rho^+ K^-, \rho^+ \rightarrow \pi^0 \pi^+$	27	0	1	1	69
29	$D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \rho^0 \pi^+, \rho^0 \rightarrow \pi^+ \pi^-$	1	1	0	1	70
30	$D^0 \rightarrow K_S^0 \eta', K_S^0 \rightarrow \pi^+ \pi^-, \eta' \rightarrow \rho^0 \gamma, \rho^0 \rightarrow \pi^+ \pi^-$	29	0	1	1	71
31	$D^0 \rightarrow \mu^+ \nu_\mu K^{*-}, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	30	1	0	1	72
32	$D^0 \rightarrow K_L^0 \pi^+ K^-$	31	0	1	1	73

rowNo	cascade decay branch of D^0	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
33	$D^0 \rightarrow K^- K^{*+}, K^{*+} \rightarrow \pi^+ K^0, K^0 \rightarrow K_L^0$	32	0	1	1	74
34	$D^0 \rightarrow \pi^- K^+$	33	1	0	1	75
35	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ K^-, \pi^0 \rightarrow e^+ e^-$	34	0	1	1	76
36	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	35	0	1	1	77
37	$D^0 \rightarrow \pi^0 K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	36	1	0	1	78
38	$D^0 \rightarrow \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	37	0	1	1	79
39	$D^0 \rightarrow \pi^+ \omega K^-, \omega \rightarrow \pi^0 \pi^+ \pi^-$	38	1	0	1	80

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	12907	—	12907	12907
2	$\pi^0 \rightarrow e^+e^+e^-e^-$	1	61	—	61	12968

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	2	8	10	10
2	$D^{*+} \rightarrow e^+ \nu_e \pi^0 \pi^0 \pi^+ \pi^-$	1	1	1	2	12
3	$D^{*+} \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ K^-$	3	1	1	2	14
4	$D^{*+} \rightarrow \pi^0 \pi^+ \pi^+ K^-$	2	0	1	1	15
5	$D^{*+} \rightarrow \mu^+ \nu_\mu \pi^0 \pi^+ K^-$	4	1	0	1	16
6	$D^{*+} \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^-$	5	0	1	1	17
7	$D^{*+} \rightarrow e^+ \nu_e \pi^0 \pi^+ K^-$	6	1	0	1	18
8	$D^{*+} \rightarrow \mu^+ \nu_\mu \pi^0 \pi^0 \pi^+ \pi^-$	7	1	0	1	19
9	$D^{*+} \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \pi^+ \pi^-$	8	1	0	1	20
10	$D^{*+} \rightarrow \mu^+ \nu_\mu \pi^+ K^-$	9	1	0	1	21
11	$D^{*+} \rightarrow e^- \nu_e \pi^0 \pi^0 \pi^0 \pi^+$	10	1	0	1	22
12	$D^{*+} \rightarrow K_L^0 \pi^+ \pi^+ K^-$	11	0	1	1	23
13	$D^{*+} \rightarrow \pi^0 \pi^0 K_L^0 \pi^+ \gamma$	12	0	1	1	24
14	$D^{*+} \rightarrow \pi^0 \pi^0 K_L^0 \pi^+ \pi^+ \pi^-$	13	0	1	1	25
15	$D^{*+} \rightarrow \pi^0 \pi^+ \pi^+ \pi^+ \pi^- K^-$	14	1	0	1	26

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

rowNo	decay final state of D^{*0}	iDcyFStP	nCase	nCcCase	nAllCase	nCCase
1	$D^{*0} \rightarrow \pi^0 \pi^+ K^-$	3	6	1	7	7
2	$D^{*0} \rightarrow \pi^+ K^- \gamma$	0	1	1	2	9
3	$D^{*0} \rightarrow \pi^0 \pi^+ \pi^+ \pi^- K^-$	2	1	0	1	10
4	$D^{*0} \rightarrow e^+ e^- \pi^0 \pi^0 \pi^0 \pi^+ \pi^-$	1	0	1	1	11
5	$D^{*0} \rightarrow \pi^+ \pi^+ \pi^- K^- \gamma$	4	0	1	1	12
6	$D^{*0} \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \pi^- \gamma$	5	1	0	1	13
7	$D^{*0} \rightarrow \pi^0 \pi^0 K_L^0 \gamma$	6	0	1	1	14
8	$D^{*0} \rightarrow \mu^+ \nu_\mu \pi^0 \pi^0 \pi^-$	7	0	1	1	15
9	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 \gamma$	8	1	0	1	16
10	$D^{*0} \rightarrow K_L^0 K_L^0 \pi^+ K^- \gamma$	9	0	1	1	17
11	$D^{*0} \rightarrow \pi^+ \pi^+ \pi^- \pi^- \gamma$	10	0	1	1	18
12	$D^{*0} \rightarrow e^+ \nu_e \pi^0 \pi^-$	11	1	0	1	19
13	$D^{*0} \rightarrow \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	12	1	0	1	20
14	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ K^-$	13	0	1	1	21
15	$D^{*0} \rightarrow \pi^0 \pi^+ K^- \gamma$	14	0	1	1	22
16	$D^{*0} \rightarrow \pi^+ \pi^+ \pi^- \pi^- \gamma \gamma$	15	0	1	1	23
17	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^0 K_L^0 \pi^+ \pi^- \gamma$	16	0	1	1	24
18	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^+ \pi^-$	17	1	0	1	25
19	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^+ K^- \gamma$	18	1	0	1	26

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	17	14	31	31
2	$D^0 \rightarrow \pi^0 \pi^+ K^-$	4	2	4	6	37
3	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ K^-$	7	3	3	6	43
4	$D^0 \rightarrow \pi^+ \pi^+ \pi^- K^-$	1	3	1	4	47
5	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^-$	2	1	1	2	49
6	$D^0 \rightarrow e^+ \nu_e K^-$	3	1	1	2	51
7	$D^0 \rightarrow K_L^0 \pi^+ \pi^-$	9	1	1	2	53
8	$D^0 \rightarrow \pi^+ \pi^+ \pi^- \pi^-$	18	0	2	2	55
9	$D^0 \rightarrow \mu^+ \nu_\mu K^-$	21	1	1	2	57
10	$D^0 \rightarrow K_L^0 \pi^+ K^-$	24	0	2	2	59
11	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ K^-$	10	0	1	1	60
12	$D^0 \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \pi^-$	11	1	0	1	61
13	$D^0 \rightarrow \pi^0 \pi^0 K_L^0$	12	0	1	1	62
14	$D^0 \rightarrow \pi^+ \pi^+ \pi^+ \pi^- \pi^- K^-$	13	1	0	1	63
15	$D^0 \rightarrow \mu^+ \nu_\mu \pi^0 \pi^0 \pi^-$	14	0	1	1	64
16	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 \gamma$	15	1	0	1	65
17	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^- \gamma$	16	0	1	1	66
18	$D^0 \rightarrow K_L^0 K_L^0 \pi^+ K^-$	17	0	1	1	67
19	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^0$	5	0	1	1	68
20	$D^0 \rightarrow e^+ \nu_e \pi^-$	19	1	0	1	69
21	$D^0 \rightarrow \pi^0 K_L^0 \pi^+ \pi^-$	20	1	0	1	70
22	$D^0 \rightarrow \mu^+ \nu_\mu \pi^0 K^-$	8	1	0	1	71
23	$D^0 \rightarrow \pi^+ \pi^+ \pi^- \pi^- \gamma$	22	0	1	1	72
24	$D^0 \rightarrow \mu^+ \nu_\mu \pi^+ \pi^- \pi^-$	23	1	0	1	73
25	$D^0 \rightarrow \pi^0 \pi^0$	6	1	0	1	74
26	$D^0 \rightarrow \pi^- K^+$	25	1	0	1	75
27	$D^0 \rightarrow e^+ e^- \pi^0 \pi^+ K^-$	26	0	1	1	76
28	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	27	0	1	1	77
29	$D^0 \rightarrow \pi^0 \pi^+ \pi^-$	28	1	0	1	78
30	$D^0 \rightarrow \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	29	0	1	1	79
31	$D^0 \rightarrow \pi^0 \pi^+ \pi^+ \pi^- K^-$	30	1	0	1	80

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	12907	—	12907	12907
2	$\pi^0 \rightarrow e^+ e^+ e^- e^-$	1	61	—	61	12968

Table 17: Production branches of D_s^+ .

rowNo	production branch of D_s^+	iProdBrP	nCase	nCcCase	nAllCase	nCCase
1	$D_s^{*+} \rightarrow \textcolor{blue}{D}_s^+ \gamma$	1	4	0	4	4
2	$e^+ e^- \rightarrow \pi^0 \bar{K}^0 K^+ K^- D^- \textcolor{blue}{D}_s^+$	0	1	0	1	5
3	$e^- \rightarrow e^+ \pi^0 \pi^- \bar{K}^0 K^* \bar{K}^* \bar{D}^0 \textcolor{blue}{D}_s^+ \gamma^I$	2	0	1	1	6
4	$e^- \rightarrow e^+ \rho^0 \pi^- \bar{K}^* \bar{D}^0 \textcolor{blue}{D}_s^+$	3	0	1	1	7
5	$e^+ e^- \rightarrow \bar{K}^0 \bar{K}^0 K^* D^{*-} \textcolor{blue}{D}_s^+ \gamma^I$	4	1	0	1	8
6	$e^+ e^- \rightarrow \pi^+ K^- \phi D^- \textcolor{blue}{D}_s^+ \gamma^I$	5	1	0	1	9

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

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

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

rowNo	production branch of D^{*0}	iProdBrP	nCase	nCcCase	nAllCase	nCCase
1	$e^- \rightarrow e^+ \pi^+ K^{*-} K^{*-} D^- \textcolor{blue}{D}^{*0}$	0	0	1	1	1
2	$e^- \rightarrow e^+ \pi^0 \pi^0 \bar{K}^0 K^+ D^- \textcolor{blue}{D}^{*0} \gamma^I$	1	0	1	1	2
3	$e^+ e^- \rightarrow \pi^0 \rho^0 \bar{K}^0 K^+ D^- \textcolor{blue}{D}^{*0} \gamma^I \gamma^I$	2	1	0	1	3
4	$e^- \rightarrow e^+ \pi^0 \pi^+ \pi^- \rho^+ K^+ K^- D^- \textcolor{blue}{D}^{*0}$	3	0	1	1	4
5	$e^- \rightarrow e^+ \rho^0 K^- K^{*+} \bar{D}^0 \textcolor{blue}{D}^{*0}$	4	0	1	1	5
6	$e^+ e^- \rightarrow \pi^0 \pi^+ \pi^- K^0 \bar{K}^* \textcolor{blue}{D}^{*0} \bar{D}^{*0} \gamma^I$	5	1	0	1	6
7	$e^- \rightarrow e^+ \pi^0 \pi^+ \pi^- \bar{K}^0 K^* \textcolor{blue}{D}^{*0} \bar{D}^{*0} \gamma^I$	6	0	1	1	7
8	$e^+ e^- \rightarrow \pi^0 \pi^- \rho^+ \bar{K}^0 K^+ D^{*-} \textcolor{blue}{D}^{*0} \gamma^I$	7	1	0	1	8
9	$e^- \rightarrow e^+ \eta K^+ K^- \bar{D}^0 \textcolor{blue}{D}^{*0}$	8	0	1	1	9
10	$e^+ e^- \rightarrow \pi^+ \pi^- \rho^- \bar{K}^0 K^{*+} \bar{D}^0 \textcolor{blue}{D}^{*0} \gamma^I \gamma^I$	9	1	0	1	10
11	$e^+ e^- \rightarrow \pi^+ \rho^- \bar{K}^0 K^+ D^{*-} \textcolor{blue}{D}^{*0}$	10	1	0	1	11
12	$e^+ e^- \rightarrow \pi^+ K^0 K^- \phi \textcolor{blue}{D}^{*0} \bar{D}^{*0}$	11	1	0	1	12
13	$e^- \rightarrow e^+ \pi^- \bar{K}^0 K^+ \phi \textcolor{blue}{D}^{*0} \bar{D}^{*0}$	12	0	1	1	13
14	$e^- \rightarrow e^+ \pi^+ \pi^+ K^0 K^- D^{*-} \textcolor{blue}{D}^{*0}$	13	0	1	1	14
15	$e^+ e^- \rightarrow \pi^+ K^0 K^* D^- \textcolor{blue}{D}^{*0} \gamma^I$	14	1	0	1	15
16	$e^+ e^- \rightarrow \rho^0 \omega K^+ K^- \bar{D}^0 \textcolor{blue}{D}^{*0}$	15	1	0	1	16
17	$e^+ e^- \rightarrow K^+ K^{*-} \textcolor{blue}{D}^{*0} \bar{D}^{*0} \gamma^I$	16	1	0	1	17
18	$e^- \rightarrow e^+ K^- K^{*+} \textcolor{blue}{D}^{*0} \bar{D}^{*0} \gamma^I$	17	0	1	1	18
19	$e^- \rightarrow e^+ \pi^0 \pi^+ \pi^- K^+ K^- D^{*-} \textcolor{blue}{D}^{*0} \gamma^I \gamma^I \gamma^I$	18	0	1	1	19
20	$e^+ e^- \rightarrow \pi^- \rho^+ K^0 \bar{K}^* \textcolor{blue}{D}^{*0} \bar{D}^{*0} \gamma^I$	19	1	0	1	20
21	$e^- \rightarrow e^+ \pi^+ \rho^- \bar{K}^0 K^* \textcolor{blue}{D}^{*0} \bar{D}^{*0} \gamma^I$	20	0	1	1	21
22	$e^+ e^- \rightarrow K^+ D^- \textcolor{blue}{D}^{*0} \bar{\Delta}^+ \Sigma^{*-} \gamma^I$	21	1	0	1	22
23	$e^- \rightarrow e^+ \pi^0 \rho^0 \bar{K}^0 K^+ D^- \textcolor{blue}{D}^{*0}$	22	0	1	1	23
24	$e^+ e^- \rightarrow \rho^0 \bar{K}^0 K^{*+} D^{*-} \textcolor{blue}{D}^{*0} \gamma^I \gamma^I$	23	1	0	1	24
25	$e^+ e^- \rightarrow \pi^0 \bar{K}^0 K^+ D^{*-} \textcolor{blue}{D}^{*0} \gamma^I$	24	1	0	1	25
26	$e^+ e^- \rightarrow \pi^+ K^0 \bar{K}^0 D^{*-} \textcolor{blue}{D}^{*0} \gamma^I \gamma^I \gamma^I$	25	1	0	1	26

Table 20: Production branches of D^0 .

rowNo	production branch of D^0	iProdBrP	nCase	nCcCase	nAllCase	nCCase
1	$D^{*+} \rightarrow \pi^+ \textcolor{blue}{D}^0$	3	6	12	18	18
2	$D^{*0} \rightarrow \pi^0 \textcolor{blue}{D}^0$	4	11	4	15	33
3	$D^{*0} \rightarrow \textcolor{blue}{D}^0 \gamma$	0	3	8	11	44
4	$e^- \rightarrow e^+ \pi^0 \pi^0 \rho^+ K^- K^{*+} D^- \textcolor{blue}{D}^0$	1	0	1	1	45
5	$e^+ e^- \rightarrow \pi^0 \eta \bar{K}^0 K^{*+} D^{*-} \textcolor{blue}{D}^0 \gamma^I$	2	1	0	1	46
6	$e^+ e^- \rightarrow \pi^0 K^+ K^- \textcolor{blue}{D}^0 \bar{D}^0 \gamma^I \gamma^I$	5	1	0	1	47
7	$e^- \rightarrow e^+ \pi^0 K^+ K^- \textcolor{blue}{D}^0 \bar{D}^0 \gamma^I \gamma^I$	6	0	1	1	48
8	$e^+ e^- \rightarrow K^+ K^+ K^- K^- \textcolor{blue}{D}^0 \bar{D}^0 \gamma^I$	7	1	0	1	49
9	$e^- \rightarrow e^+ K^+ K^+ K^- K^- \textcolor{blue}{D}^0 \bar{D}^0 \gamma^I$	8	0	1	1	50
10	$e^+ e^- \rightarrow \pi^0 \pi^+ K^+ K^- D^{*-} \textcolor{blue}{D}^0$	9	1	0	1	51
11	$e^- \rightarrow e^+ \rho^0 \pi^+ K^+ K^- D^{*-} \textcolor{blue}{D}^0$	10	0	1	1	52
12	$e^+ e^- \rightarrow \rho^0 K^+ K^{*-} \textcolor{blue}{D}^0 \bar{D}^{*0}$	11	1	0	1	53
13	$e^+ e^- \rightarrow \pi^0 \pi^- \bar{K}^* K^+ \textcolor{blue}{D}^0 \bar{D}^0 \gamma^I$	12	1	0	1	54
14	$e^- \rightarrow e^+ \pi^0 \pi^+ K^* K^- \textcolor{blue}{D}^0 \bar{D}^0 \gamma^I$	13	0	1	1	55
15	$e^+ e^- \rightarrow \eta K^+ K^- \textcolor{blue}{D}^0 \bar{D}^{*0}$	14	1	0	1	56
16	$e^- \rightarrow e^+ \pi^+ \pi^- \rho^+ K^0 K^{*-} \textcolor{blue}{D}^0 \bar{D}^{*0} \gamma^I \gamma^I$	15	0	1	1	57
17	$e^+ e^- \rightarrow \pi^0 \pi^0 \bar{K}^0 K^+ D^- \textcolor{blue}{D}^0$	16	1	0	1	58
18	$e^+ e^- \rightarrow \pi^0 \pi^+ K^0 \bar{K}^* D^- \textcolor{blue}{D}^0 \gamma^I$	17	1	0	1	59
19	$e^+ e^- \rightarrow \eta K^+ K^{*-} \textcolor{blue}{D}^0 \bar{D}^0 \gamma^I \gamma^I$	18	1	0	1	60
20	$e^- \rightarrow e^+ \eta K^- K^{*+} \textcolor{blue}{D}^0 \bar{D}^0 \gamma^I \gamma^I$	19	0	1	1	61
21	$e^+ e^- \rightarrow \pi^0 \pi^+ K^0 K^* \bar{K}^* \textcolor{blue}{D}^0 D_s^- \gamma^I$	20	1	0	1	62
22	$e^- \rightarrow e^+ \rho^+ \omega K^0 \textcolor{blue}{D}^0 D_s^{*-}$	21	0	1	1	63
23	$e^- \rightarrow e^+ \pi^0 K^+ \textcolor{blue}{D}^0 D_s^{*-} \gamma^I$	22	0	1	1	64
24	$e^+ e^- \rightarrow \rho^0 \pi^+ K^* \textcolor{blue}{D}^0 D_s^-$	23	1	0	1	65
25	$e^+ e^- \rightarrow \pi^0 \pi^- \rho^+ \bar{K}^* K^+ D^- \textcolor{blue}{D}^0 \gamma^I$	24	1	0	1	66
26	$e^- \rightarrow e^+ \rho^0 \omega K^+ K^- \textcolor{blue}{D}^0 \bar{D}^{*0}$	25	0	1	1	67
27	$e^+ e^- \rightarrow \pi^0 \pi^+ \pi^- K^+ K^- \textcolor{blue}{D}^0 \bar{D}^0$	26	1	0	1	68
28	$e^- \rightarrow e^+ \pi^0 \pi^+ \pi^- K^+ K^- \textcolor{blue}{D}^0 \bar{D}^0$	27	0	1	1	69
29	$e^- \rightarrow e^+ \pi^+ \bar{K}^0 K^* D^{*-} \textcolor{blue}{D}^0$	28	0	1	1	70
30	$e^+ e^- \rightarrow \pi^+ K^+ K^- D^{*-} \textcolor{blue}{D}^0$	29	1	0	1	71
31	$e^+ e^- \rightarrow \pi^- \bar{K}^0 K^+ \textcolor{blue}{D}^0 \bar{D}^0 \gamma^I \gamma^I$	30	1	0	1	72
32	$e^- \rightarrow e^+ \pi^+ K^0 K^- \textcolor{blue}{D}^0 \bar{D}^0 \gamma^I \gamma^I$	31	0	1	1	73

rowNo	production branch of D^0	iProdBrP	nCase	nCcCase	nAllCase	nCCase
33	$e^+e^- \rightarrow \pi^-\rho^+K^0\bar{K}^*\textcolor{blue}{D^0}\bar{\textcolor{blue}{D^0}}$	32	1	0	1	74
34	$e^- \rightarrow e^+\pi^+\rho^-\bar{K}^0K^*\textcolor{blue}{D^0}\bar{\textcolor{blue}{D^0}}$	33	0	1	1	75
35	$e^+e^- \rightarrow \rho^0\bar{K}^0K^+D^-\textcolor{blue}{D^0}$	34	1	0	1	76
36	$e^+e^- \rightarrow \pi^0\bar{K}^*K^+D^-\textcolor{blue}{D^0}\gamma^I\gamma^I$	35	1	0	1	77
37	$e^- \rightarrow e^+\omega\bar{K}^0K^+D^{*-}\textcolor{blue}{D^0}\gamma^I$	36	0	1	1	78
38	$e^+e^- \rightarrow \pi^0\pi^+\pi^-K^+K^-\textcolor{blue}{D^0}\bar{\textcolor{blue}{D^0}}\gamma^I\gamma^I$	37	1	0	1	79
39	$e^- \rightarrow e^+\pi^0\pi^+\pi^-K^+K^-\textcolor{blue}{D^0}\bar{\textcolor{blue}{D^0}}\gamma^I\gamma^I$	38	0	1	1	80

Table 21: Production branches of π^0 .

rowNo	production branch of π^0	iProdBrP	nCase	nCcCase	nAllCase	nCCase
1	$\omega \rightarrow \pi^0 \pi^+ \pi^-$	2	34068	—	34068	34068
2	$\rho^+ \rightarrow \pi^0 \pi^+$	19	27971	0	27971	62039
3	$\rho^- \rightarrow \pi^0 \pi^-$	7	27519	0	27519	89558
4	$K_S^0 \rightarrow \pi^0 \pi^0$	14	26990	—	26990	116548
5	$\eta \rightarrow \pi^0 \pi^0 \pi^0$	5	16755	—	16755	133303
6	$K^{*-} \rightarrow \pi^0 K^-$	24	7857	0	7857	141160
7	$K^{*+} \rightarrow \pi^0 K^+$	18	7720	0	7720	148880
8	$\eta \rightarrow \pi^0 \pi^+ \pi^-$	12	4713	—	4713	153593
9	$K^* \rightarrow \pi^0 K^0$	10	4448	0	4448	158041
10	$\bar{K}^* \rightarrow \pi^0 \bar{K}^0$	17	4239	0	4239	162280
11	$\omega \rightarrow \pi^0 \gamma$	51	1967	—	1967	164247
12	$\eta' \rightarrow \pi^0 \pi^0 \eta$	83	1744	—	1744	165991
13	$K_L^0 \rightarrow \pi^0 \pi^0 \pi^0$	26	1443	—	1443	167434
14	$\bar{\Lambda} \rightarrow \pi^0 \bar{n}$	21	1046	0	1046	168480
15	$\Lambda \rightarrow \pi^0 n$	64	967	0	967	169447
16	$\Delta^+ \rightarrow \pi^0 p$	62	338	0	338	169785
17	$\phi \rightarrow \pi^0 \rho^0$	93	327	—	327	170112
18	$\bar{\Delta}^- \rightarrow \pi^0 \bar{p}$	108	324	0	324	170436
19	$K_L^0 \rightarrow \pi^0 \pi^+ \pi^-$	3	320	—	320	170756
20	$\bar{\Xi}^0 \rightarrow \pi^0 \bar{\Lambda}$	341	313	0	313	171069
21	$\Delta^0 \rightarrow \pi^0 n$	638	312	0	312	171381
22	$\bar{\Delta}^0 \rightarrow \pi^0 \bar{n}$	97	308	0	308	171689
23	$\Xi^0 \rightarrow \pi^0 \Lambda$	182	307	0	307	171996
24	$\bar{\Sigma}^- \rightarrow \pi^0 \bar{p}$	340	284	0	284	172280
25	$\Sigma^+ \rightarrow \pi^0 p$	22	246	0	246	172526
26	$\bar{\Sigma}^{*0} \rightarrow \pi^0 \bar{\Lambda}$	79	202	0	202	172728
27	$\Sigma^{*0} \rightarrow \pi^0 \Lambda$	63	170	0	170	172898
28	$\omega \rightarrow e^+ e^- \pi^0$	299	101	—	101	172999
29	$e^+ e^- \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \rho^- K^+ K^-$	2184	82	0	82	173081
30	$e^+ e^- \rightarrow \pi^0 \pi^0 \pi^+ \pi^- \omega K^+ K^- \gamma^I$	599	80	0	80	173161
31	$e^+ e^- \rightarrow \pi^0 \pi^0 \rho^0 \pi^+ \pi^- K^+ K^- \gamma^I$	138	78	0	78	173239
32	$e^+ e^- \rightarrow \pi^0 \pi^0 \pi^+ \pi^- \omega K^+ K^-$	292	78	0	78	173317
33	$e^+ e^- \rightarrow \pi^0 \pi^0 \pi^+ \pi^- \pi^- \rho^+ K^+ K^-$	705	74	0	74	173391

rowNo	production branch of π^0	iProdBrP	nCase	nCcCase	nAllCase	nCCase
34	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^-K^+K^-$	1238	72	0	72	173463
35	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^+K^0K^-$	640	70	0	70	173533
36	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-K^+K^-\gamma^I$	1420	66	0	66	173599
37	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-$	2942	60	0	60	173659
38	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^+\rho^-K^+K^-$	3036	58	0	58	173717
39	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\rho^0\pi^+\pi^-K^+K^-$	662	57	0	57	173774
40	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\omega K^+K^-\gamma^I$	1333	57	0	57	173831
41	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\omega K^+K^-$	2898	57	0	57	173888
42	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^-\bar{K}^0K^+\gamma^I$	8	56	0	56	173944
43	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\rho^+\rho^-K^+K^-$	175	56	0	56	174000
44	$\phi \rightarrow \pi^0\pi^+\pi^-$	210	56	—	56	174056
45	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^+\pi^-K^0K^-\gamma^I$	792	54	0	54	174110
46	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^+\pi^-\pi^-K^+K^-$	1637	54	0	54	174164
47	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I$	2567	54	0	54	174218
48	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^-\rho^+K^0K^-$	3677	54	0	54	174272
49	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\rho^-K^+K^-$	407	52	0	52	174324
50	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^-\omega K^+K^-\gamma^I$	721	52	0	52	174376
51	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-\rho^+K^+K^-\gamma^I$	1473	52	0	52	174428
52	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^+K^0K^-\gamma^I$	207	50	0	50	174478
53	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-\bar{K}^*K^+$	444	50	0	50	174528
54	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\rho^-K^+K^-\gamma^I$	469	50	0	50	174578
55	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^-\bar{K}^*K^+\gamma^I$	3312	50	0	50	174628
56	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^+K^*K^-$	5893	50	0	50	174678
57	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\rho^-K^+K^-\gamma^I$	804	49	0	49	174727
58	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^-\omega K^+K^-$	76	48	0	48	174775
59	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-\omega K^+K^-$	111	48	0	48	174823
60	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-\bar{K}^0K^+\gamma^I$	1675	48	0	48	174871
61	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\omega K^0K^-$	1860	48	0	48	174919
62	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^-\omega K^+K^-\gamma^I$	1897	48	0	48	174967
63	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-\omega K^+K^-\gamma^I$	1916	48	0	48	175015
64	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^-\bar{K}^0K^+$	5562	48	0	48	175063
65	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\rho^+\omega K^0K^-$	1518	47	0	47	175110
66	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\omega K^-K^{*+}$	30	46	0	46	175156
67	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\omega K^+K^-$	164	45	0	45	175201

rowNo	production branch of π^0	iProdBrP	nCase	nCcCase	nAllCase	nCCase
68	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\rho^+\rho^-K^+K^-\gamma^I$	170	45	0	45	175246
69	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\rho^-K^+K^-$	1036	45	0	45	175291
70	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-\omega K^+K^-\gamma^I$	176	44	0	44	175335
71	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-\rho^+K^+K^-\gamma^I$	1072	44	0	44	175379
72	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\omega K^0K^-\gamma^I$	1241	44	0	44	175423
73	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\omega K^+K^{*-}$	1589	44	0	44	175467
74	$e^+e^- \rightarrow \pi^0\pi^0\pi^-\rho^+\omega K^+K^-$	1990	44	0	44	175511
75	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-K^*K^-$	2343	44	0	44	175555
76	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\omega K^-K^{*+}\gamma^I$	2741	44	0	44	175599
77	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\omega K^0K^-\gamma^I$	3249	44	0	44	175643
78	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\rho^+K^0K^-$	863	43	0	43	175686
79	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-K^+K^-$	2778	43	0	43	175729
80	$e^+e^- \rightarrow \pi^0\pi^-\rho^+\omega K^+K^-\gamma^I$	47	42	0	42	175771
81	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^-\bar{K}^0K^+$	178	42	0	42	175813
82	$e^+e^- \rightarrow \pi^0\pi^0\pi^-\rho^+K^+K^-\gamma^I$	217	42	0	42	175855
83	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-K^+K^{*-}$	263	42	0	42	175897
84	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-\rho^+K^+K^-$	446	42	0	42	175939
85	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\omega K^0K^-$	1277	42	0	42	175981
86	$e^+e^- \rightarrow \pi^0\pi^0\pi^-\rho^+\omega K^+K^-\gamma^I$	1748	42	0	42	176023
87	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-K^*K^-$	1793	42	0	42	176065
88	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^-K^+K^{*-}$	3332	42	0	42	176107
89	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\rho^+K^*K^-$	679	41	0	41	176148
90	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\rho^-\omega \bar{K}^0K^+$	1937	41	0	41	176189
91	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-K^+K^-\gamma^I\gamma^I$	91	40	0	40	176229
92	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-K^+K^-$	461	40	0	40	176269
93	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\rho^-K^+K^-\gamma^I$	929	40	0	40	176309
94	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\rho^-\bar{K}^0K^+\gamma^I$	2026	40	0	40	176349
95	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\rho^-\omega K^+K^-$	3250	40	0	40	176389
96	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\rho^0\pi^+\pi^-K^+K^-\gamma^I$	55	39	0	39	176428
97	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\rho^-\bar{K}^0K^+$	199	39	0	39	176467
98	$e^+e^- \rightarrow \pi^0\pi^+\pi^-K^+K^-\gamma^I$	2109	39	0	39	176506
99	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-K^0K^-$	2608	39	0	39	176545
100	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-K^+K^{*-}\gamma^I$	761	38	0	38	176583
rest	others (23433 in total)	—	—	—	73745	250328

Table 22: Production branches of e^+ .

rowNo	production branch of e^+	iProdBrP	nCase	nCcCase	nAllCase	nCCase
1	$\pi^0 \rightarrow e^+e^-$	0	12907	12907	25814	25814
2	$\eta \rightarrow e^+e^-$	5	456	456	912	26726
3	$K_L^0 \rightarrow e^+\nu_e\pi^-$	4	549	0	549	27275
4	$K_L^0 \rightarrow e^+\bar{\nu}_e\pi^-$	1	0	549	549	27824
5	$\pi^0 \rightarrow e^+e^+e^-e^-$	8	122	122	244	28068
6	$\omega \rightarrow e^+e^-\pi^0$	6	101	101	202	28270
7	$\eta' \rightarrow e^+e^-\pi^+\pi^-$	2	44	44	88	28358
8	$\eta \rightarrow e^+e^-\pi^+\pi^-$	19	17	17	34	28392
9	$K_S^0 \rightarrow e^+\bar{\nu}_e\pi^-$	11	0	31	31	28423
10	$K_S^0 \rightarrow e^+\nu_e\pi^-$	12	29	0	29	28452
11	$\bar{\Sigma}^0 \rightarrow e^+e^-\bar{\Lambda}$	10	11	16	27	28479
12	$\Sigma^0 \rightarrow e^+e^-\Lambda$	9	16	11	27	28506
13	$\omega \rightarrow e^+e^-$	15	10	10	20	28526
14	$\rho^0 \rightarrow e^+e^-$	13	6	6	12	28538
15	$K_S^0 \rightarrow e^+e^-\pi^+\pi^-$	21	4	4	8	28546
16	$\bar{\Lambda} \rightarrow e^+\nu_e\bar{p}$	14	4	3	7	28553
17	$\phi \rightarrow e^+e^-\eta$	29	2	2	4	28557
18	$\phi \rightarrow e^+e^-$	30	2	2	4	28561
19	$\bar{\Sigma}^+ \rightarrow e^+\nu_e\bar{n}$	3	1	2	3	28564
20	$D^+ \rightarrow e^+\nu_e\bar{K}^*$	17	2	0	2	28566
21	$\bar{\Xi}^+ \rightarrow e^+\nu_e\bar{\Lambda}$	23	1	1	2	28568
22	$\phi \rightarrow e^+e^-\pi^0$	27	1	1	2	28570
23	$D^0 \rightarrow e^+\nu_eK^-$	18	1	1	2	28572
24	$D^+ \rightarrow e^+\nu_e\bar{K}^0$	16	0	2	2	28574
25	$\bar{\Xi}^0 \rightarrow e^+\nu_e\bar{\Sigma}^-$	24	1	0	1	28575
26	$\tau^+ \rightarrow e^+\nu_e\bar{\nu}_\tau$	25	0	1	1	28576
27	$D^+ \rightarrow e^+\nu_e\eta$	26	0	1	1	28577
28	$K_L^0 \rightarrow e^+\nu_e\pi^0\pi^-$	7	1	0	1	28578
29	$D^0 \rightarrow e^+\nu_e\pi^-$	28	1	0	1	28579
30	$\bar{\Sigma}^+ \rightarrow e^+\nu_e\bar{\Lambda}$	22	0	1	1	28580
31	$D^+ \rightarrow e^+\nu_e\pi^0\bar{K}^0$	20	1	0	1	28581

Table 23: Mothers of D_s^+ .

rowNo	mother of D_s^+	PDGMoth	nCase	nCcCase	nAllCase	nCCCase
1	e^+e^-	99999999	3	2	5	5
2	D_s^{*+}	433	4	0	4	9

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

rowNo	mother of D^{*+}	PDGMoth	nCase	nCcCase	nAllCase	nCCase
1	e^+e^-	99999999	11	15	26	26

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

rowNo	mother of D^{*0}	PDGMoth	nCase	nCcCase	nAllCase	nCCase
1	e^+e^-	99999999	14	12	26	26

Table 26: Mothers of D^0 .

rowNo	mother of D^0	PDGMoth	nCase	nCcCase	nAllCase	nCCase
1	e^+e^-	99999999	20	16	36	36
2	D^{*0}	423	14	12	26	62
3	D^{*+}	413	6	12	18	80

Table 27: Mothers of π^0 .

rowNo	mother of π^0	PDGMoth	nCase	nCcCase	nAllCase	nCCase
1	e^+e^-	99999999	77030	—	77030	77030
2	ρ^-	-213	27519	27971	55490	132520
3	ω	223	36140	—	36140	168660
4	K_S^0	310	26990	—	26990	195650
5	η	221	21473	—	21473	217123
6	K^{*+}	323	7720	7857	15577	232700
7	K^*	313	4448	4239	8687	241387
8	$\bar{\Lambda}$	-3122	1046	967	2013	243400
9	η'	331	1779	—	1779	245179
10	K_L^0	130	1764	—	1764	246943
11	Δ^+	2214	338	324	662	247605
12	$\bar{\Delta}^0$	-2114	308	312	620	248225
13	Ξ^0	3322	307	313	620	248845
14	Σ^+	3222	246	284	530	249375
15	ϕ	333	385	—	385	249760
16	Σ^{*0}	3214	170	202	372	250132
17	Ξ^{*0}	3324	23	22	45	250177
18	$\bar{\Xi}^{*+}$	-3314	16	15	31	250208
19	$\bar{\Sigma}^{*-}$	-3224	16	11	27	250235
20	\bar{D}^0	-421	19	8	27	250262
21	ρ^0	113	15	—	15	250277
22	\bar{D}^{*0}	-423	4	11	15	250292
23	$\bar{\Sigma}^{*+}$	-3114	7	7	14	250306
24	D^+	411	6	5	11	250317
25	D^{*+}	413	5	2	7	250324
26	D_s^+	431	2	1	3	250327
27	a_1^-	-20213	1	0	1	250328

Table 28: Mothers of e^+ .

rowNo	mother of e^+	PDGMoth	nCase	nCcCase	nAllCase	nCCase
1	π^0	111	13029	13029	26058	26058
2	K_L^0	130	550	549	1099	27157
3	η	221	473	473	946	28103
4	ω	223	111	111	222	28325
5	η'	331	44	44	88	28413
6	K_S^0	310	33	35	68	28481
7	$\bar{\Sigma}^0$	-3212	11	16	27	28508
8	Σ^0	3212	16	11	27	28535
9	ρ^0	113	6	6	12	28547
10	ϕ	333	5	5	10	28557
11	$\bar{\Lambda}$	-3122	4	3	7	28564
12	D^+	411	3	3	6	28570
13	$\bar{\Sigma}^+$	-3112	1	3	4	28574
14	D^0	421	2	1	3	28577
15	$\bar{\Xi}^+$	-3312	1	1	2	28579
16	τ^+	-15	0	1	1	28580
17	$\bar{\Xi}^0$	-3322	1	0	1	28581