

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	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^+\pi^-\rho^-, \rho^0 \rightarrow \pi^+\pi^-, \rho^- \rightarrow \pi^0\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-$)	263	163	23	30	53	53
2	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^-\rho^+, \rho^0 \rightarrow \pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-$)	722	272	27	19	46	99
3	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-\rho^+\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I$)	2658	404	21	23	44	143
4	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^-K^+K^-, \rho^- \rightarrow \pi^0\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-$)	1172	321	23	15	38	181
5	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-\rho^+K^+K^-\gamma^I, \rho^+ \rightarrow \pi^0\pi^+$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I$)	193	36	18	19	37	218
6	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-\pi^-\rho^+\omega, \rho^+ \rightarrow \pi^0\pi^+, \omega \rightarrow \pi^0\pi^+\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-$)	384	6	22	15	37	255
7	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\rho^-\gamma^I, \rho^- \rightarrow \pi^0\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I$)	510	404	24	13	37	292
8	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-\rho^+\omega, \rho^+ \rightarrow \pi^0\pi^+, \omega \rightarrow \pi^0\pi^+\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-$)	1904	272	14	20	34	326
9	$e^+e^- \rightarrow \pi^0\rho^0\rho^0\pi^+\pi^-\rho^-, \rho^0 \rightarrow \pi^+\pi^-, \rho^0 \rightarrow \pi^+\pi^-, \rho^- \rightarrow \pi^0\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-$)	571	75	17	16	33	359
10	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-\rho^-\omega\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \rho^- \rightarrow \pi^0\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I$)	702	37	12	21	33	392
11	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^-\rho^+\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I$)	724	140	16	17	33	425
12	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-\pi^-\pi^-\rho^+\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\gamma^I$)	182	145	14	18	32	457
13	$e^+e^- \rightarrow \pi^+\pi^+\pi^-\rho^-K^+K^-, \rho^- \rightarrow \pi^0\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-$)	1866	357	11	21	32	489
14	$e^+e^- \rightarrow \pi^+\pi^+\pi^-\rho^-\omega K^+K^-, \rho^- \rightarrow \pi^0\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$)	1513	39	17	14	31	520
15	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-\rho^+\omega\gamma^I, \rho^+ \rightarrow \pi^0\pi^+, \omega \rightarrow \pi^0\pi^+\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I$)	2968	140	14	17	31	551
16	$e^+e^- \rightarrow \pi^+\pi^-\pi^-\rho^+\omega K^+K^-\gamma^I, \rho^+ \rightarrow \pi^0\pi^+, \omega \rightarrow \pi^0\pi^+\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I$)	84	14	16	14	30	581
17	$e^+e^- \rightarrow \rho^0\pi^+\pi^-\pi^-\rho^+K^+K^-\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+$ ($e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^-\gamma^I$)	6627	23	16	14	30	611

rowNo	decay tree (decay initial-final states)	iDcyTr	iDcyIFSts	nEtr	nCcEtr	nAllEtr	nCEtr
18	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^+\pi^-\pi^-\pi^-\rho^+, \rho^0 \rightarrow \pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-)$	726	75	19	10	29	640
19	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\rho^-, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-)$	915	272	14	15	29	669
20	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\rho^+\rho^-, \rho^+ \rightarrow \pi^0\pi^+, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-)$	1546	272	29	—	29	698
21	$e^+e^- \rightarrow \rho^0\pi^+\pi^+\pi^-\omega, \rho^0 \rightarrow \pi^+\pi^-, \rho^- \rightarrow \pi^0\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-)$	388	75	16	12	28	726
22	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^-\omega, \rho^- \rightarrow \pi^0\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-)$	1343	700	20	8	28	754
23	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\rho^+\gamma^I, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\gamma^I)$	2529	140	9	19	28	782
24	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^+\pi^-\pi^-\omega, \rho^0 \rightarrow \pi^+\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-)$	5691	75	28	—	28	810
25	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\rho^-, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-)$	5698	163	13	15	28	838
26	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-\rho^+\rho^-\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I)$	970	140	27	—	27	865
27	$e^+e^- \rightarrow \rho^0\pi^+\pi^+\pi^-\rho^-\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I)$	269	226	12	14	26	891
28	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\rho^+K^+K^-, \rho^+ \rightarrow \pi^0\pi^+, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-)$	515	321	26	—	26	917
29	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-\rho^+\gamma^I\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\gamma^I\gamma^I)$	2111	31	14	12	26	943
30	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-\pi^-\gamma^I, \rho^0 \rightarrow \pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I)$	2727	226	26	—	26	969
31	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^+\pi^-\rho^-, \rho^0 \rightarrow \pi^+\pi^-, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-)$	3007	700	15	11	26	995
32	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-\rho^+\gamma^I\gamma^I, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-\gamma^I\gamma^I)$	3268	1071	15	11	26	1021
33	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^+\pi^-\pi^-\omega\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\gamma^I)$	169	145	25	—	25	1046
34	$e^+e^- \rightarrow \pi^0\rho^0\pi^-\rho^+K^+K^-, \rho^0 \rightarrow \pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	369	110	9	16	25	1071
35	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\omega K^+K^-\gamma^I, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	574	36	25	—	25	1096

rowNo	decay tree (decay initial-final states)	iDcyTr	iDcyIFSts	nEtr	nCcEtr	nAllEtr	nCEtr
36	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-\pi^-\rho^+\omega, \rho^0 \rightarrow \pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-)$	585	6	14	11	25	1121
37	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^-K^+K^-\gamma^I, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	2522	153	12	13	25	1146
38	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^-\omega\gamma^I, \rho^- \rightarrow \pi^0\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I)$	8549	393	15	10	25	1171
39	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\rho^-K^+K^-\gamma^I\gamma^I, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma^I)$	1378	254	17	7	24	1195
40	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-\rho^-\omega\gamma^I\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \rho^- \rightarrow \pi^0\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\gamma^I\gamma^I)$	1834	425	12	12	24	1219
41	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-K^*K^-\gamma^I, K^* \rightarrow \pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	2184	29	13	11	24	1243
42	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-\rho^+K^+K^-, \rho^0 \rightarrow \pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	43	39	16	7	23	1266
43	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^-\omega\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \rho^- \rightarrow \pi^0\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I)$	339	60	9	14	23	1289
44	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-\rho^+\rho^-, \rho^0 \rightarrow \pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-)$	427	272	23	—	23	1312
45	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\rho^-K^+K^-, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-)$	940	110	12	11	23	1335
46	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\rho^-\gamma^I, \rho^+ \rightarrow \pi^0\pi^+, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\gamma^I)$	2998	446	23	—	23	1358
47	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\rho^-\gamma^I, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-\gamma^I)$	5633	722	11	12	23	1381
48	$e^+e^- \rightarrow \rho^0\pi^+\pi^-\rho^-K^+K^-, \rho^0 \rightarrow \pi^+\pi^-, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	1245	45	9	13	22	1403
49	$e^+e^- \rightarrow \pi^+\pi^-\rho^-K^+K^-\gamma^I, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	1630	29	13	9	22	1425
50	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-\pi^-\rho^+\omega\gamma^I, \rho^+ \rightarrow \pi^0\pi^+, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\gamma^I)$	2392	37	9	13	22	1447
51	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-\rho^+\gamma^I, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^-\pi^-\gamma^I)$	4122	446	5	17	22	1469
52	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-\rho^-\omega K^+K^-\gamma^I, \rho^- \rightarrow \pi^0\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I)$	4717	10	13	9	22	1491
53	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-\rho^+\omega, \rho^0 \rightarrow \pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-)$	179	154	5	16	21	1512

rowNo	decay tree (decay initial-final states)	iDcyTr	iDcyIFSts	nEtr	nCcEtr	nAllEtr	nCEtr
54	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\omega\gamma^I, \omega \rightarrow \pi^0\pi^+\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I$)	989	404	21	—	21	1533
55	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^+\pi^-\pi^-\gamma^I, \rho^0 \rightarrow \pi^+\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I$)	1521	404	21	—	21	1554
56	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^+\pi^-\pi^-\rho^-\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+, \rho^- \rightarrow \pi^0\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\gamma^I$)	3446	37	21	—	21	1575
57	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^+\pi^-\rho^-\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \rho^0 \rightarrow \pi^+\pi^-, \rho^- \rightarrow \pi^0\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\gamma^I$)	604	145	12	8	20	1595
58	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-\rho^+\rho^-\gamma^I, \rho^+ \rightarrow \pi^0\pi^+, \rho^+ \rightarrow \pi^0\pi^+, \rho^- \rightarrow \pi^0\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I$)	633	393	14	6	20	1615
59	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\rho^+\rho^-\omega\gamma^I, \rho^+ \rightarrow \pi^0\pi^+, \rho^- \rightarrow \pi^0\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I$)	1231	393	20	—	20	1635
60	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-\rho^+\omega K^+K^-, \rho^+ \rightarrow \pi^0\pi^+, \omega \rightarrow \pi^0\pi^+\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$)	1591	127	11	9	20	1655
61	$e^+e^- \rightarrow \rho^0\pi^+\pi^+\pi^-\pi^-\rho^+, \rho^0 \rightarrow \pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+$ ($e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-$)	7266	280	13	7	20	1675
62	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-\rho^+\rho^-\gamma^I, \rho^+ \rightarrow \pi^0\pi^+, \rho^- \rightarrow \pi^0\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I$)	389	140	19	—	19	1694
63	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^-\omega, \rho^- \rightarrow \pi^0\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-$)	729	199	9	10	19	1713
64	$e^+e^- \rightarrow \pi^+\pi^-\pi^-\rho^+\gamma^I\gamma^I, \rho^+ \rightarrow \pi^0\pi^+$ ($e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\gamma^I\gamma^I$)	1097	741	10	9	19	1732
65	$e^+e^- \rightarrow \rho^0\pi^+\pi^+\pi^-\rho^-, \rho^0 \rightarrow \pi^+\pi^-, \rho^- \rightarrow \pi^0\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^+\pi^-\pi^-$)	1428	65	10	9	19	1751
66	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-\rho^+K^0K^-, \rho^0 \rightarrow \pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+, K^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^-$)	2361	112	11	8	19	1770
67	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-\omega K^+K^-, \rho^0 \rightarrow \pi^+\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$)	2963	39	19	—	19	1789
68	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-\rho^+\rho^-\gamma^I, \rho^+ \rightarrow \pi^0\pi^+, \rho^- \rightarrow \pi^0\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I$)	5443	393	19	—	19	1808
69	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-\rho^-\bar{K}^0K^+, \rho^- \rightarrow \pi^0\pi^-, \bar{K}^0 \rightarrow K_L^0$ ($e^+e^- \dashrightarrow \pi^0\pi^0K_L^0\pi^+\pi^-\pi^-\pi^-K^+$)	59	54	12	6	18	1826
70	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-\pi^-K^+K^-K^-K^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-K^-$)	44	36	18	—	18	1844
71	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\rho^+\rho^-\omega\gamma^I, \rho^+ \rightarrow \pi^0\pi^+, \rho^- \rightarrow \pi^0\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ ($e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\gamma^I$)	252	60	18	—	18	1862

rowNo	decay tree (decay initial-final states)	iDcyTr	iDcyIFSts	nEtr	nCcEtr	nAllEtr	nCEtr
72	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\rho^+\rho^-, \rho^+ \rightarrow \pi^0\pi^+, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-)$	873	28	18	—	18	1880
73	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^-\omega\omega, \rho^- \rightarrow \pi^0\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-)$	1365	377	9	9	18	1898
74	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^+\rho^-, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-)$	1685	28	12	6	18	1916
75	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^+\rho^+\rho^-, \rho^+ \rightarrow \pi^0\pi^+, \rho^+ \rightarrow \pi^0\pi^+, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-)$	2099	199	12	6	18	1934
76	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^-\pi^-\rho^+\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\gamma^I)$	2566	37	10	8	18	1952
77	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\rho^-\bar{K}^*K^+, \rho^- \rightarrow \pi^0\pi^-, \bar{K}^* \rightarrow \pi^+K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	2980	110	12	6	18	1970
78	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^+\pi^-\pi^-\omega, \rho^0 \rightarrow \pi^+\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-)$	3439	6	18	—	18	1988
79	$e^+e^- \rightarrow \pi^0\pi^+\pi^-K^+K^-\gamma^I$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^-K^+K^-\gamma^I)$	4025	990	18	—	18	2006
80	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-\pi^-\rho^+\omega, \rho^+ \rightarrow \pi^0\pi^+, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-)$	8380	154	5	13	18	2024
81	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^+\pi^-\pi^-\omega\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\gamma^I)$	41	37	17	—	17	2041
82	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-\rho^+\omega\gamma^I\gamma^I, \rho^+ \rightarrow \pi^0\pi^+, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I\gamma^I)$	171	98	9	8	17	2058
83	$e^+e^- \rightarrow \pi^0\pi^-\rho^+K^+K^-\gamma^I, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-K^+K^-\gamma^I)$	316	262	8	9	17	2075
84	$e^+e^- \rightarrow \pi^0\pi^-\rho^+K^+K^-, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-K^+K^-)$	605	462	10	7	17	2092
85	$e^+e^- \rightarrow \rho^0\pi^+\pi^+\pi^+\pi^-\pi^-\rho^-\omega, \rho^0 \rightarrow \pi^+\pi^-, \rho^- \rightarrow \pi^0\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-)$	666	275	10	7	17	2109
86	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^+\pi^-\pi^-, \rho^0 \rightarrow \pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-)$	1205	65	17	—	17	2126
87	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-\omega\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\gamma^I)$	1747	404	17	—	17	2143
88	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-\omega\bar{K}^*K^+, \omega \rightarrow \pi^0\pi^+\pi^-, \bar{K}^* \rightarrow \pi^+K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^-)$	1791	39	8	9	17	2160
89	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-\rho^+\omega\gamma^I, \rho^+ \rightarrow \pi^0\pi^+, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I)$	2609	60	6	11	17	2177

rowNo	decay tree (decay initial-final states)	iDcyTr	iDcyIFSts	nEtr	nCcEtr	nAllEtr	nCEtr
90	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^+\pi^-\pi^-\rho^+\omega\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-\gamma^I)$	2866	650	10	7	17	2194
91	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^+\pi^-\pi^-\rho^-, \rho^0 \rightarrow \pi^+\pi^-, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-)$	4029	6	4	13	17	2211
92	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^+\pi^-\pi^-\rho^-, \rho^0 \rightarrow \pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-)$	4461	6	17	—	17	2228
93	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^+\pi^-\rho^-K^+K^-\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I)$	147	14	7	9	16	2244
94	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\rho^+\gamma^I\gamma^I, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I\gamma^I)$	615	31	11	5	16	2260
95	$e^+e^- \rightarrow \pi^+\pi^+\pi^-\rho^-\gamma^I, \rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\gamma^I)$	824	595	10	6	16	2276
96	$e^+e^- \rightarrow \pi^+\pi^+\pi^-\pi^-\rho^+\rho^-\omega, \rho^+ \rightarrow \pi^0\pi^+, \rho^- \rightarrow \pi^0\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-)$	1089	6	16	—	16	2292
97	$e^+e^- \rightarrow \rho^0\pi^+\pi^-\gamma^I\gamma^I, \rho^0 \rightarrow \pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^+\pi^+\pi^-\pi^-\gamma^I\gamma^I)$	1523	921	16	—	16	2308
98	$e^+e^- \rightarrow \pi^+\pi^+\pi^-\pi^-\rho^+, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\pi^-)$	1714	65	8	8	16	2324
99	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-K^+K^-, \rho^0 \rightarrow \pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	1917	357	16	—	16	2340
100	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^+\rho^-\omega, \rho^+ \rightarrow \pi^0\pi^+, \rho^- \rightarrow \pi^0\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-)$	3066	199	16	—	16	2356
rest	$e^+e^- \rightarrow \text{others (32750 in total)}$ $(e^+e^- \dashrightarrow \text{corresponding to others})$	—	—	—	—	45682	48038

Table 2: Decay initial-final states.

rowNo	decay initial-final states	iDcyIFSts	nEtr	nCcEtr	nAllEtr	nCEtr
1	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	39	362	—	362	362
2	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I$	14	355	—	355	717
3	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-$	6	340	—	340	1057
4	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	127	336	—	336	1393
5	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-$	272	304	—	304	1697
6	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I$	10	301	—	301	1998
7	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I$	37	274	—	274	2272
8	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-$	321	274	—	274	2546
9	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-$	75	263	—	263	2809
10	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\gamma^I$	140	263	—	263	3072
11	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-$	154	249	—	249	3321
12	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\gamma^I$	60	244	—	244	3565
13	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I$	36	244	—	244	3809
14	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-$	110	240	—	240	4049
15	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\gamma^I$	145	240	—	240	4289
16	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I$	153	238	—	238	4527
17	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I$	404	236	—	236	4763
18	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-$	700	229	—	229	4992
19	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I$	393	224	—	224	5216
20	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	45	216	—	216	5432
21	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-\pi^-$	163	204	—	204	5636
22	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+$	112	87	115	202	5838
23	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	459	197	—	197	6035
24	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+\gamma^I$	230	85	109	194	6229
25	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^-$	2	110	82	192	6421
26	$e^+e^- \rightarrow \pi^0\pi^0K_L^0\pi^+\pi^-\pi^-\pi^-K^+$	138	80	108	188	6609
27	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I$	87	184	—	184	6793
28	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^-$	312	182	—	182	6975
29	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+$	328	78	100	178	7153
30	$e^+e^- \rightarrow \pi^0\pi^0K_L^0\pi^+\pi^-\pi^-\pi^-K^+\gamma^I$	205	90	84	174	7327
31	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-$	199	168	—	168	7495
32	$e^+e^- \rightarrow \pi^0\pi^0K_L^0\pi^+\pi^-\pi^-\pi^-K^+$	54	83	81	164	7659
33	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I$	23	164	—	164	7823

rowNo	decay initial-final states	iDcyIFsts	nEtr	nCcEtr	nAllEtr	nCEtr
34	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^-\gamma^I$	286	92	72	164	7987
35	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-$	377	160	—	160	8147
36	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+$	7	64	93	157	8304
37	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^-$	204	155	—	155	8459
38	$e^+e^- \rightarrow \pi^0\pi^0K_L^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+\gamma^I$	69	75	78	153	8612
39	$e^+e^- \rightarrow \pi^0\pi^0K_L^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^-\gamma^I$	228	73	78	151	8763
40	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^-\gamma^I$	403	151	—	151	8914
41	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I\gamma^I$	290	150	—	150	9064
42	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^-$	122	88	60	148	9212
43	$e^+e^- \rightarrow \pi^0\pi^0K_L^0\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+$	479	78	69	147	9359
44	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-$	212	145	—	145	9504
45	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I$	294	145	—	145	9649
46	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I\gamma^I$	417	144	—	144	9793
47	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+\gamma^I$	451	61	80	141	9934
48	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-$	178	140	—	140	10074
49	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\gamma^I$	650	140	—	140	10214
50	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\gamma^I$	9	137	—	137	10351
51	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^-\gamma^I$	276	75	62	137	10488
52	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I\gamma^I$	85	135	—	135	10623
53	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I$	29	134	—	134	10757
54	$e^+e^- \rightarrow \pi^0\pi^0\pi^0K_L^0\pi^+\pi^+\pi^-\pi^-\pi^-K^-$	160	73	57	130	10887
55	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\gamma^I\gamma^I$	31	128	—	128	11015
56	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^-\gamma^I$	21	78	49	127	11142
57	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^-K^+K^-$	357	126	—	126	11268
58	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-$	275	124	—	124	11392
59	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^-\pi^-\pi^-K^+\gamma^I$	11	63	58	121	11513
60	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma^I$	254	121	—	121	11634
61	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\gamma^I\gamma^I$	425	121	—	121	11755
62	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I$	546	121	—	121	11876
63	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I$	91	120	—	120	11996
64	$e^+e^- \rightarrow \pi^0\pi^0\pi^0K_L^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^-\gamma^I$	26	71	48	119	12115
65	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\gamma^I$	974	116	—	116	12231
66	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^-\pi^-\pi^-K^+$	331	62	53	115	12346
67	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	771	115	—	115	12461

rowNo	decay initial-final states	iDcyIFsts	nEtr	nCcEtr	nAllEtr	nCEtr
68	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I\gamma^I$	1011	115	—	115	12576
69	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma^I$	179	114	—	114	12690
70	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I$	226	114	—	114	12804
71	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+$	1092	55	54	109	12913
72	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-$	280	106	—	106	13019
73	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+$	78	52	53	105	13124
74	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\gamma^I$	385	105	—	105	13229
75	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^-\gamma^I$	366	103	—	103	13332
76	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-$	450	102	—	102	13434
77	$e^+e^- \rightarrow \pi^0\pi^0\pi^0K_L^0\pi^+\pi^+\pi^-\pi^-K^-$	596	55	47	102	13536
78	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+\gamma^I$	1	47	54	101	13637
79	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-\gamma^I\gamma^I$	98	100	—	100	13737
80	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-\gamma^I$	446	99	—	99	13836
81	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\gamma^I$	40	98	—	98	13934
82	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+\gamma^I$	251	48	50	98	14032
83	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\gamma^I\gamma^I$	411	95	—	95	14127
84	$e^+e^- \rightarrow \pi^0K_L^0\pi^+\pi^+\pi^-\pi^-K^-$	531	51	43	94	14221
85	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	405	91	—	91	14312
86	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^-\gamma^I\gamma^I$	20	55	35	90	14402
87	$e^+e^- \rightarrow \pi^0\pi^0\pi^0K_L^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^-$	135	46	44	90	14492
88	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+$	258	51	39	90	14582
89	$e^+e^- \rightarrow \pi^0K_L^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+$	512	47	42	89	14671
90	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^-$	681	89	—	89	14760
91	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^-\pi^-K^+$	42	44	44	88	14848
92	$e^+e^- \rightarrow \pi^0K_L^0\pi^+\pi^+\pi^-\pi^-K^-\gamma^I$	412	51	37	88	14936
93	$e^+e^- \rightarrow \pi^0\pi^0K_L^0\pi^+\pi^-\pi^-\pi^-K^+\gamma^I\gamma^I$	831	44	44	88	15024
94	$e^+e^- \rightarrow \pi^0K_L^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+\gamma^I$	494	40	46	86	15110
95	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I\gamma^I$	895	82	—	82	15192
96	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-\gamma^I$	722	81	—	81	15273
97	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+\gamma^I\gamma^I$	194	44	36	80	15353
98	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+\gamma^I$	337	45	35	80	15433
99	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^-\gamma^I$	1538	42	38	80	15513
100	$e^+e^- \rightarrow \pi^0\pi^0\pi^0K_L^0\pi^+\pi^-\pi^-K^+\gamma^I\gamma^I$	391	38	41	79	15592
rest	$e^+e^- \rightarrow \text{others (7972 in total)}$	—	—	—	32446	48038

Table 3: Decay branches of D_s^+ .

rowNo	decay branch of D_s^+	iDcyBrP	nCase	nCcCase	nAllCase	nCCase
1	$D_s^+ \rightarrow \pi^+ \eta'$	0	0	2	2	2
2	$D_s^+ \rightarrow \pi^+ \eta$	8	1	1	2	4
3	$D_s^+ \rightarrow e^+ \nu_e \eta$	2	0	1	1	5
4	$D_s^+ \rightarrow \pi^+ \pi^+ \pi^+ \pi^- \pi^- \eta$	3	1	0	1	6
5	$D_s^+ \rightarrow \rho^+ \phi$	4	0	1	1	7
6	$D_s^+ \rightarrow \pi^+ \pi^- \eta K^+$	5	0	1	1	8
7	$D_s^+ \rightarrow \bar{K}^* K^{*+}$	6	0	1	1	9
8	$D_s^+ \rightarrow \pi^+ K^+ K^-$	7	0	1	1	10
9	$D_s^+ \rightarrow \pi^0 \pi^+ \phi$	1	0	1	1	11
10	$D_s^+ \rightarrow \pi^+ \eta \omega$	9	0	1	1	12

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

rowNo	decay branch of D^{*+}	iDcyBrP	nCase	nCcCase	nAllCase	nCCase
1	$D^{*+} \rightarrow \pi^+ D^0$	1	7	15	22	22
2	$D^{*+} \rightarrow \pi^0 D^+$	0	2	1	3	25

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	12	8	20	20
2	$D^{*0} \rightarrow D^0 \gamma$	0	3	1	4	24

Table 6: Decay branches of D^0 .

rowNo	decay branch of D^0	iDcyBrP	nCase	nCcCase	nAllCase	nCCase
1	$D^0 \rightarrow \pi^+ K^-$	3	17	15	32	32
2	$D^0 \rightarrow e^+ \nu_e K^-$	10	1	6	7	39
3	$D^0 \rightarrow \pi^0 \pi^+ K^-$	5	2	3	5	44
4	$D^0 \rightarrow \pi^0 K_L^0$	9	2	1	3	47
5	$D^0 \rightarrow \rho^+ K^{*-}$	13	1	2	3	50
6	$D^0 \rightarrow \pi^+ \pi^- \bar{K}^*$	17	2	1	3	53
7	$D^0 \rightarrow e^+ \nu_e K^{*-}$	0	1	1	2	55
8	$D^0 \rightarrow \pi^0 \pi^+ \pi^- \bar{K}^*$	4	0	2	2	57
9	$D^0 \rightarrow \pi^+ \omega K^-$	12	1	1	2	59
10	$D^0 \rightarrow \pi^0 \bar{K}_1^0$	1	2	0	2	61
11	$D^0 \rightarrow \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	14	2	0	2	63
12	$D^0 \rightarrow \pi^0 \pi^0 K^+ K^-$	16	1	1	2	65
13	$D^0 \rightarrow K^- a_1^+$	7	2	0	2	67
14	$D^0 \rightarrow \pi^0 K_S^0$	6	0	1	1	68
15	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^- K_S^0$	2	0	1	1	69
16	$D^0 \rightarrow \pi^+ \pi^- \eta'$	15	1	0	1	70
17	$D^0 \rightarrow \pi^0 \eta K_S^0$	11	1	0	1	71
18	$D^0 \rightarrow \bar{K}^* \eta'$	8	1	0	1	72
19	$D^0 \rightarrow K_L^0 \pi^+ \pi^-$	18	1	0	1	73
20	$D^0 \rightarrow \mu^+ \nu_\mu K^-$	19	1	0	1	74
21	$D^0 \rightarrow \pi^+ \pi^+ \pi^- K^-$	20	0	1	1	75
22	$D^0 \rightarrow \pi^+ \pi^+ \pi^- \pi^-$	21	1	0	1	76
23	$D^0 \rightarrow \pi^+ \pi^- K_S^0$	22	0	1	1	77
24	$D^0 \rightarrow \pi^+ \pi^- \phi$	23	0	1	1	78
25	$D^0 \rightarrow \pi^0 \pi^+ \pi^-$	24	1	0	1	79
26	$D^0 \rightarrow \pi^+ K^- \eta'$	25	0	1	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	6575	—	6575	6575
2	$\pi^0 \rightarrow e^+ e^+ e^- e^-$	1	34	—	34	6609

Table 8: Cascade decay branches of D_s^+ .

rowNo	cascade decay branch of D_s^+	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
1	$D_s^+ \rightarrow \pi^+ \eta, \eta \rightarrow \gamma\gamma$	9	1	1	2	2
2	$D_s^+ \rightarrow \pi^+ \eta', \eta' \rightarrow \pi^0 \pi^0 \eta, \eta \rightarrow \gamma\gamma$	1	0	1	1	3
3	$D_s^+ \rightarrow \pi^0 \pi^+ \phi, \phi \rightarrow \eta \gamma, \eta \rightarrow \pi^0 \pi^+ \pi^-$	2	0	1	1	4
4	$D_s^+ \rightarrow e^+ \nu_e \eta, \eta \rightarrow \gamma\gamma$	3	0	1	1	5
5	$D_s^+ \rightarrow \pi^+ \pi^+ \pi^+ \pi^- \pi^- \eta, \eta \rightarrow \gamma\gamma$	4	1	0	1	6
6	$D_s^+ \rightarrow \rho^+ \phi, \rho^+ \rightarrow \pi^0 \pi^+, \phi \rightarrow K^+ K^-$	5	0	1	1	7
7	$D_s^+ \rightarrow \pi^+ \pi^- \eta K^+, \eta \rightarrow \pi^0 \pi^0 \pi^0$	6	0	1	1	8
8	$D_s^+ \rightarrow \bar{K}^* K^{*+}, \bar{K}^* \rightarrow \pi^+ K^-, K^{*+} \rightarrow \pi^+ K^0, K^0 \rightarrow K_L^0$	7	0	1	1	9
9	$D_s^+ \rightarrow \pi^+ K^+ K^-$	8	0	1	1	10
10	$D_s^+ \rightarrow \pi^+ \eta', \eta' \rightarrow \pi^+ \pi^- \eta, \eta \rightarrow \gamma\gamma$	0	0	1	1	11
11	$D_s^+ \rightarrow \pi^+ \eta \omega, \eta \rightarrow \pi^+ \pi^-, \omega \rightarrow \pi^0 \pi^+ \pi^-$	10	0	1	1	12

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

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

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

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

Table 11: Cascade decay branches of D^0 .

rowNo	cascade decay branch of D^0	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
1	$D^0 \rightarrow \pi^+ K^-$	2	17	15	32	32
2	$D^0 \rightarrow e^+ \nu_e K^-$	10	1	6	7	39
3	$D^0 \rightarrow \pi^0 \pi^+ K^-$	5	2	3	5	44
4	$D^0 \rightarrow e^+ \nu_e K^{*-}, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_L^0$	0	1	1	2	46
5	$D^0 \rightarrow \pi^0 K_L^0$	9	1	1	2	48
6	$D^0 \rightarrow \pi^0 \pi^+ \pi^- \bar{K}^*, \bar{K}^* \rightarrow \pi^+ K^-$	4	0	2	2	50
7	$D^0 \rightarrow \pi^+ \omega K^-, \omega \rightarrow \pi^0 \pi^+ \pi^-$	12	1	1	2	52
8	$D^0 \rightarrow \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	17	2	0	2	54
9	$D^0 \rightarrow \pi^0 \pi^0 K^+ K^-$	19	1	1	2	56
10	$D^0 \rightarrow \pi^+ \pi^- \bar{K}^*, \bar{K}^* \rightarrow \pi^+ K^-$	20	1	1	2	58
11	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^- K_S^0, \pi^0 \rightarrow e^+ e^-, K_S^0 \rightarrow \pi^0 \pi^0$	3	0	1	1	59
12	$D^0 \rightarrow \pi^0 \eta K_S^0, \eta \rightarrow \pi^0 \pi^0 \pi^0, K_S^0 \rightarrow \pi^0 \pi^0$	11	1	0	1	60
13	$D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \pi^+ f_0(600), f_0(600) \rightarrow \pi^0 \pi^0$	6	1	0	1	61
14	$D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	13	0	1	1	62
15	$D^0 \rightarrow \pi^0 \bar{K}_1^0, \bar{K}_1^0 \rightarrow \pi^+ \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S^0$	14	1	0	1	63
16	$D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^0 K^-, \pi^0 \rightarrow e^+ e^-$	15	1	0	1	64
17	$D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \pi^0 \rho^+, \rho^+ \rightarrow \pi^0 \pi^+$	16	1	0	1	65
18	$D^0 \rightarrow \pi^0 K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	7	0	1	1	66
19	$D^0 \rightarrow \pi^+ \pi^- \eta', \eta' \rightarrow \rho^0 \gamma, \rho^0 \rightarrow \pi^+ \pi^-$	18	1	0	1	67
20	$D^0 \rightarrow \bar{K}^* \eta', \bar{K}^* \rightarrow \pi^+ K^-, \eta' \rightarrow \pi^+ \pi^- \eta, \eta \rightarrow \gamma\gamma$	8	1	0	1	68
21	$D^0 \rightarrow \pi^0 \bar{K}_1^0, \bar{K}_1^0 \rightarrow \rho^0 \bar{K}^0, \rho^0 \rightarrow \pi^+ \pi^-, \bar{K}^0 \rightarrow K_L^0$	1	1	0	1	69
22	$D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^0 K^-$	21	0	1	1	70
23	$D^0 \rightarrow \pi^+ \pi^- \bar{K}^*, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	22	1	0	1	71
24	$D^0 \rightarrow K_L^0 \pi^+ \pi^-$	23	1	0	1	72
25	$D^0 \rightarrow \mu^+ \nu_\mu K^-$	24	1	0	1	73
26	$D^0 \rightarrow \pi^+ \pi^+ \pi^- K^-$	25	0	1	1	74
27	$D^0 \rightarrow \pi^+ \pi^+ \pi^- \pi^-$	26	1	0	1	75
28	$D^0 \rightarrow \pi^+ \pi^- K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	27	0	1	1	76
29	$D^0 \rightarrow \pi^0 K_L^0, K_L^0 \rightarrow \pi^0 \pi^+ \pi^-$	28	1	0	1	77
30	$D^0 \rightarrow \pi^+ \pi^- \phi, \phi \rightarrow K_L^0 K_S^0, K_L^0 \rightarrow e^+ \bar{\nu}_e \pi^-, K_S^0 \rightarrow \pi^+ \pi^-$	29	0	1	1	78
31	$D^0 \rightarrow \pi^0 \pi^+ \pi^-$	30	1	0	1	79
32	$D^0 \rightarrow \pi^+ K^- \eta', \eta' \rightarrow \pi^0 \pi^0 \eta, \eta \rightarrow \gamma\gamma$	31	0	1	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	6575	—	6575	6575
2	$\pi^0 \rightarrow e^+e^+e^-e^-$	1	34	—	34	6609

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

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

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

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

Table 15: Decay final states of D^0 .

rowNo	decay final state of D^0	iDcyFStP	nCase	nCcCase	nAllCase	nCCase
1	$D^0 \rightarrow \pi^+ K^-$	2	17	15	32	32
2	$D^0 \rightarrow e^+ \nu_e K^-$	10	1	6	7	39
3	$D^0 \rightarrow \pi^0 \pi^+ K^-$	5	2	3	5	44
4	$D^0 \rightarrow \pi^0 \pi^+ \pi^+ \pi^- K^-$	4	1	3	4	48
5	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ K^-$	6	2	1	3	51
6	$D^0 \rightarrow \pi^+ \pi^+ \pi^- K^-$	18	1	2	3	54
7	$D^0 \rightarrow \pi^0 K_L^0$	9	1	1	2	56
8	$D^0 \rightarrow e^+ \nu_e K_L^0 \pi^-$	0	1	1	2	58
9	$D^0 \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \pi^-$	12	1	1	2	60
10	$D^0 \rightarrow \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	15	2	0	2	62
11	$D^0 \rightarrow \pi^0 \pi^0 K^+ K^-$	17	1	1	2	64
12	$D^0 \rightarrow \pi^0 \pi^+ \pi^-$	7	1	1	2	66
13	$D^0 \rightarrow \pi^+ \pi^+ \pi^- \pi^-$	21	1	1	2	68
14	$D^0 \rightarrow \pi^0 \pi^+ \pi^- K_S^0$	13	1	0	1	69
15	$D^0 \rightarrow e^+ e^- \pi^0 \pi^+ K^-$	14	1	0	1	70
16	$D^0 \rightarrow \pi^0 K_L^0 \pi^+ \pi^-$	1	1	0	1	71
17	$D^0 \rightarrow \pi^+ \pi^+ \pi^- \pi^- \gamma$	16	1	0	1	72
18	$D^0 \rightarrow e^+ e^- \pi^0 \pi^0 \pi^0 \pi^+ \pi^-$	3	0	1	1	73
19	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^0$	11	1	0	1	74
20	$D^0 \rightarrow K_L^0 \pi^+ \pi^-$	19	1	0	1	75
21	$D^0 \rightarrow \mu^+ \nu_\mu K^-$	20	1	0	1	76
22	$D^0 \rightarrow \pi^+ \pi^+ \pi^- K^- \gamma \gamma$	8	1	0	1	77
23	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^-$	22	1	0	1	78
24	$D^0 \rightarrow e^+ \bar{\nu}_e \pi^+ \pi^+ \pi^- \pi^- \pi^-$	23	0	1	1	79
25	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ K^- \gamma \gamma$	24	0	1	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	6575	—	6575	6575
2	$\pi^0 \rightarrow e^+ e^+ e^- e^-$	1	34	—	34	6609

Table 17: Production branches of D_s^+ .

rowNo	production branch of D_s^+	iProdBrP	nCase	nCcCase	nAllCase	nCCase
1	$D_s^{*+} \rightarrow \textcolor{blue}{D}_s^+ \gamma$	5	1	4	5	5
2	$e^- \rightarrow e^+ \pi^0 \pi^0 \pi^- \bar{K}^* \bar{D}^0 \textcolor{blue}{D}_s^+$	1	0	1	1	6
3	$e^- \rightarrow e^+ \pi^0 \pi^+ \pi^- \rho^+ K^{*-} D^{*-} \textcolor{blue}{D}_s^+$	2	0	1	1	7
4	$e^- \rightarrow e^+ \pi^+ \pi^- K^- \bar{D}^0 \textcolor{blue}{D}_s^+ \gamma^I$	3	0	1	1	8
5	$e^+ e^- \rightarrow \pi^0 \pi^- \rho^+ K^- \bar{D}^0 \textcolor{blue}{D}_s^+$	4	1	0	1	9
6	$e^- \rightarrow e^+ \pi^+ \pi^- \pi^- \bar{K}^* \bar{D}^0 \textcolor{blue}{D}_s^+$	0	0	1	1	10
7	$e^- \rightarrow e^+ \pi^0 \pi^+ \pi^- \bar{K}^* D^- \textcolor{blue}{D}_s^+$	6	0	1	1	11
8	$e^- \rightarrow e^+ \pi^+ K^* K^- \textcolor{blue}{D}_s^+ D_s^{*-}$	7	0	1	1	12

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

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

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

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

Table 20: Production branches of D^0 .

rowNo	production branch of D^0	iProdBrP	nCase	nCcCase	nAllCase	nCCase
1	$D^{*+} \rightarrow \pi^+ \textcolor{blue}{D}^0$	2	7	15	22	22
2	$D^{*0} \rightarrow \pi^0 \textcolor{blue}{D}^0$	4	12	8	20	42
3	$D^{*0} \rightarrow \textcolor{blue}{D}^0 \gamma$	3	3	1	4	46
4	$e^+ e^- \rightarrow \pi^- \rho^+ \bar{K}^0 K^+ D^{*-} \textcolor{blue}{D}^0 \gamma^I \gamma^I$	1	1	0	1	47
5	$e^- \rightarrow e^+ \pi^+ \pi^+ \pi^- \eta D^- \textcolor{blue}{D}^0 \gamma^I$	0	0	1	1	48
6	$e^+ e^- \rightarrow \pi^+ \pi^+ \pi^- K^* \textcolor{blue}{D}^0 D_s^-$	5	1	0	1	49
7	$e^+ e^- \rightarrow \pi^0 \pi^+ K^0 K^- \textcolor{blue}{D}^0 \bar{D}^0$	6	1	0	1	50
8	$e^- \rightarrow e^+ \pi^0 \pi^- \bar{K}^0 K^+ \textcolor{blue}{D}^0 \bar{D}^0$	7	0	1	1	51
9	$e^+ e^- \rightarrow \pi^0 \pi^0 \pi^0 \pi^- \textcolor{blue}{D}^0 \bar{D}^0$	8	1	0	1	52
10	$e^- \rightarrow e^+ \pi^0 \pi^0 \pi^0 \pi^- \textcolor{blue}{D}^0 \bar{D}^0$	9	0	1	1	53
11	$e^+ e^- \rightarrow \pi^0 \rho^0 \pi^+ \pi^- \textcolor{blue}{D}^0 \bar{D}^0$	10	1	0	1	54
12	$e^- \rightarrow e^+ \pi^0 \rho^0 \pi^+ \pi^- \textcolor{blue}{D}^0 \bar{D}^0$	11	0	1	1	55
13	$e^+ e^- \rightarrow \pi^0 \pi^0 \pi^+ K^* \textcolor{blue}{D}^0 D_s^-$	12	1	0	1	56
14	$e^+ e^- \rightarrow \pi^+ \pi^- K^+ \textcolor{blue}{D}^0 D_s^- \gamma^I$	13	1	0	1	57
15	$e^- \rightarrow e^+ \pi^+ \pi^+ \rho^- D^- \textcolor{blue}{D}^0 \gamma^I \gamma^I$	14	0	1	1	58
16	$e^- \rightarrow e^+ \pi^0 \pi^+ \pi^+ \pi^- \pi^- D^- \textcolor{blue}{D}^0$	15	0	1	1	59
17	$e^- \rightarrow e^+ \pi^0 \pi^+ \rho^- K^- \textcolor{blue}{D}^0 D_s^-$	16	0	1	1	60
18	$e^- \rightarrow e^+ \pi^- \bar{K}^0 K^+ \textcolor{blue}{D}^0 \bar{D}^{*0} \gamma^I$	17	0	1	1	61
19	$e^+ e^- \rightarrow \pi^0 \pi^+ K^0 \textcolor{blue}{D}^0 D_s^{*-} \gamma^I$	18	1	0	1	62
20	$e^- \rightarrow e^+ \pi^+ \pi^- K^+ K^{*-} \textcolor{blue}{D}^0 \bar{D}^{*0}$	19	0	1	1	63
21	$e^+ e^- \rightarrow \rho^- \omega \bar{K}^0 K^+ \textcolor{blue}{D}^0 \bar{D}^{*0} \gamma^I \gamma^I$	20	1	0	1	64
22	$e^+ e^- \rightarrow \pi^0 \pi^+ \pi^+ \pi^- K^0 \bar{K}^* D^- \textcolor{blue}{D}^0$	21	1	0	1	65
23	$e^+ e^- \rightarrow \pi^0 \pi^+ \pi^- \rho^+ \eta D^{*-} \textcolor{blue}{D}^0 \gamma^I \gamma^I$	22	1	0	1	66
24	$e^+ e^- \rightarrow \pi^0 \pi^+ \pi^- K^+ \textcolor{blue}{D}^0 D_s^{*-}$	23	1	0	1	67
25	$e^- \rightarrow e^+ \pi^0 \pi^+ \pi^- \textcolor{blue}{D}^0 \bar{D}^{*0} \gamma^I$	24	0	1	1	68
26	$e^- \rightarrow e^+ \pi^0 \pi^0 \rho^0 \pi^+ D^{*-} \textcolor{blue}{D}^0 \gamma^I$	25	0	1	1	69
27	$e^+ e^- \rightarrow \pi^+ \pi^+ \rho^- D^- \textcolor{blue}{D}^0$	26	1	0	1	70
28	$e^+ e^- \rightarrow \pi^+ K^0 K^+ K^- \textcolor{blue}{D}^0 D_s^{*-}$	27	1	0	1	71
29	$e^+ e^- \rightarrow \pi^0 \pi^+ \pi^- \pi^- \rho^+ \textcolor{blue}{D}^0 \bar{D}^0$	28	1	0	1	72
30	$e^- \rightarrow e^+ \pi^0 \pi^+ \pi^+ \pi^- \rho^- \textcolor{blue}{D}^0 \bar{D}^0$	29	0	1	1	73
31	$e^+ e^- \rightarrow \pi^0 \pi^+ \pi^- \rho^+ D^{*-} \textcolor{blue}{D}^0 n\bar{n}$	30	1	0	1	74
32	$e^+ e^- \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \omega D^{*-} \textcolor{blue}{D}^0 \gamma^I \gamma^I$	31	1	0	1	75
33	$e^- \rightarrow e^+ \pi^+ \pi^+ \rho^- D^{*-} \textcolor{blue}{D}^0$	32	0	1	1	76

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

Table 21: Production branches of π^0 .

rowNo	production branch of π^0	iProdBrP	nCase	nCcCase	nAllCase	nCCase
1	$\rho^+ \rightarrow \pi^0 \pi^+$	3	18893	0	18893	18893
2	$\rho^- \rightarrow \pi^0 \pi^-$	1	18566	0	18566	37459
3	$\omega \rightarrow \pi^0 \pi^+ \pi^-$	4	18375	—	18375	55834
4	$K_S^0 \rightarrow \pi^0 \pi^0$	13	9756	—	9756	65590
5	$\eta \rightarrow \pi^0 \pi^0 \pi^0$	21	8919	—	8919	74509
6	$\eta \rightarrow \pi^0 \pi^+ \pi^-$	7	2342	—	2342	76851
7	$K^{*+} \rightarrow \pi^0 K^+$	6	2191	0	2191	79042
8	$K^{*-} \rightarrow \pi^0 K^-$	8	2178	0	2178	81220
9	$K^* \rightarrow \pi^0 K^0$	88	1541	0	1541	82761
10	$\bar{K}^* \rightarrow \pi^0 \bar{K}^0$	43	1473	0	1473	84234
11	$\omega \rightarrow \pi^0 \gamma$	18	1259	—	1259	85493
12	$\eta' \rightarrow \pi^0 \pi^0 \eta$	34	908	—	908	86401
13	$K_L^0 \rightarrow \pi^0 \pi^0 \pi^0$	117	708	—	708	87109
14	$\bar{\Lambda} \rightarrow \pi^0 \bar{n}$	57	377	0	377	87486
15	$\Lambda \rightarrow \pi^0 n$	25	344	0	344	87830
16	$\bar{\Delta}^- \rightarrow \pi^0 \bar{p}$	2	221	0	221	88051
17	$\Delta^0 \rightarrow \pi^0 n$	61	210	0	210	88261
18	$\Delta^+ \rightarrow \pi^0 p$	246	207	0	207	88468
19	$\bar{\Delta}^0 \rightarrow \pi^0 \bar{n}$	55	196	0	196	88664
20	$K_L^0 \rightarrow \pi^0 \pi^+ \pi^-$	97	150	—	150	88814
21	$\bar{\Sigma}^- \rightarrow \pi^0 \bar{p}$	262	133	0	133	88947
22	$\Sigma^+ \rightarrow \pi^0 p$	102	114	0	114	89061
23	$\bar{\Xi}^0 \rightarrow \pi^0 \bar{\Lambda}$	334	99	0	99	89160
24	$\Xi^0 \rightarrow \pi^0 \Lambda$	162	82	0	82	89242
25	$\phi \rightarrow \pi^0 \rho^0$	376	81	—	81	89323
26	$e^+ e^- \rightarrow \pi^0 \pi^0 \rho^0 \pi^+ \pi^- \pi^- \rho^+$	476	64	0	64	89387
27	$e^+ e^- \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \rho^- \omega$	877	58	0	58	89445
28	$\bar{\Sigma}^{*0} \rightarrow \pi^0 \bar{\Lambda}$	302	56	0	56	89501
29	$e^+ e^- \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \rho^- K^+ K^-$	769	52	0	52	89553
30	$e^+ e^- \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^- \pi^- \rho^+ \omega$	695	51	0	51	89604
31	$\omega \rightarrow e^+ e^- \pi^0$	610	50	—	50	89654
32	$e^+ e^- \rightarrow \pi^0 \pi^0 \rho^0 \pi^+ \pi^+ \pi^- \pi^- \gamma^I$	989	50	0	50	89704
33	$e^+ e^- \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^- \rho^+ \rho^- \gamma^I$	3311	50	0	50	89754

rowNo	production branch of π^0	iProdBrP	nCase	nCcCase	nAllCase	nCCCase
34	$\Sigma^{*0} \rightarrow \pi^0 \Lambda$	279	48	0	48	89802
35	$e^+e^- \rightarrow \pi^0 \pi^0 \pi^0 \rho^0 \pi^+ \pi^+ \pi^- \rho^-$	1894	48	0	48	89850
36	$e^+e^- \rightarrow \pi^0 \pi^0 \rho^0 \pi^+ \pi^+ \pi^- \pi^- \omega \gamma^I$	37	46	0	46	89896
37	$e^+e^- \rightarrow \pi^0 \pi^0 \rho^0 \pi^+ \pi^+ \pi^- \rho^- \gamma^I$	3594	46	0	46	89942
38	$e^+e^- \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^- K^+ K^- \gamma^I$	1603	45	0	45	89987
39	$e^+e^- \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \rho^- \omega \gamma^I$	1152	44	0	44	90031
40	$e^+e^- \rightarrow \pi^0 \pi^0 \rho^0 \pi^+ \pi^+ \pi^- \pi^- \omega$	2157	44	0	44	90075
41	$e^+e^- \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^- \rho^- \gamma^I$	2980	44	0	44	90119
42	$e^+e^- \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \rho^- \gamma^I$	188	42	0	42	90161
43	$e^+e^- \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^- \gamma^I$	700	42	0	42	90203
44	$e^+e^- \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^- \rho^+$	1272	42	0	42	90245
45	$e^+e^- \rightarrow \pi^0 \pi^0 \rho^0 \pi^+ \pi^+ \pi^- \rho^-$	1478	42	0	42	90287
46	$e^+e^- \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \omega$	1661	42	0	42	90329
47	$e^+e^- \rightarrow \pi^0 \pi^0 \pi^0 \rho^0 \pi^+ \pi^+ \pi^- \pi^- \omega$	3405	42	0	42	90371
48	$e^+e^- \rightarrow \pi^0 \pi^0 \rho^0 \pi^+ \pi^- \pi^- \rho^+ \gamma^I$	477	40	0	40	90411
49	$e^+e^- \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^+ \pi^- \pi^- \rho^-$	615	40	0	40	90451
50	$e^+e^- \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^- \omega$	2082	40	0	40	90491
51	$e^+e^- \rightarrow \pi^0 \pi^0 \pi^0 \rho^0 \pi^+ \pi^+ \pi^- \pi^-$	229	39	0	39	90530
52	$e^+e^- \rightarrow \pi^0 \pi^0 \pi^0 \rho^0 \pi^+ \pi^- \pi^- \rho^+$	2275	39	0	39	90569
53	$e^+e^- \rightarrow \pi^0 \pi^0 \pi^+ \pi^- \rho^+ \rho^- \omega$	1935	38	0	38	90607
54	$e^+e^- \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^- K^+ K^- \gamma^I$	40	36	0	36	90643
55	$e^+e^- \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^- \omega \gamma^I$	119	36	0	36	90679
56	$e^+e^- \rightarrow \pi^0 \pi^0 \rho^0 \pi^+ \pi^- \rho^+ \rho^-$	676	36	0	36	90715
57	$e^+e^- \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- K^0 K^-$	735	36	0	36	90751
58	$e^+e^- \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \pi^- \rho^+ \rho^-$	1004	36	0	36	90787
59	$e^+e^- \rightarrow \pi^0 \rho^0 \pi^+ \pi^+ \pi^- \pi^- \omega$	2027	35	0	35	90822
60	$e^+e^- \rightarrow \pi^0 \rho^0 \pi^+ \pi^+ \pi^- \pi^- \omega \gamma^I$	124	34	0	34	90856
61	$e^+e^- \rightarrow \pi^0 \pi^0 \rho^0 \pi^+ \pi^+ \pi^- \rho^- \omega$	398	34	0	34	90890
62	$e^+e^- \rightarrow \pi^0 \pi^0 \rho^0 \pi^+ \pi^- \gamma^I$	3051	34	0	34	90924
63	$e^+e^- \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^+ \pi^- \pi^- \rho^- \omega$	5222	34	0	34	90958
64	$e^+e^- \rightarrow \pi^0 \pi^0 \pi^+ \pi^- \rho^+ \rho^- \gamma^I$	6059	34	0	34	90992
65	$e^+e^- \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \rho^- \omega$	481	33	0	33	91025
66	$e^+e^- \rightarrow \pi^0 \pi^0 \pi^0 \rho^0 \pi^+ \pi^+ \pi^- \pi^- \gamma^I$	2193	33	0	33	91058
67	$e^+e^- \rightarrow \pi^0 \rho^0 \pi^+ \pi^- \pi^- \rho^+$	696	32	0	32	91090

rowNo	production branch of π^0	iProdBrP	nCase	nCcCase	nAllCase	nCCCase
68	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-\bar{K}^0K^+\gamma^I$	2686	32	0	32	91122
69	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^-\pi^-\pi^-\rho^+$	3254	32	0	32	91154
70	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-\rho^+K^+K^-$	5285	32	0	32	91186
71	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-\rho^+K^+K^-\gamma^I$	6976	32	0	32	91218
72	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\rho^-\gamma^I$	52	31	0	31	91249
73	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^-\pi^-$	138	30	0	30	91279
74	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-$	485	30	0	30	91309
75	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^-\rho^+\rho^-\gamma^I$	645	30	0	30	91339
76	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-$	853	30	0	30	91369
77	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-\rho^+\omega$	919	30	0	30	91399
78	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-\rho^+$	1093	30	0	30	91429
79	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^-\pi^-\rho^+\omega\gamma^I$	1234	30	0	30	91459
80	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^-\pi^-\rho^+\omega\gamma^I$	1685	30	0	30	91489
81	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^-\rho^+\rho^-\gamma^I$	2720	30	0	30	91519
82	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^-\pi^-\rho^+\gamma^I$	2921	30	0	30	91549
83	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-\bar{K}^0K^+$	3164	30	0	30	91579
84	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^*K^-$	5497	30	0	30	91609
85	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^-\pi^-\rho^+\gamma^I$	5849	30	0	30	91639
86	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^+\rho^-$	6230	30	0	30	91669
87	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\rho^+\rho^-K^+K^-$	356	29	0	29	91698
88	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\omega K^+K^-\gamma^I$	390	29	0	29	91727
89	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^-\rho^+\rho^-\gamma^I$	984	28	0	28	91755
90	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^+\rho^-\omega\gamma^I$	1372	28	0	28	91783
91	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\rho^-K^+K^-\gamma^I$	1600	28	0	28	91811
92	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\omega$	1709	28	0	28	91839
93	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^+K^0K^-\gamma^I$	2065	28	0	28	91867
94	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\rho^-\omega$	2322	28	0	28	91895
95	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\gamma^I$	2668	28	0	28	91923
96	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^-\pi^-K^+K^-$	3218	28	0	28	91951
97	$e^+e^- \rightarrow \pi^0\pi^0\rho^0\pi^+\pi^-\omega\gamma^I\gamma^I$	3479	28	0	28	91979
98	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\rho^-\bar{K}^0K^+$	3513	28	0	28	92007
99	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\omega K^+K^-$	8325	28	0	28	92035
100	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\pi^+\pi^-\pi^-\gamma^I$	1724	27	0	27	92062
rest	others (15602 in total)	—	—	—	44775	136837

Table 22: Production branches of e^+ .

rowNo	production branch of e^+	iProdBrP	nCase	nCcCase	nAllCase	nCCase
1	$\pi^0 \rightarrow e^+e^-$	1	6575	6575	13150	13150
2	$\eta \rightarrow e^+e^-$	7	222	222	444	13594
3	$K_L^0 \rightarrow e^+\bar{\nu}_e\pi^-$	6	0	287	287	13881
4	$K_L^0 \rightarrow e^+\nu_e\pi^-$	0	253	0	253	14134
5	$\pi^0 \rightarrow e^+e^+e^-e^-$	8	68	68	136	14270
6	$\omega \rightarrow e^+e^-\pi^0$	11	50	50	100	14370
7	$\eta' \rightarrow e^+e^-\pi^+\pi^-$	2	18	18	36	14406
8	$\Sigma^0 \rightarrow e^+e^-\Lambda$	10	7	9	16	14422
9	$\bar{\Sigma}^0 \rightarrow e^+e^-\bar{\Lambda}$	9	9	7	16	14438
10	$\eta \rightarrow e^+e^-\pi^+\pi^-$	5	7	7	14	14452
11	$K_S^0 \rightarrow e^+\bar{\nu}_e\pi^-$	12	0	14	14	14466
12	$K_S^0 \rightarrow e^+\nu_e\pi^-$	13	11	0	11	14477
13	$D^0 \rightarrow e^+\nu_eK^-$	15	1	6	7	14484
14	$\omega \rightarrow e^+e^-$	14	2	2	4	14488
15	$\rho^0 \rightarrow e^+e^-$	16	2	2	4	14492
16	$D^+ \rightarrow e^+\nu_e\bar{K}^0$	18	3	0	3	14495
17	$D^0 \rightarrow e^+\nu_eK^{*-}$	4	1	1	2	14497
18	$\bar{\Xi}^0 \rightarrow e^+\nu_e\bar{\Sigma}^-$	19	2	0	2	14499
19	$K_S^0 \rightarrow e^+e^-\pi^+\pi^-$	22	1	1	2	14501
20	$D_s^+ \rightarrow e^+\nu_e\eta$	17	0	1	1	14502
21	$\bar{\Lambda} \rightarrow e^+\nu_e\bar{p}$	20	1	0	1	14503
22	$\bar{\Sigma}^+ \rightarrow e^+\nu_e\bar{n}$	21	1	0	1	14504
23	$D^+ \rightarrow e^+\nu_e\bar{K}^*$	3	1	0	1	14505

Table 23: Mothers of D_s^+ .

rowNo	mother of D_s^+	PDGMoth	nCase	nCcCase	nAllCase	nCCase
1	e^+e^-	99999999	1	6	7	7
2	D_s^{*+}	433	1	4	5	12

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

rowNo	mother of D^{*+}	PDGMoth	nCase	nCcCase	nAllCase	nCCase
1	e^+e^-	99999999	9	16	25	25

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

rowNo	mother of D^{*0}	PDGMoth	nCase	nCcCase	nAllCase	nCCase
1	e^+e^-	99999999	15	9	24	24

Table 26: Mothers of D^0 .

rowNo	mother of D^0	PDGMoth	nCase	nCcCase	nAllCase	nCCase
1	e^+e^-	99999999	19	15	34	34
2	D^{*0}	423	15	9	24	58
3	D^{*+}	413	7	15	22	80

Table 27: Mothers of π^0 .

rowNo	mother of π^0	PDGMoth	nCase	nCcCase	nAllCase	nCCase
1	e^+e^-	99999999	47219	—	47219	47219
2	ρ^-	-213	18566	18893	37459	84678
3	ω	223	19688	—	19688	104366
4	η	221	11263	—	11263	115629
5	K_S^0	310	9756	—	9756	125385
6	K^{*+}	323	2191	2178	4369	129754
7	\bar{K}^*	-313	1473	1541	3014	132768
8	η'	331	918	—	918	133686
9	K_L^0	130	858	—	858	134544
10	Λ	3122	344	377	721	135265
11	$\bar{\Delta}^-$	-2214	221	207	428	135693
12	$\bar{\Delta}^0$	-2114	196	210	406	136099
13	Σ^+	3222	114	133	247	136346
14	Ξ^0	3322	82	99	181	136527
15	Σ^{*0}	3214	48	56	104	136631
16	ϕ	333	93	—	93	136724
17	D^0	421	14	11	25	136749
18	D^{*0}	423	12	8	20	136769
19	Σ^{*-}	3114	11	6	17	136786
20	D^-	-411	6	6	12	136798
21	ρ^0	113	12	—	12	136810
22	$\bar{\Xi}^{*0}$	-3324	7	3	10	136820
23	$\bar{\Sigma}^{*-}$	-3224	6	2	8	136828
24	D^{*-}	-413	1	2	3	136831
25	Ξ^{*-}	3314	2	0	2	136833
26	$f_0(600)$	9000221	2	—	2	136835
27	D_s^-	-431	1	0	1	136836
28	a_1^+	20213	1	0	1	136837

Table 28: Mothers of e^+ .

rowNo	mother of e^+	PDGMoth	nCase	nCcCase	nAllCase	nCCase
1	π^0	111	6643	6643	13286	13286
2	K_L^0	130	253	287	540	13826
3	η	221	229	229	458	14284
4	ω	223	52	52	104	14388
5	η'	331	18	18	36	14424
6	K_S^0	310	12	15	27	14451
7	$\bar{\Sigma}^0$	-3212	9	7	16	14467
8	Σ^0	3212	7	9	16	14483
9	D^0	421	2	7	9	14492
10	D^+	411	4	0	4	14496
11	ρ^0	113	2	2	4	14500
12	$\bar{\Xi}^0$	-3322	2	0	2	14502
13	D_s^+	431	0	1	1	14503
14	$\bar{\Lambda}$	-3122	1	0	1	14504
15	$\bar{\Sigma}^+$	-3112	1	0	1	14505