

# Topology Analysis <sup>\*†‡§</sup>

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<sup>†</sup>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.

<sup>‡</sup>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.

<sup>§</sup>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	$e^+e^- \rightarrow \pi^0\pi^+D^{*-}D^{*0}\gamma^I, D^{*-} \rightarrow \pi^-\bar{D}^0, D^{*0} \rightarrow \pi^0D^0, \bar{D}^0 \rightarrow \pi^-K^+, D^0 \rightarrow \pi^0\pi^+K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	502	255	279	285	564	564
2	$e^+e^- \rightarrow \pi^0\pi^-D^{*+}\bar{D}^{*0}, D^{*+} \rightarrow \pi^+D^0, \bar{D}^{*0} \rightarrow \pi^0\bar{D}^0, D^0 \rightarrow \pi^+K^-, \bar{D}^0 \rightarrow \pi^0\pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	2129	67	232	236	468	1032
3	$e^+e^- \rightarrow \pi^+\pi^-D^{*+}D^{*-}\gamma^I, D^{*+} \rightarrow \pi^+D^0, D^{*-} \rightarrow \pi^-\bar{D}^0, D^0 \rightarrow \pi^0\pi^+K^-, \bar{D}^0 \rightarrow \pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	1593	1052	181	248	429	1461
4	$e^+e^- \rightarrow \pi^+\pi^-D^{*+}D^{*-}, D^{*+} \rightarrow \pi^+D^0, D^{*-} \rightarrow \pi^-\bar{D}^0, D^0 \rightarrow \pi^+K^-, \bar{D}^0 \rightarrow \pi^0\pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	9121	24	216	199	415	1876
5	$e^+e^- \rightarrow \pi^+D^{*-}D^{*0}\gamma^I, D^{*-} \rightarrow \pi^-\bar{D}^0, D^{*0} \rightarrow \pi^0D^0, \bar{D}^0 \rightarrow \pi^-K^+, D^0 \rightarrow \pi^0\pi^+K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	10074	158	202	206	408	2284
6	$e^+e^- \rightarrow \pi^0\pi^+\pi^-D^{*+}D^{*-}, D^{*+} \rightarrow \pi^+D^0, D^{*-} \rightarrow \pi^-\bar{D}^0, D^0 \rightarrow \pi^+K^-, \bar{D}^0 \rightarrow \pi^0\pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	677	37	194	161	355	2639
7	$e^+e^- \rightarrow \pi^0\pi^+\pi^-D^{*+}D^{*-}\gamma^I, D^{*+} \rightarrow \pi^+D^0, D^{*-} \rightarrow \pi^-\bar{D}^0, D^0 \rightarrow \pi^0\pi^+K^-, \bar{D}^0 \rightarrow \pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	16791	138	170	181	351	2990
8	$e^+e^- \rightarrow \pi^0\pi^+D^{*-}D^{*0}, D^{*-} \rightarrow \pi^-\bar{D}^0, D^{*0} \rightarrow \pi^0D^0, \bar{D}^0 \rightarrow \pi^0\pi^-K^+, D^0 \rightarrow \pi^+K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	4437	67	176	129	305	3295
9	$e^+e^- \rightarrow \pi^0\pi^+D^{*-}D^{*0}\gamma^I, D^{*-} \rightarrow \pi^-\bar{D}^0, D^{*0} \rightarrow \pi^0D^0, \bar{D}^0 \rightarrow \pi^0\pi^-K^+, D^0 \rightarrow \pi^+K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	5842	255	166	126	292	3587
10	$e^+e^- \rightarrow \pi^0\pi^-D^{*+}\bar{D}^{*0}\gamma^I, D^{*+} \rightarrow \pi^+D^0, \bar{D}^{*0} \rightarrow \bar{D}^0\gamma, D^0 \rightarrow \pi^+K^-, \bar{D}^0 \rightarrow \pi^0\pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma)$	16282	106	153	132	285	3872
11	$e^+e^- \rightarrow \pi^+D^{*-}D^{*0}, D^{*-} \rightarrow \pi^-\bar{D}^0, D^{*0} \rightarrow \pi^0D^0, \bar{D}^0 \rightarrow \pi^-K^+, D^0 \rightarrow \pi^0\pi^+K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-)$	2295	429	120	154	274	4146
12	$e^+e^- \rightarrow \pi^0\pi^+D^{*-}D^{*0}\gamma^I\gamma^I, D^{*-} \rightarrow \pi^-\bar{D}^0, D^{*0} \rightarrow \pi^0D^0, \bar{D}^0 \rightarrow \pi^-K^+, D^0 \rightarrow \pi^0\pi^+K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma^I)$	11103	3	136	138	274	4420
13	$e^+e^- \rightarrow \pi^0D^{*+}D^{*-}\gamma^I, D^{*+} \rightarrow \pi^+D^0, D^{*-} \rightarrow \pi^-\bar{D}^0, D^0 \rightarrow \pi^0\pi^+K^-, \bar{D}^0 \rightarrow \pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	3188	158	109	157	266	4686
14	$e^+e^- \rightarrow \pi^0\pi^-D^{*+}\bar{D}^{*0}, D^{*+} \rightarrow \pi^+D^0, \bar{D}^{*0} \rightarrow \bar{D}^0\gamma, D^0 \rightarrow \pi^+K^-, \bar{D}^0 \rightarrow \pi^0\pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	4713	2132	129	137	266	4952
15	$e^+e^- \rightarrow \pi^+D^{*-}D^{*0}\gamma^I\gamma^I, D^{*-} \rightarrow \pi^-\bar{D}^0, D^{*0} \rightarrow \pi^0D^0, \bar{D}^0 \rightarrow \pi^-K^+, D^0 \rightarrow \pi^0\pi^+K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma^I)$	4316	1119	131	131	262	5214
16	$e^+e^- \rightarrow \pi^0\pi^-D^{*-}D^0\gamma^I, D^{*-} \rightarrow \pi^-\bar{D}^0, D^0 \rightarrow \pi^0\pi^+K^-, \bar{D}^0 \rightarrow \pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	9399	158	123	131	254	5468
17	$e^+e^- \rightarrow \pi^+D^{*-}D^{*0}\gamma^I, D^{*-} \rightarrow \pi^-\bar{D}^0, D^{*0} \rightarrow \pi^0D^0, \bar{D}^0 \rightarrow \pi^0\pi^-K^+, D^0 \rightarrow \pi^+K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	14463	158	148	104	252	5720

rowNo	decay tree (decay initial-final states)	iDcyTr	iDcyIFsts	nEtr	nCcEtr	nAllEtr	nCEtr
18	$e^+e^- \rightarrow \pi^+\pi^- D^{*0} \bar{D}^{*0} \gamma^I, D^{*0} \rightarrow \pi^0 D^0, \bar{D}^{*0} \rightarrow \pi^0 \bar{D}^0, D^0 \rightarrow \pi^0 \pi^+ K^-, \bar{D}^0 \rightarrow \pi^- K^+$ $(e^+e^- \dashrightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^- K^+ K^- \gamma^I)$	8864	255	115	131	246	5966
19	$e^+e^- \rightarrow \pi^0 \pi^- D^{*+} \bar{D}^0, D^{*+} \rightarrow \pi^+ D^0, \bar{D}^0 \rightarrow \pi^0 \pi^- K^+, D^0 \rightarrow \pi^+ K^-$ $(e^+e^- \dashrightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^- K^+ K^-)$	3548	429	125	99	224	6190
20	$e^+e^- \rightarrow \pi^0 D^{*+} D^{*-}, D^{*+} \rightarrow \pi^+ D^0, D^{*-} \rightarrow \pi^- \bar{D}^0, D^0 \rightarrow \pi^+ K^-, \bar{D}^0 \rightarrow \pi^0 \pi^- K^+$ $(e^+e^- \dashrightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^- K^+ K^-)$	2642	429	107	111	218	6408
21	$e^+e^- \rightarrow \pi^- D^{*+} \bar{D}^0 \gamma^I, D^{*+} \rightarrow \pi^+ D^0, \bar{D}^0 \rightarrow \pi^0 \pi^- K^+, D^0 \rightarrow \pi^+ K^-$ $(e^+e^- \dashrightarrow \pi^0 \pi^+ \pi^+ \pi^- \pi^- K^+ K^- \gamma^I)$	11120	1490	119	92	211	6619
22	$e^+e^- \rightarrow \pi^0 \pi^+ D^{*-} D^{*0} \gamma^I, D^{*-} \rightarrow \pi^- \bar{D}^0, D^{*0} \rightarrow \pi^0 D^0, \bar{D}^0 \rightarrow \pi^- K^+, D^0 \rightarrow \pi^+ K^-$ $(e^+e^- \dashrightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^- K^+ K^- \gamma^I)$	17531	158	121	85	206	6825
23	$e^+e^- \rightarrow \pi^+ \pi^- D^{*+} \bar{D}^{*0}, D^{*+} \rightarrow \pi^+ D^0, \bar{D}^{*0} \rightarrow \pi^0 \bar{D}^0, D^0 \rightarrow \pi^+ K^-, \bar{D}^0 \rightarrow \pi^0 \pi^- K^+$ $(e^+e^- \dashrightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^- \pi^- K^+ K^-)$	1629	37	105	98	203	7028
24	$e^+e^- \rightarrow \pi^+ \pi^- D^{*0} \bar{D}^{*0}, D^{*0} \rightarrow \pi^0 D^0, \bar{D}^{*0} \rightarrow \pi^0 \bar{D}^0, D^0 \rightarrow \pi^0 \pi^+ K^-, \bar{D}^0 \rightarrow \pi^- K^+$ $(e^+e^- \dashrightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^- K^+ K^-)$	1289	67	97	105	202	7230
25	$e^+e^- \rightarrow \pi^+ \pi^- D^{*+} D^{*-} \gamma^I \gamma^I, D^{*+} \rightarrow \pi^+ D^0, D^{*-} \rightarrow \pi^- \bar{D}^0, D^0 \rightarrow \pi^0 \pi^+ K^-, \bar{D}^0 \rightarrow \pi^- K^+$ $(e^+e^- \dashrightarrow \pi^0 \pi^+ \pi^+ \pi^- \pi^- \pi^- K^+ K^- \gamma^I \gamma^I)$	2890	854	89	113	202	7432
26	$e^+e^- \rightarrow \pi^0 \pi^+ \pi^- D^{*0} \bar{D}^{*0}, D^{*0} \rightarrow \pi^0 D^0, \bar{D}^{*0} \rightarrow \pi^0 \bar{D}^0, D^0 \rightarrow \pi^+ K^-, \bar{D}^0 \rightarrow \pi^0 \pi^- K^+$ $(e^+e^- \dashrightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \pi^- \pi^- K^+ K^-)$	6946	141	104	95	199	7631
27	$e^+e^- \rightarrow \pi^+ D^{*-} D^{*0} \gamma^I, D^{*-} \rightarrow \pi^- \bar{D}^0, D^{*0} \rightarrow D^0 \gamma, \bar{D}^0 \rightarrow \pi^- K^+, D^0 \rightarrow \pi^0 \pi^+ K^-$ $(e^+e^- \dashrightarrow \pi^0 \pi^+ \pi^+ \pi^- \pi^- K^+ K^- \gamma^I \gamma)$	960	772	84	111	195	7826
28	$e^+e^- \rightarrow \pi^0 \pi^0 \pi^+ D^{*-} D^{*0}, D^{*-} \rightarrow \pi^- \bar{D}^0, D^{*0} \rightarrow \pi^0 D^0, \bar{D}^0 \rightarrow \pi^- K^+, D^0 \rightarrow \pi^0 \pi^+ K^-$ $(e^+e^- \dashrightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^- K^+ K^-)$	2239	141	88	105	193	8019
29	$e^+e^- \rightarrow \pi^0 \pi^0 \pi^+ D^{*-} D^{*0} \gamma^I, D^{*-} \rightarrow \pi^- \bar{D}^0, D^{*0} \rightarrow \pi^0 D^0, \bar{D}^0 \rightarrow \pi^- K^+, D^0 \rightarrow \pi^0 \pi^+ K^-$ $(e^+e^- \dashrightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \pi^- \pi^- K^+ K^- \gamma^I)$	5157	121	81	111	192	8211
30	$e^+e^- \rightarrow \pi^0 \pi^+ \pi^- D^{*0} \bar{D}^{*0} \gamma^I, D^{*0} \rightarrow \pi^0 D^0, \bar{D}^{*0} \rightarrow \pi^0 \bar{D}^0, D^0 \rightarrow \pi^+ K^-, \bar{D}^0 \rightarrow \pi^0 \pi^- K^+$ $(e^+e^- \dashrightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^- K^+ K^- \gamma^I)$	3576	121	97	93	190	8401
31	$e^+e^- \rightarrow \pi^+ \pi^- \rho^- D^{*+} \bar{D}^{*0}, \rho^- \rightarrow \pi^0 \pi^-, D^{*+} \rightarrow \pi^+ D^0, \bar{D}^{*0} \rightarrow \pi^0 \bar{D}^0, D^0 \rightarrow \pi^+ K^-,$ $\bar{D}^0 \rightarrow \pi^0 \pi^- K^+$ $(e^+e^- \dashrightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^- \pi^- K^+ K^-)$	16621	31	105	84	189	8590
32	$e^+e^- \rightarrow \pi^0 D^{*+} D^{*-} \gamma^I \gamma^I, D^{*+} \rightarrow \pi^+ D^0, D^{*-} \rightarrow \pi^- \bar{D}^0, D^0 \rightarrow \pi^+ K^-, \bar{D}^0 \rightarrow \pi^0 \pi^- K^+$ $(e^+e^- \dashrightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^- K^+ K^- \gamma^I \gamma^I)$	21253	1119	104	85	189	8779
33	$e^+e^- \rightarrow \pi^+ \omega D^{*-} D^{*0} \gamma^I, \omega \rightarrow \pi^0 \pi^+ \pi^-, D^{*-} \rightarrow \pi^- \bar{D}^0, D^{*0} \rightarrow \pi^0 D^0, \bar{D}^0 \rightarrow \pi^- K^+,$ $D^0 \rightarrow \pi^0 \pi^+ K^-$ $(e^+e^- \dashrightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^- \pi^- K^+ K^- \gamma^I)$	8240	267	85	99	184	8963
34	$e^+e^- \rightarrow \pi^+ \pi^+ \pi^- D^{*-} D^{*0} \gamma^I, D^{*-} \rightarrow \pi^- \bar{D}^0, D^{*0} \rightarrow \pi^0 D^0, \bar{D}^0 \rightarrow \pi^- K^+, D^0 \rightarrow \pi^0 \pi^+ K^-$ $(e^+e^- \dashrightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^- \pi^- K^+ K^- \gamma^I)$	33125	138	98	86	184	9147

rowNo	decay tree (decay initial-final states)	iDcyTr	iDcyIFsts	nEtr	nCcEtr	nAllEtr	nCEtr
35	$e^+e^- \rightarrow \pi^0\pi^+D^{*-}D^{*0}, D^{*-} \rightarrow \pi^-\bar{D}^0, D^{*0} \rightarrow \pi^0D^0, \bar{D}^0 \rightarrow \pi^-K^+, D^0 \rightarrow \pi^+K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-)$	21533	429	80	98	178	9325
36	$e^+e^- \rightarrow \pi^+D^{*-}D^{*0}\gamma^I, D^{*-} \rightarrow \pi^-\bar{D}^0, D^{*0} \rightarrow \pi^0D^0, \bar{D}^0 \rightarrow \pi^-K^+, D^0 \rightarrow \pi^+K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	2021	1490	87	88	175	9500
37	$e^+e^- \rightarrow \pi^0\pi^-D^{*+}\bar{D}^{*0}\gamma^I, D^{*+} \rightarrow \pi^+D^0, \bar{D}^{*0} \rightarrow \bar{D}^0\gamma, D^0 \rightarrow \pi^0\pi^+K^-, \bar{D}^0 \rightarrow \pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma)$	2599	106	89	86	175	9675
38	$e^+e^- \rightarrow \pi^0\pi^0D^{*+}D^{*-}\gamma^I, D^{*+} \rightarrow \pi^+D^0, D^{*-} \rightarrow \pi^-\bar{D}^0, D^0 \rightarrow \pi^0\pi^+K^-, \bar{D}^0 \rightarrow \pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	6757	255	84	90	174	9849
39	$e^+e^- \rightarrow \pi^+\omega D^{*-}D^{*0}, \omega \rightarrow \pi^0\pi^+\pi^-, D^{*-} \rightarrow \pi^-\bar{D}^0, D^{*0} \rightarrow \pi^0D^0, \bar{D}^0 \rightarrow \pi^-K^+,$ $D^0 \rightarrow \pi^0\pi^+K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-)$	31	31	79	93	172	10021
40	$e^+e^- \rightarrow \pi^0\pi^+\omega D^{*-}D^{*0}, \omega \rightarrow \pi^0\pi^+\pi^-, D^{*-} \rightarrow \pi^-\bar{D}^0, D^{*0} \rightarrow \pi^0D^0, \bar{D}^0 \rightarrow \pi^-K^+,$ $D^0 \rightarrow \pi^0\pi^+K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-)$	2731	268	75	95	170	10191
41	$e^+e^- \rightarrow \pi^0\pi^-\rho^+D^{*+}D^{*-}\gamma^I, \rho^+ \rightarrow \pi^0\pi^+, D^{*+} \rightarrow \pi^+D^0, D^{*-} \rightarrow \pi^-\bar{D}^0, D^0 \rightarrow \pi^+K^-,$ $\bar{D}^0 \rightarrow \pi^0\pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I)$	11606	267	92	76	168	10359
42	$e^+e^- \rightarrow \pi^0\pi^+D^{*-}D^{*0}\gamma^I\gamma^I, D^{*-} \rightarrow \pi^-\bar{D}^0, D^{*0} \rightarrow \pi^0D^0, \bar{D}^0 \rightarrow \pi^0\pi^-K^+, D^0 \rightarrow \pi^+K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma^I)$	1721	3	83	83	166	10525
43	$e^+e^- \rightarrow \pi^-\rho^+D^{*+}D^{*-}, \rho^+ \rightarrow \pi^0\pi^+, D^{*+} \rightarrow \pi^+D^0, D^{*-} \rightarrow \pi^-\bar{D}^0, D^0 \rightarrow \pi^0\pi^+K^-,$ $\bar{D}^0 \rightarrow \pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-)$	1117	37	78	87	165	10690
44	$e^+e^- \rightarrow \pi^0\pi^-\rho^-D^{*+}D^{*-}\gamma^I, \rho^- \rightarrow \pi^0\pi^-, D^{*+} \rightarrow \pi^+D^0, D^{*-} \rightarrow \pi^-\bar{D}^0, D^0 \rightarrow \pi^+K^-,$ $\bar{D}^0 \rightarrow \pi^0\pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I)$	1745	267	103	62	165	10855
45	$e^+e^- \rightarrow \pi^0\rho^-D^{*+}\bar{D}^{*0}\gamma^I, \rho^- \rightarrow \pi^0\pi^-, D^{*+} \rightarrow \pi^+D^0, \bar{D}^{*0} \rightarrow \pi^0\bar{D}^0, D^0 \rightarrow \pi^+K^-,$ $\bar{D}^0 \rightarrow \pi^0\pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	2889	121	84	81	165	11020
46	$e^+e^- \rightarrow \pi^0\pi^-D^{*+}\bar{D}^{*0}, D^{*+} \rightarrow \pi^+D^0, \bar{D}^{*0} \rightarrow \bar{D}^0\gamma, D^0 \rightarrow \pi^0\pi^+K^-, \bar{D}^0 \rightarrow \pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma)$	33149	2132	94	71	165	11185
47	$e^+e^- \rightarrow \pi^0\rho^-D^{*+}\bar{D}^{*0}, \rho^- \rightarrow \pi^0\pi^-, D^{*+} \rightarrow \pi^+D^0, \bar{D}^{*0} \rightarrow \pi^0\bar{D}^0, D^0 \rightarrow \pi^+K^-,$ $\bar{D}^0 \rightarrow \pi^0\pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-)$	22280	141	85	79	164	11349
48	$e^+e^- \rightarrow \pi^0\rho^0\pi^+D^{*-}D^{*0}, \rho^0 \rightarrow \pi^+\pi^-, D^{*-} \rightarrow \pi^-\bar{D}^0, D^{*0} \rightarrow \pi^0D^0, \bar{D}^0 \rightarrow \pi^-K^+,$ $D^0 \rightarrow \pi^0\pi^+K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-)$	15833	31	65	96	161	11510

rowNo	decay tree (decay initial-final states)	iDcyTr	iDcyIFsts	nEtr	nCcEtr	nAllEtr	nCEtr
49	$e^+e^- \rightarrow \pi^0\pi^+\rho^-D^{*+}D^{*-}, \rho^- \rightarrow \pi^0\pi^-, D^{*+} \rightarrow \pi^+D^0, D^{*-} \rightarrow \pi^-\bar{D}^0, D^0 \rightarrow \pi^+K^-,$ $\bar{D}^0 \rightarrow \pi^0\pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-)$	5486	31	83	77	160	11670
50	$e^+e^- \rightarrow \pi^+\pi^-\omega D^{*+}D^{*-}, \omega \rightarrow \pi^0\pi^+\pi^-, D^{*+} \rightarrow \pi^+D^0, D^{*-} \rightarrow \pi^-\bar{D}^0, D^0 \rightarrow \pi^+K^-,$ $\bar{D}^0 \rightarrow \pi^0\pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-)$	5968	77	84	76	160	11830
51	$e^+e^- \rightarrow \pi^0\pi^+\pi^-D^{*+}D^{*-}\gamma^I\gamma^I, D^{*+} \rightarrow \pi^+D^0, D^{*-} \rightarrow \pi^-\bar{D}^0, D^0 \rightarrow \pi^0\pi^+K^-, \bar{D}^0 \rightarrow \pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma^I)$	13018	886	70	90	160	11990
52	$e^+e^- \rightarrow \pi^0D^{*0}\bar{D}^{*0}\gamma^I, D^{*0} \rightarrow \pi^0D^0, \bar{D}^{*0} \rightarrow \pi^0\bar{D}^0, D^0 \rightarrow \pi^+K^-, \bar{D}^0 \rightarrow \pi^0\pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^-K^+K^-\gamma^I)$	4514	2754	70	89	159	12149
53	$e^+e^- \rightarrow \pi^-D^{*+}\bar{D}^{*0}, D^{*+} \rightarrow \pi^+D^0, \bar{D}^{*0} \rightarrow \pi^0\bar{D}^0, D^0 \rightarrow \pi^0\pi^+K^-, \bar{D}^0 \rightarrow \pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-)$	6428	429	79	80	159	12308
54	$e^+e^- \rightarrow \pi^+\pi^-\rho^-D^{*+}\bar{D}^{*0}\gamma^I, \rho^- \rightarrow \pi^0\pi^-, D^{*+} \rightarrow \pi^+D^0, \bar{D}^{*0} \rightarrow \pi^0\bar{D}^0, D^0 \rightarrow \pi^+K^-,$ $\bar{D}^0 \rightarrow \pi^0\pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	33292	267	82	77	159	12467
55	$e^+e^- \rightarrow \pi^+D^{*-}D^{*0}\gamma^I\gamma^I, D^{*-} \rightarrow \pi^-\bar{D}^0, D^{*0} \rightarrow \pi^0D^0, \bar{D}^0 \rightarrow \pi^0\pi^-K^+, D^0 \rightarrow \pi^+K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma^I)$	8107	1119	85	72	157	12624
56	$e^+e^- \rightarrow \rho^0\pi^-D^{*+}\bar{D}^{*0}, \rho^0 \rightarrow \pi^+\pi^-, D^{*+} \rightarrow \pi^+D^0, \bar{D}^{*0} \rightarrow \pi^0\bar{D}^0, D^0 \rightarrow \pi^+K^-$ $\bar{D}^0 \rightarrow \pi^0\pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	17633	37	88	69	157	12781
57	$e^+e^- \rightarrow \pi^0\pi^-\rho^+D^{*+}D^{*-}, \rho^+ \rightarrow \pi^0\pi^+, D^{*+} \rightarrow \pi^+D^0, D^{*-} \rightarrow \pi^-\bar{D}^0, D^0 \rightarrow \pi^+K^-$ $\bar{D}^0 \rightarrow \pi^0\pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	1822	31	92	64	156	12937
58	$e^+e^- \rightarrow \pi^0\pi^+D^{*-}D^{*0}\gamma^I\gamma^I, D^{*-} \rightarrow \pi^-\bar{D}^0, D^{*0} \rightarrow D^0\gamma, \bar{D}^0 \rightarrow \pi^-K^+, D^0 \rightarrow \pi^0\pi^+K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma^I)$	27266	21	73	81	154	13091
59	$e^+e^- \rightarrow \pi^0\rho^0\pi^-D^{*+}\bar{D}^{*0}\gamma^I, \rho^0 \rightarrow \pi^+\pi^-, D^{*+} \rightarrow \pi^+D^0, \bar{D}^{*0} \rightarrow \pi^0\bar{D}^0, D^0 \rightarrow \pi^+K^-$ $\bar{D}^0 \rightarrow \pi^0\pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	46678	267	78	76	154	13245
60	$e^+e^- \rightarrow \pi^-D^{*+}\bar{D}^0, D^{*+} \rightarrow \pi^+D^0, \bar{D}^0 \rightarrow \pi^0\pi^-K^+, D^0 \rightarrow \pi^+K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^-\pi^-K^+K^-)$	2679	763	76	77	153	13398
61	$e^+e^- \rightarrow \pi^+\rho^-D^{*+}D^{*-}\gamma^I, \rho^- \rightarrow \pi^0\pi^-, D^{*+} \rightarrow \pi^+D^0, D^{*-} \rightarrow \pi^-\bar{D}^0, D^0 \rightarrow \pi^0\pi^+K^-$ $\bar{D}^0 \rightarrow \pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	9448	138	69	84	153	13551
62	$e^+e^- \rightarrow \pi^0\pi^+\omega D^{*-}D^{*0}\gamma^I, \omega \rightarrow \pi^0\pi^+\pi^-, D^{*-} \rightarrow \pi^-\bar{D}^0, D^{*0} \rightarrow \pi^0D^0, \bar{D}^0 \rightarrow \pi^-K^+$ $D^0 \rightarrow \pi^0\pi^+K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	32301	306	68	83	151	13702

rowNo	decay tree (decay initial-final states)	iDcyTr	iDcyIFsts	nEtr	nCcEtr	nAllEtr	nCEtr
63	$e^+e^- \rightarrow \pi^+\pi^- D^+ D^{*-} \gamma^I, D^+ \rightarrow \pi^+\pi^+ K^-, D^{*-} \rightarrow \pi^-\bar{D}^0, \bar{D}^0 \rightarrow \pi^- K^+$ $(e^+e^- \dashrightarrow \pi^+\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	11899	915	71	79	150	13852
64	$e^+e^- \rightarrow \pi^+\pi^- D^{*+} D^{*-} \gamma^I, D^{*+} \rightarrow \pi^+ D^0, D^{*-} \rightarrow \pi^0 D^-, D^0 \rightarrow \pi^+ K^-, D^- \rightarrow \pi^- \pi^- K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	14007	1052	76	74	150	14002
65	$e^+e^- \rightarrow \pi^0\pi^0 D^{*+} D^{*-}, D^{*+} \rightarrow \pi^+ D^0, D^{*-} \rightarrow \pi^-\bar{D}^0, D^0 \rightarrow \pi^0\pi^+ K^-, \bar{D}^0 \rightarrow \pi^- K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-)$	6505	67	75	74	149	14151
66	$e^+e^- \rightarrow \pi^0\pi^+ \omega D^{*-} D^{*0}, \omega \rightarrow \pi^0\pi^+\pi^-, D^{*-} \rightarrow \pi^-\bar{D}^0, D^{*0} \rightarrow \pi^0 D^0, \bar{D}^0 \rightarrow \pi^0\pi^- K^+,$ $D^0 \rightarrow \pi^+ K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-K^+K^-)$	3981	268	79	68	147	14298
67	$e^+e^- \rightarrow \pi^+\pi^- D^{*+} D^{*-}, D^{*+} \rightarrow \pi^0 D^+, D^{*-} \rightarrow \pi^-\bar{D}^0, D^+ \rightarrow \pi^+\pi^+ K^-, \bar{D}^0 \rightarrow \pi^- K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	2663	24	66	77	143	14441
68	$e^+e^- \rightarrow \pi^+ D^{*-} D^0 \gamma^I \gamma^I, D^{*-} \rightarrow \pi^-\bar{D}^0, D^0 \rightarrow \pi^0\pi^+ K^-, \bar{D}^0 \rightarrow \pi^- K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma^I)$	2301	194	65	77	142	14583
69	$e^+e^- \rightarrow \pi^+ D^{*-} D^{*0}, D^{*-} \rightarrow \pi^-\bar{D}^0, D^{*0} \rightarrow D^0 \gamma, \bar{D}^0 \rightarrow \pi^- K^+, D^0 \rightarrow \pi^0\pi^+ K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	13296	2897	66	76	142	14725
70	$e^+e^- \rightarrow \pi^+\rho^- D^{*+} D^{*-} \gamma^I, \rho^- \rightarrow \pi^0\pi^-, D^{*+} \rightarrow \pi^+ D^0, D^{*-} \rightarrow \pi^-\bar{D}^0, D^0 \rightarrow \pi^+ K^-,$ $\bar{D}^0 \rightarrow \pi^0\pi^- K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I)$	12764	138	86	54	140	14865
71	$e^+e^- \rightarrow \pi^+\pi^- \omega D^{*+} D^{*-} \gamma^I, \omega \rightarrow \pi^0\pi^+\pi^-, D^{*+} \rightarrow \pi^+ D^0, D^{*-} \rightarrow \pi^-\bar{D}^0, D^0 \rightarrow \pi^+ K^-,$ $\bar{D}^0 \rightarrow \pi^0\pi^- K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I)$	61945	209	85	54	139	15004
72	$e^+e^- \rightarrow \pi^-\rho^+ D^{*+} D^{*-}, \rho^+ \rightarrow \pi^0\pi^+, D^{*+} \rightarrow \pi^+ D^0, D^{*-} \rightarrow \pi^-\bar{D}^0, D^0 \rightarrow \pi^+ K^-,$ $\bar{D}^0 \rightarrow \pi^0\pi^- K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-)$	24318	37	70	66	136	15140
73	$e^+e^- \rightarrow \pi^+ D^{*-} D^{*0} \gamma^I \gamma^I, D^{*-} \rightarrow \pi^-\bar{D}^0, D^{*0} \rightarrow D^0 \gamma, \bar{D}^0 \rightarrow \pi^- K^+, D^0 \rightarrow \pi^0\pi^+ K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma^I)$	1356	927	61	73	134	15274
74	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\pi^- D^{*+} \bar{D}^{*0}, D^{*+} \rightarrow \pi^+ D^0, \bar{D}^{*0} \rightarrow \pi^0\bar{D}^0, D^0 \rightarrow \pi^+ K^-, \bar{D}^0 \rightarrow \pi^0\pi^- K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-)$	3027	31	73	61	134	15408
75	$e^+e^- \rightarrow \rho^0\pi^+ D^{*-} D^{*0} \gamma^I, \rho^0 \rightarrow \pi^+\pi^-, D^{*-} \rightarrow \pi^-\bar{D}^0, D^{*0} \rightarrow \pi^0 D^0, \bar{D}^0 \rightarrow \pi^- K^+,$ $D^0 \rightarrow \pi^0\pi^+ K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I)$	2513	138	54	79	133	15541
76	$e^+e^- \rightarrow \pi^0\pi^- D^{*+} \bar{D}^0 \gamma^I \gamma^I, D^{*+} \rightarrow \pi^+ D^0, \bar{D}^0 \rightarrow \pi^0\pi^- K^+, D^0 \rightarrow \pi^+ K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma^I)$	22263	1119	69	59	128	15669
77	$e^+e^- \rightarrow \pi^+\omega D^{*-} D^{*0}, \omega \rightarrow \pi^0\pi^+\pi^-, D^{*-} \rightarrow \pi^-\bar{D}^0, D^{*0} \rightarrow \pi^0 D^0, \bar{D}^0 \rightarrow \pi^0\pi^- K^+,$ $D^0 \rightarrow \pi^+ K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-)$	2181	31	77	50	127	15796

rowNo	decay tree (decay initial-final states)	iDcyTr	iDcyIFsts	nEtr	nCcEtr	nAllEtr	nCEtr
78	$e^+e^- \rightarrow \pi^+ D^{*-} D^{*0} \gamma^I, D^{*-} \rightarrow \pi^- \bar{D}^0, D^{*0} \rightarrow D^0 \gamma, \bar{D}^0 \rightarrow \pi^0 \pi^- K^+, D^0 \rightarrow \pi^+ K^-$ $(e^+e^- \dashrightarrow \pi^0 \pi^+ \pi^- \pi^- K^+ K^- \gamma^I \gamma)$	10786	772	68	58	126	15922
79	$e^+e^- \rightarrow \pi^+ \pi^- D^+ D^{*-} \gamma^I, D^+ \rightarrow \pi^0 K_L^0 \pi^+, D^{*-} \rightarrow \pi^- \bar{D}^0, \bar{D}^0 \rightarrow \pi^- K^+$ $(e^+e^- \dashrightarrow \pi^0 K_L^0 \pi^+ \pi^+ \pi^- \pi^- K^+ K^- \gamma^I)$	26392	2317	61	65	126	16048
80	$e^+e^- \rightarrow \pi^0 \pi^0 \pi^+ \pi^- D^{*+} D^{*-}, D^{*+} \rightarrow \pi^+ D^0, D^{*-} \rightarrow \pi^- \bar{D}^0, D^0 \rightarrow \pi^+ K^-, \bar{D}^0 \rightarrow \pi^0 \pi^- K^+$ $(e^+e^- \dashrightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^- \pi^- K^+ K^-)$	485	31	71	54	125	16173
81	$e^+e^- \rightarrow \pi^0 \pi^- D^{*+} \bar{D}^{*0} \gamma^I, D^{*+} \rightarrow \pi^+ D^0, \bar{D}^{*0} \rightarrow \pi^0 \bar{D}^0, D^0 \rightarrow \pi^+ K^-, \bar{D}^0 \rightarrow \mu^- \bar{\nu}_\mu K^+$ $(e^+e^- \dashrightarrow \mu^- \bar{\nu}_\mu \pi^0 \pi^0 \pi^+ \pi^- K^+ K^- \gamma^I)$	2393	1716	74	51	125	16298
82	$e^+e^- \rightarrow \pi^0 \pi^+ \pi^- D^{*0} \bar{D}^{*0}, D^{*0} \rightarrow \pi^0 D^0, \bar{D}^{*0} \rightarrow \bar{D}^0 \gamma, D^0 \rightarrow \pi^0 \pi^+ K^-, \bar{D}^0 \rightarrow \pi^- K^+$ $(e^+e^- \dashrightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- K^+ K^- \gamma)$	2507	278	63	62	125	16423
83	$e^+e^- \rightarrow \rho^0 \pi^+ \pi^- D^{*+} D^{*-}, \rho^0 \rightarrow \pi^+ \pi^-, D^{*+} \rightarrow \pi^+ D^0, D^{*-} \rightarrow \pi^- \bar{D}^0, D^0 \rightarrow \pi^0 \pi^+ K^-,$ $\bar{D}^0 \rightarrow \pi^- K^+$ $(e^+e^- \dashrightarrow \pi^0 \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- K^+ K^-)$	5984	444	50	75	125	16548
84	$e^+e^- \rightarrow \pi^+ \pi^- D^- D^{*+}, D^- \rightarrow \pi^- \pi^- K^+, D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^+ K^-$ $(e^+e^- \dashrightarrow \pi^+ \pi^+ \pi^- \pi^- \pi^- K^+ K^-)$	7796	1410	66	59	125	16673
85	$e^+e^- \rightarrow \pi^0 \pi^+ \pi^- \pi^- D^{*+} \bar{D}^{*0} \gamma^I, D^{*+} \rightarrow \pi^+ D^0, \bar{D}^{*0} \rightarrow \pi^0 \bar{D}^0, D^0 \rightarrow \pi^+ K^-, \bar{D}^0 \rightarrow \pi^0 \pi^- K^+$ $(e^+e^- \dashrightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^- K^+ K^- \gamma^I)$	48133	267	61	64	125	16798
86	$e^+e^- \rightarrow \pi^0 \pi^+ \pi^- D^0 \bar{D}^{*0}, D^0 \rightarrow \pi^0 \pi^+ K^-, \bar{D}^{*0} \rightarrow \pi^0 \bar{D}^0, \bar{D}^0 \rightarrow \pi^- K^+$ $(e^+e^- \dashrightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^- K^+ K^-)$	9056	67	58	65	123	16921
87	$e^+e^- \rightarrow \pi^+ \omega D^{*-} D^{*0} \gamma^I, \omega \rightarrow \pi^0 \pi^+ \pi^-, D^{*-} \rightarrow \pi^- \bar{D}^0, D^{*0} \rightarrow \pi^0 D^0, \bar{D}^0 \rightarrow \pi^0 \pi^- K^+,$ $D^0 \rightarrow \pi^+ K^-$ $(e^+e^- \dashrightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^- \pi^- K^+ K^- \gamma^I)$	13418	267	70	53	123	17044
88	$e^+e^- \rightarrow \pi^0 \pi^0 \pi^- D^{*+} \bar{D}^{*0}, D^{*+} \rightarrow \pi^+ D^0, \bar{D}^{*0} \rightarrow \pi^0 \bar{D}^0, D^0 \rightarrow \pi^0 \pi^+ K^-, \bar{D}^0 \rightarrow \pi^- K^+$ $(e^+e^- \dashrightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \pi^- \pi^- K^+ K^-)$	35968	141	74	48	122	17166
89	$e^+e^- \rightarrow \pi^+ \pi^- D^{*0} \bar{D}^{*0} \gamma^I \gamma^I, D^{*0} \rightarrow \pi^0 D^0, \bar{D}^{*0} \rightarrow \pi^0 \bar{D}^0, D^0 \rightarrow \pi^+ K^-, \bar{D}^0 \rightarrow \pi^0 \pi^- K^+$ $(e^+e^- \dashrightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^- \pi^- K^+ K^- \gamma^I \gamma^I)$	56291	3	66	56	122	17288
90	$e^+e^- \rightarrow \pi^+ \pi^- \bar{D}^0 D^{*0} \gamma^I, \bar{D}^0 \rightarrow \pi^0 \pi^- K^+, D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^+ K^-$ $(e^+e^- \dashrightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^- K^+ K^- \gamma^I)$	166	158	58	63	121	17409
91	$e^+e^- \rightarrow \pi^0 \pi^+ D^{*-} D^{*0} \gamma^I, D^{*-} \rightarrow \pi^- \bar{D}^0, D^{*0} \rightarrow D^0 \gamma, \bar{D}^0 \rightarrow \pi^- K^+, D^0 \rightarrow \pi^+ K^-$ $(e^+e^- \dashrightarrow \pi^0 \pi^+ \pi^+ \pi^- \pi^- K^+ K^- \gamma^I \gamma)$	908	772	56	65	121	17530
92	$e^+e^- \rightarrow \pi^+ \pi^- D^{*0} \bar{D}^{*0} \gamma^I, D^{*0} \rightarrow D^0 \gamma, \bar{D}^{*0} \rightarrow \pi^0 \bar{D}^0, D^0 \rightarrow \pi^0 \pi^+ K^-, \bar{D}^0 \rightarrow \pi^- K^+$ $(e^+e^- \dashrightarrow \pi^0 \pi^0 \pi^+ \pi^- \pi^- K^+ K^- \gamma^I \gamma)$	66461	106	57	64	121	17651
93	$e^+e^- \rightarrow \pi^+ \pi^- D^{*0} \bar{D}^{*0} \gamma^I, D^{*0} \rightarrow \pi^0 D^0, \bar{D}^{*0} \rightarrow \bar{D}^0 \gamma, D^0 \rightarrow \pi^0 \pi^+ K^-, \bar{D}^0 \rightarrow \pi^- K^+$ $(e^+e^- \dashrightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^- K^+ K^- \gamma^I \gamma)$	107	106	60	60	120	17771
94	$e^+e^- \rightarrow \pi^+ \pi^- D^{*0} \bar{D}^{*0}, D^{*0} \rightarrow \pi^0 D^0, \bar{D}^{*0} \rightarrow \bar{D}^0 \gamma, D^0 \rightarrow \pi^+ K^-, \bar{D}^0 \rightarrow \pi^0 \pi^- K^+$ $(e^+e^- \dashrightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^- K^+ K^- \gamma)$	7134	2132	61	59	120	17891

rowNo	decay tree (decay initial-final states)	iDcyTr	iDcyIFsts	nEtr	nCcEtr	nAllEtr	nCEtr
95	$e^+e^- \rightarrow \pi^+\pi^-\pi^-D^{*+}\bar{D}^{*0}, D^{*+} \rightarrow \pi^+D^0, \bar{D}^{*0} \rightarrow \bar{D}^0\gamma, D^0 \rightarrow \pi^+K^-, \bar{D}^0 \rightarrow \pi^0\pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma)$	18573	632	72	48	120	18011
96	$e^+e^- \rightarrow \pi^0\pi^-\bar{D}^{*+}\bar{D}^{*0}\gamma^I, D^{*+} \rightarrow \pi^+D^0, \bar{D}^{*0} \rightarrow \pi^0\bar{D}^0, D^0 \rightarrow \pi^0\pi^+K^-, \bar{D}^0 \rightarrow \pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	31504	121	58	62	120	18131
97	$e^+e^- \rightarrow \pi^+\pi^-\pi^-D^{*+}\bar{D}^{*0}\gamma^I, D^{*+} \rightarrow \pi^+D^0, \bar{D}^{*0} \rightarrow \pi^0\bar{D}^0, D^0 \rightarrow \pi^0\pi^+K^-, \bar{D}^0 \rightarrow \pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	10723	138	62	57	119	18250
98	$e^+e^- \rightarrow \pi^0\pi^+D^{*-}\bar{D}^{*0}\gamma^I, D^{*-} \rightarrow \pi^-\bar{D}^0, D^{*0} \rightarrow \pi^0D^0, \bar{D}^0 \rightarrow \pi^-K^+, D^0 \rightarrow e^+\nu_e K^-$ $(e^+e^- \dashrightarrow e^+\nu_e\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	29719	1063	54	65	119	18369
99	$e^+e^- \rightarrow \pi^0\pi^+\pi^-D^-D^{*+}\gamma^I, D^- \rightarrow \pi^-\pi^-K^+, D^{*+} \rightarrow \pi^+D^0, D^0 \rightarrow \pi^+K^-$ $(e^+e^- \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	42219	1052	70	48	118	18487
100	$e^+e^- \rightarrow \pi^0\pi^+D^{*-}\bar{D}^0\gamma^I, D^{*-} \rightarrow \pi^-\bar{D}^0, D^0 \rightarrow \pi^+K^-, \bar{D}^0 \rightarrow \pi^0\pi^-K^+$ $(e^+e^- \dashrightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I)$	2635	158	57	60	117	18604
rest	$e^+e^- \rightarrow \text{others (1627429 in total)}$ $(e^+e^- \dashrightarrow \text{corresponding to others})$	—	—	—	—	2198005	2216609

Table 2: Decay initial-final states.

rowNo	decay initial-final states	iDcyIFSts	nEtr	nCcEtr	nAllEtr	nCEtr
1	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	31	11562	—	11562	11562
2	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I$	267	11120	—	11120	22682
3	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	268	9563	—	9563	32245
4	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I$	306	9111	—	9111	41356
5	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I$	138	8815	—	8815	50171
6	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	37	8566	—	8566	58737
7	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	84	7762	—	7762	66499
8	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	77	7052	—	7052	73551
9	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I$	272	6866	—	6866	80417
10	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I$	209	6510	—	6510	86927
11	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I$	255	5889	—	5889	92816
12	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	132	5803	—	5803	98619
13	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^+K^-$	10	5671	—	5671	104290
14	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I$	121	5608	—	5608	109898
15	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^-$	734	2943	2585	5528	115426
16	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-$	141	5363	—	5363	120789
17	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma^I$	55	5310	—	5310	126099
18	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+\gamma^I$	485	2426	2846	5272	131371
19	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-$	67	5214	—	5214	136585
20	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I$	63	5196	—	5196	141781
21	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma$	216	5168	—	5168	146949
22	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-\pi^-K^+\gamma^I$	230	2198	2626	4824	151773
23	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I$	18	4730	—	4730	156503
24	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma$	332	4728	—	4728	161231
25	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+$	788	2149	2562	4711	165942
26	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+$	254	2127	2576	4703	170645
27	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma^I$	886	4525	—	4525	175170
28	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^-\gamma^I$	53	2410	2085	4495	179665
29	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-K^-$	630	2468	1979	4447	184112
30	$e^+e^- \rightarrow \pi^0\pi^0K_L^0\pi^+\pi^+\pi^-\pi^-K^+$	256	2005	2418	4423	188535
31	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma$	93	4397	—	4397	192932
32	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma$	435	3051	1340	4391	197323

rowNo	decay initial-final states	iDcyIFSts	nEtr	nCcEtr	nAllEtr	nCEtr
33	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^-$	192	2309	1805	4114	201437
34	$e^+e^- \rightarrow \pi^0\pi^0\pi^0K_L^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^-\gamma^I$	743	2245	1848	4093	205530
35	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I$	1052	4093	—	4093	209623
36	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+\gamma^I$	911	1870	2215	4085	213708
37	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I\gamma^I$	299	4058	—	4058	217766
38	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I$	158	3944	—	3944	221710
39	$e^+e^- \rightarrow \pi^0\pi^0\pi^0K_L^0\pi^+\pi^+\pi^-\pi^-K^-\gamma^I$	1099	2057	1818	3875	225585
40	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma$	454	3864	—	3864	229449
41	$e^+e^- \rightarrow \pi^0\pi^0\pi^0K_L^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+$	725	1760	2083	3843	233292
42	$e^+e^- \rightarrow \pi^0\pi^0K_L^0\pi^+\pi^-\pi^-\pi^-K^+$	248	1757	2011	3768	237060
43	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-$	44	3764	—	3764	240824
44	$e^+e^- \rightarrow \pi^0\pi^0\pi^0K_L^0\pi^+\pi^+\pi^-\pi^-K^-\gamma^I$	1331	2010	1753	3763	244587
45	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+\gamma^I$	236	1676	2053	3729	248316
46	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	444	3699	—	3699	252015
47	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	24	3674	—	3674	255689
48	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I$	91	3649	—	3649	259338
49	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I$	2052	3610	—	3610	262948
50	$e^+e^- \rightarrow \pi^0\pi^0K_L^0\pi^+\pi^+\pi^+\pi^-\pi^-K^-$	43	1903	1513	3416	266364
51	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^-$	618	1829	1517	3346	269710
52	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma^I$	3	3316	—	3316	273026
53	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma$	136	3286	—	3286	276312
54	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^-$	172	1803	1448	3251	279563
55	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma$	1821	3242	—	3242	282805
56	$e^+e^- \rightarrow \pi^0\pi^0K_L^0\pi^+\pi^+\pi^-\pi^-K^-\gamma^I$	1081	1764	1437	3201	286006
57	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma$	139	1151	2017	3168	289174
58	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^-\gamma^I$	853	1741	1403	3144	292318
59	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma$	492	3110	—	3110	295428
60	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma$	278	3075	—	3075	298503
61	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-\pi^-K^+\gamma^I$	177	1348	1692	3040	301543
62	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^-\gamma^I$	425	1558	1451	3009	304552
63	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I\gamma^I$	1416	1021	1971	2992	307544
64	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^-$	167	1673	1296	2969	310513
65	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+\gamma^I$	391	1316	1643	2959	313472
66	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-$	429	2952	—	2952	316424

rowNo	decay initial-final states	iDcyIFsts	nEtr	nCcEtr	nAllEtr	nCEtr
67	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I\gamma^I$	46	2938	—	2938	319362
68	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I\gamma^I$	360	2913	—	2913	322275
69	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^-\gamma^I$	1706	1486	1388	2874	325149
70	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	408	2867	—	2867	328016
71	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^0K_L^0\pi^+\pi^+\pi^-\pi^-K^-$	17	1538	1320	2858	330874
72	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^-$	1512	1474	1362	2836	333710
73	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+\gamma^I$	1141	2823	—	2823	336533
74	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma^I$	424	2775	—	2775	339308
75	$e^+e^- \rightarrow \pi^0\pi^0K_L^0\pi^+\pi^+\pi^-\pi^-K^-\gamma^I$	668	1483	1285	2768	342076
76	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+$	175	1269	1477	2746	344822
77	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^0K_L^0\pi^+\pi^+\pi^-\pi^-K^-\gamma^I$	119	1447	1290	2737	347559
78	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma$	969	1961	774	2735	350294
79	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma^I\gamma\gamma$	467	1029	1665	2694	352988
80	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I\gamma$	519	2262	414	2676	355664
81	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma$	1730	2662	—	2662	358326
82	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	1623	2648	—	2648	360974
83	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+\gamma^I\gamma^I$	457	1166	1411	2577	363551
84	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma$	106	2570	—	2570	366121
85	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^-K^-\gamma^I\gamma$	1185	2535	—	2535	368656
86	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+\gamma^I$	40	1135	1396	2531	371187
87	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^0K_L^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+$	463	1178	1345	2523	373710
88	$e^+e^- \rightarrow \pi^0\pi^0\pi^0K_L^0\pi^+\pi^+\pi^-\pi^-K^-\gamma$	908	1167	1340	2507	376217
89	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+\gamma^I$	420	1170	1270	2440	378657
90	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^-\pi^-K^+$	526	1131	1304	2435	381092
91	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I$	501	2367	—	2367	383459
92	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma^I\gamma^I$	1119	2366	—	2366	385825
93	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+\gamma^I\gamma^I$	716	1086	1267	2353	388178
94	$e^+e^- \rightarrow \pi^0\pi^0K_L^0\pi^+\pi^+\pi^-\pi^-K^-$	1114	1264	1057	2321	390499
95	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^+\gamma$	241	1058	1262	2320	392819
96	$e^+e^- \rightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I\gamma^I$	658	2315	—	2315	395134
97	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma^I\gamma$	962	2282	—	2282	397416
98	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^+K^-$	112	1057	1196	2253	399669
99	$e^+e^- \rightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma$	2132	2234	—	2234	401903
100	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma$	632	2185	—	2185	404088

rowNo	decay initial-final states		iDcyIFsts	nEtr	nCcEtr	nAllEtr	nCEtr
rest	$e^+e^- \rightarrow$	others (106168 in total)	—	—	—	1812521	2216609

Table 3: Decay branches of  $D_s^+$ .

rowNo	decay branch of $D_s^+$	iDcyBrP	nCase	nCcCase	nAllCase	nCCase
1	$D_s^+ \rightarrow \rho^+ \eta$	4	13215	14446	27661	27661
2	$D_s^+ \rightarrow \rho^+ \phi$	10	9987	11449	21436	49097
3	$D_s^+ \rightarrow \rho^+ \eta'$	11	8595	9729	18324	67421
4	$D_s^+ \rightarrow \bar{K}^* K^{*+}$	19	8231	9268	17499	84920
5	$D_s^+ \rightarrow \pi^+ K^+ K^-$	3	6745	7632	14377	99297
6	$D_s^+ \rightarrow \tau^+ \nu_\tau$	28	6347	7206	13553	112850
7	$D_s^+ \rightarrow \bar{K}^0 K^{*+}$	1	6245	7148	13393	126243
8	$D_s^+ \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \pi^-$	13	6012	7310	13322	139565
9	$D_s^+ \rightarrow \pi^+ \eta'$	6	6078	6884	12962	152527
10	$D_s^+ \rightarrow \pi^0 \pi^+ \omega$	29	3832	4426	8258	160785
11	$D_s^+ \rightarrow \pi^+ \eta \omega$	23	2984	3359	6343	167128
12	$D_s^+ \rightarrow \mu^+ \nu_\mu \eta$	18	3015	3296	6311	173439
13	$D_s^+ \rightarrow e^+ \nu_e \eta$	7	2874	3313	6187	179626
14	$D_s^+ \rightarrow \pi^+ \phi$	26	2738	3124	5862	185488
15	$D_s^+ \rightarrow \pi^+ \eta$	0	2722	3104	5826	191314
16	$D_s^+ \rightarrow e^+ \nu_e \phi$	16	2726	3024	5750	197064
17	$D_s^+ \rightarrow K_S^0 K^+$	5	2436	2658	5094	202158
18	$D_s^+ \rightarrow \pi^+ \pi^+ \pi^- \omega$	45	2078	2552	4630	206788
19	$D_s^+ \rightarrow K_L^0 K^+$	12	2198	2394	4592	211380
20	$D_s^+ \rightarrow \mu^+ \nu_\mu \phi$	14	2107	2323	4430	215810
21	$D_s^+ \rightarrow K^* K^+$	9	1769	2028	3797	219607
22	$D_s^+ \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \eta$	27	1541	1731	3272	222879
23	$D_s^+ \rightarrow \pi^+ \pi^+ \pi^+ \pi^- \pi^- \eta$	31	1445	1820	3265	226144
24	$D_s^+ \rightarrow \pi^+ \pi^+ \pi^- \phi$	35	1432	1688	3120	229264
25	$D_s^+ \rightarrow \pi^+ \pi^+ \pi^-$	22	1447	1650	3097	232361
26	$D_s^+ \rightarrow \mu^+ \nu_\mu \eta'$	39	1402	1679	3081	235442
27	$D_s^+ \rightarrow \pi^+ \pi^+ \pi^- \eta$	32	1335	1544	2879	238321
28	$D_s^+ \rightarrow \pi^0 \pi^0 \pi^+ \omega$	2	1173	1336	2509	240830
29	$D_s^+ \rightarrow \pi^+ \pi^- K_S^0 K^+$	17	1164	1313	2477	243307
30	$D_s^+ \rightarrow e^+ \nu_e \eta'$	15	1118	1174	2292	245599
31	$D_s^+ \rightarrow K_L^0 \pi^+ \pi^- K^+$	48	1086	1194	2280	247879
32	$D_s^+ \rightarrow \pi^+ \pi^- K^+$	21	955	1077	2032	249911
33	$D_s^+ \rightarrow \pi^+ \pi^+ \pi^+ \pi^- \pi^-$	36	924	1089	2013	251924

rowNo	decay branch of $D_s^+$	iDcyBrP	nCase	nCcCase	nAllCase	nCCase
34	$D_s^+ \rightarrow \pi^0 \pi^+ \phi$	50	876	1074	1950	253874
35	$D_s^+ \rightarrow \pi^0 \pi^0 \pi^+$	30	898	968	1866	255740
36	$D_s^+ \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \eta$	20	829	913	1742	257482
37	$D_s^+ \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \eta$	38	781	924	1705	259187
38	$D_s^+ \rightarrow \pi^0 \pi^0 \pi^+ \eta$	41	680	835	1515	260702
39	$D_s^+ \rightarrow \pi^0 \pi^+ K_S^0$	53	639	708	1347	262049
40	$D_s^+ \rightarrow \pi^0 K_L^0 \pi^+$	51	591	669	1260	263309
41	$D_s^+ \rightarrow \mu^+ \nu_\mu$	8	556	649	1205	264514
42	$D_s^+ \rightarrow \pi^0 \pi^0 \pi^+ \phi$	33	520	580	1100	265614
43	$D_s^+ \rightarrow \pi^0 \pi^+ K^*$	47	460	556	1016	266630
44	$D_s^+ \rightarrow \rho^+ K^*$	59	471	542	1013	267643
45	$D_s^+ \rightarrow e^+ \nu_e K^0$	65	427	506	933	268576
46	$D_s^+ \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \eta$	25	435	495	930	269506
47	$D_s^+ \rightarrow \pi^+ \omega$	24	373	423	796	270302
48	$D_s^+ \rightarrow \pi^0 \bar{K}^* K^{*+}$	44	359	390	749	271051
49	$D_s^+ \rightarrow \pi^+ \pi^+ \pi^- K_S^0$	60	346	378	724	271775
50	$D_s^+ \rightarrow K_L^0 \pi^+ \pi^+ \pi^-$	43	329	388	717	272492
51	$D_s^+ \rightarrow \pi^0 \bar{K}^0 K^+$	49	316	301	617	273109
52	$D_s^+ \rightarrow K^+ \eta'$	34	270	315	585	273694
53	$D_s^+ \rightarrow \eta K^+$	64	282	300	582	274276
54	$D_s^+ \rightarrow e^+ \nu_e K^*$	63	207	267	474	274750
55	$D_s^+ \rightarrow \mu^+ \nu_\mu K^0$	62	198	242	440	275190
56	$D_s^+ \rightarrow e^+ \nu_e \omega$	54	182	222	404	275594
57	$D_s^+ \rightarrow \pi^+ K_S^0$	52	196	201	397	275991
58	$D_s^+ \rightarrow \mu^+ \nu_\mu \omega$	40	190	206	396	276387
59	$D_s^+ \rightarrow K_L^0 \pi^+$	71	175	151	326	276713
60	$D_s^+ \rightarrow \pi^0 K^+$	72	142	126	268	276981
61	$D_s^+ \rightarrow \bar{n} p$	55	124	133	257	277238
62	$D_s^+ \rightarrow K_S^0 a_1^+$	67	128	121	249	277487
63	$D_s^+ \rightarrow K_L^0 a_1^+$	76	100	136	236	277723
64	$D_s^+ \rightarrow \pi^+ \pi^+ \pi^- K_S^0 K_S^0$	56	107	121	228	277951
65	$D_s^+ \rightarrow \pi^0 \pi^0 \bar{K}^0 K^+$	57	105	116	221	278172
66	$D_s^+ \rightarrow \pi^0 \bar{K}^0 K^{*+}$	66	95	126	221	278393
67	$D_s^+ \rightarrow \pi^0 \bar{K}^* K^+$	46	119	102	221	278614
68	$D_s^+ \rightarrow \pi^+ K^*$	58	96	122	218	278832

rowNo	decay branch of $D_s^+$	iDcyBrP	nCase	nCcCase	nAllCase	nCCase
69	$D_s^+ \rightarrow \mu^+ \nu_\mu K^*$	61	95	121	216	279048
70	$D_s^+ \rightarrow K_L^0 K_L^0 \pi^+ \pi^+ \pi^-$	69	91	107	198	279246
71	$D_s^+ \rightarrow \pi^+ f_2(1270)$	68	86	85	171	279417
72	$D_s^+ \rightarrow \pi^0 \pi^+$	37	44	42	86	279503
73	$D_s^+ \rightarrow K^+ \phi$	74	25	26	51	279554
74	$D_s^+ \rightarrow \pi^0 K^+ \eta'$	77	30	20	50	279604
75	$D_s^+ \rightarrow K^+ K^+ K^-$	75	28	21	49	279653
76	$D_s^+ \rightarrow \pi^+ \pi^- K^+ \eta'$	42	14	31	45	279698
77	$D_s^+ \rightarrow \pi^+ \pi^- \eta K^+$	79	20	20	40	279738
78	$D_s^+ \rightarrow \pi^0 \eta K^+$	73	14	25	39	279777
79	$D_s^+ \rightarrow \pi^- K^+ K^+$	78	16	20	36	279813
80	$D_s^+ \rightarrow \pi^0 \rho^+$	70	17	10	27	279840

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

rowNo	decay branch of $D^{*+}$	iDcyBrP	nCase	nCcCase	nAllCase	nCCase
1	$D^{*+} \rightarrow \pi^+ D^0$	1	664474	609007	1273481	1273481
2	$D^{*+} \rightarrow \pi^0 D^+$	0	99906	111588	211494	1484975
3	$D^{*+} \rightarrow D^+ \gamma$	2	4754	5524	10278	1495253
4	$D^{*+} \rightarrow D^+ \gamma\gamma$	3	1	0	1	1495254

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

rowNo	decay branch of $D^{*0}$	iDcyBrP	nCase	nCcCase	nAllCase	nCCase
1	$D^{*0} \rightarrow \pi^0 D^0$	0	532467	532175	1064642	1064642
2	$D^{*0} \rightarrow D^0 \gamma$	1	270441	270804	541245	1605887

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	1116857	976956	2093813	2093813
2	$D^0 \rightarrow \pi^0 \pi^+ K^-$	14	108230	116907	225137	2318950
3	$D^0 \rightarrow K^- a_1^+$	16	50354	58072	108426	2427376
4	$D^0 \rightarrow \rho^+ K^{*-}$	9	45584	52000	97584	2524960
5	$D^0 \rightarrow e^+ \nu_e K^-$	5	39378	40327	79705	2604665
6	$D^0 \rightarrow \mu^+ \nu_\mu K^-$	2	23122	25085	48207	2652872
7	$D^0 \rightarrow \pi^+ \pi^- K_S^0$	22	17236	20583	37819	2690691
8	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ K^-$	1	17977	19678	37655	2728346
9	$D^0 \rightarrow K_L^0 \pi^+ \pi^-$	40	16621	19135	35756	2764102
10	$D^0 \rightarrow \pi^+ \pi^- \bar{K}^*$	12	15180	17642	32822	2796924
11	$D^0 \rightarrow e^+ \nu_e K^{*-}$	29	14827	16590	31417	2828341
12	$D^0 \rightarrow \pi^0 \pi^+ \pi^- \bar{K}^*$	11	13161	15262	28423	2856764
13	$D^0 \rightarrow \pi^+ \omega K^-$	19	12591	14808	27399	2884163
14	$D^0 \rightarrow \mu^+ \nu_\mu K^{*-}$	31	11444	13327	24771	2908934
15	$D^0 \rightarrow \pi^0 \pi^+ \pi^-$	30	10892	12133	23025	2931959
16	$D^0 \rightarrow \pi^+ K_1^-$	17	10346	11984	22330	2954289
17	$D^0 \rightarrow \rho^0 \bar{K}^*$	6	9706	11324	21030	2975319
18	$D^0 \rightarrow \pi^0 K_S^0$	35	7634	8734	16368	2991687
19	$D^0 \rightarrow \omega \bar{K}^*$	4	7662	8684	16346	3008033
20	$D^0 \rightarrow \omega K_S^0$	62	7442	8735	16177	3024210
21	$D^0 \rightarrow \pi^0 \pi^0 \bar{K}^*$	13	7571	8335	15906	3040116
22	$D^0 \rightarrow \pi^0 \eta K_S^0$	15	7478	8397	15875	3055991
23	$D^0 \rightarrow K_L^0 \omega$	21	7023	8233	15256	3071247
24	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^- K_S^0$	32	7092	8068	15160	3086407
25	$D^0 \rightarrow \pi^0 K_L^0 \eta$	56	7057	7879	14936	3101343
26	$D^0 \rightarrow K_S^0 \eta'$	66	6804	8017	14821	3116164
27	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^-$	54	6735	7532	14267	3130431
28	$D^0 \rightarrow \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	10	6666	7521	14187	3144618
29	$D^0 \rightarrow \pi^+ \eta K^-$	45	6776	7316	14092	3158710
30	$D^0 \rightarrow K_L^0 \eta'$	41	6484	7545	14029	3172739
31	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^- K_S^0$	37	6228	7169	13397	3186136
32	$D^0 \rightarrow \pi^0 \pi^0 K_S^0$	46	6407	6976	13383	3199519
33	$D^0 \rightarrow \pi^0 \pi^+ K^{*-}$	75	6145	7043	13188	3212707

rowNo	decay branch of $D^0$	iDcyBrP	nCase	nCcCase	nAllCase	nCCase
34	$D^0 \rightarrow \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	59	6150	6932	13082	3225789
35	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 K_L^0$	39	5819	6583	12402	3238191
36	$D^0 \rightarrow \pi^0 K_L^0$	33	5525	6498	12023	3250214
37	$D^0 \rightarrow \pi^+ \pi^+ \pi^- K^-$	44	5555	6334	11889	3262103
38	$D^0 \rightarrow \pi^0 \pi^0 K_S^0$	60	5505	6291	11796	3273899
39	$D^0 \rightarrow \pi^+ K^- \eta'$	47	5425	6085	11510	3285409
40	$D^0 \rightarrow \pi^0 \pi^0 K_L^0$	34	5188	5773	10961	3296370
41	$D^0 \rightarrow \pi^0 \bar{K}_1^0$	8	4453	5022	9475	3305845
42	$D^0 \rightarrow \pi^0 \rho^+ K^-$	36	4451	4893	9344	3315189
43	$D^0 \rightarrow \pi^0 \bar{K}^*$	68	4282	4813	9095	3324284
44	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^-$	78	4327	4733	9060	3333344
45	$D^0 \rightarrow \pi^0 \pi^+ \pi^- K_S^0$	27	4048	4761	8809	3342153
46	$D^0 \rightarrow K^+ K^-$	28	4008	4314	8322	3350475
47	$D^0 \rightarrow \pi^0 K_L^0 \pi^+ \pi^-$	49	3880	4323	8203	3358678
48	$D^0 \rightarrow \pi^+ \pi^+ \pi^- \pi^-$	25	3577	4248	7825	3366503
49	$D^0 \rightarrow \eta K_S^0$	38	3505	3918	7423	3373926
50	$D^0 \rightarrow \pi^- K^+$	93	3302	3812	7114	3381040
51	$D^0 \rightarrow \rho^0 \pi^+ K^-$	77	3155	3817	6972	3388012
52	$D^0 \rightarrow K_L^0 \eta$	26	3207	3588	6795	3394807
53	$D^0 \rightarrow K^- K^{*+}$	61	2934	3398	6332	3401139
54	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ K^-$	52	2672	3007	5679	3406818
55	$D^0 \rightarrow K_S^0 K^+ K^-$	24	2561	2907	5468	3412286
56	$D^0 \rightarrow K_L^0 K^+ K^-$	20	2421	2832	5253	3417539
57	$D^0 \rightarrow \pi^0 \pi^+ \pi^- K^+ K^-$	99	2081	2418	4499	3422038
58	$D^0 \rightarrow \pi^+ \pi^+ \pi^- \pi^- K_S^0$	69	1861	2309	4170	3426208
59	$D^0 \rightarrow \pi^0 \pi^0 K^+ K^-$	3	1970	2097	4067	3430275
60	$D^0 \rightarrow e^+ \nu_e \pi^-$	74	1820	2165	3985	3434260
61	$D^0 \rightarrow \mu^+ \nu_\mu \pi^- \bar{K}^0$	70	1774	2151	3925	3438185
62	$D^0 \rightarrow K_L^0 \pi^+ \pi^+ \pi^- \pi^-$	72	1675	2088	3763	3441948
63	$D^0 \rightarrow \mu^+ \nu_\mu \pi^-$	50	1634	1838	3472	3445420
64	$D^0 \rightarrow \eta \eta$	90	1565	1705	3270	3448690
65	$D^0 \rightarrow K_S^0 \phi$	84	1266	1448	2714	3451404
66	$D^0 \rightarrow K_L^0 \phi$	64	1187	1412	2599	3454003
67	$D^0 \rightarrow e^+ \nu_e \rho^-$	58	1228	1347	2575	3456578
68	$D^0 \rightarrow \rho^0 \rho^0$	51	1097	1379	2476	3459054

rowNo	decay branch of $D^0$	iDcyBrP	nCase	nCcCase	nAllCase	nCCase
69	$D^0 \rightarrow \eta \bar{K}^*$	23	1162	1311	2473	3461527
70	$D^0 \rightarrow \mu^+ \nu_\mu \rho^-$	76	1135	1312	2447	3463974
71	$D^0 \rightarrow K^+ K^{*-}$	86	1140	1282	2422	3466396
72	$D^0 \rightarrow \pi^+ \pi^- \omega$	73	1103	1279	2382	3468778
73	$D^0 \rightarrow \pi^+ \pi^- K^+ K^-$	92	1058	1264	2322	3471100
74	$D^0 \rightarrow \pi^+ \pi^-$	85	1079	1201	2280	3473380
75	$D^0 \rightarrow \pi^+ K_S^0 K^-$	98	1075	1200	2275	3475655
76	$D^0 \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \pi^-$	55	1005	1216	2221	3477876
77	$D^0 \rightarrow e^+ \nu_e \pi^- \bar{K}^0$	65	1000	1183	2183	3480059
78	$D^0 \rightarrow \pi^- K_S^0 K^+$	96	1002	1145	2147	3482206
79	$D^0 \rightarrow K_L^0 \pi^+ K^-$	18	1008	1099	2107	3484313
80	$D^0 \rightarrow \mu^+ \nu_\mu \pi^0 K^-$	67	1001	1093	2094	3486407
81	$D^0 \rightarrow K_L^0 \pi^- K^+$	53	879	1083	1962	3488369
82	$D^0 \rightarrow \pi^+ \pi^- K_S^0 K_S^0$	57	822	1007	1829	3490198
83	$D^0 \rightarrow \eta \eta'$	94	812	987	1799	3491997
84	$D^0 \rightarrow \pi^0 \phi$	91	845	946	1791	3493788
85	$D^0 \rightarrow K^* \bar{K}^*$	63	754	931	1685	3495473
86	$D^0 \rightarrow \pi^+ \pi^- \eta$	107	770	860	1630	3497103
87	$D^0 \rightarrow K_L^0 K_L^0 \pi^+ \pi^-$	105	756	843	1599	3498702
88	$D^0 \rightarrow \pi^0 \eta'$	83	702	763	1465	350167
89	$D^0 \rightarrow \bar{K}^* \eta'$	81	642	797	1439	3501606
90	$D^0 \rightarrow e^+ \nu_e \pi^0 K^-$	87	667	737	1404	3503010
91	$D^0 \rightarrow \pi^+ \pi^- \phi$	71	611	760	1371	3504381
92	$D^0 \rightarrow \pi^0 \eta \eta$	48	586	672	1258	3505639
93	$D^0 \rightarrow e^+ \nu_e K_1^-$	42	549	636	1185	3506824
94	$D^0 \rightarrow \pi^0 K^+ K^-$	88	501	569	1070	3507894
95	$D^0 \rightarrow \pi^0 \pi^0$	82	471	588	1059	3508953
96	$D^0 \rightarrow \mu^+ \nu_\mu K_1^-$	43	460	588	1048	3510001
97	$D^0 \rightarrow K_S^0 K_S^0 K_S^0$	114	450	575	1025	3511026
98	$D^0 \rightarrow \pi^0 \eta$	110	451	485	936	3511962
99	$D^0 \rightarrow \pi^0 \pi^0 K_S^0 K_S^0$	80	414	512	926	3512888
100	$D^0 \rightarrow \pi^0 \pi^0 K_L^0 K_L^0$	95	410	440	850	3513738
rest	$D^0 \rightarrow \text{others (26 in total)}$	—	3792	4343	8135	3521873

Table 7: Decay branches of  $\pi^0$ .

rowNo	decay branch of $\pi^0$	iDcyBrP	nCase	nCcCase	nAllCase	nCCase
1	$\pi^0 \rightarrow e^+ e^-$	0	288155	—	288155	288155
2	$\pi^0 \rightarrow e^+ e^+ e^- e^-$	1	1302	—	1302	289457

Table 8: Cascade decay branches of  $D_s^+$ .

rowNo	cascade decay branch of $D_s^+$	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
1	$D_s^+ \rightarrow \pi^+ K^+ K^-$	4	6745	7632	14377	14377
2	$D_s^+ \rightarrow \pi^0 \pi^+ \pi^+ \pi^+ \pi^- \pi^-$	17	5770	7064	12834	27211
3	$D_s^+ \rightarrow \rho^+ \phi, \rho^+ \rightarrow \pi^0 \pi^+, \phi \rightarrow K^+ K^-$	11	4543	5107	9650	36861
4	$D_s^+ \rightarrow \rho^+ \eta, \rho^+ \rightarrow \pi^0 \pi^+, \eta \rightarrow \gamma\gamma$	52	4355	4869	9224	46085
5	$D_s^+ \rightarrow \rho^+ \eta, \rho^+ \rightarrow \pi^0 \pi^+, \eta \rightarrow \pi^0 \pi^0 \pi^0$	33	4102	4504	8606	54691
6	$D_s^+ \rightarrow \pi^0 \pi^+ \omega, \omega \rightarrow \pi^0 \pi^+ \pi^-$	73	3209	3726	6935	61626
7	$D_s^+ \rightarrow \rho^+ \eta, \rho^+ \rightarrow \pi^0 \pi^+, \eta \rightarrow \pi^0 \pi^+ \pi^-$	5	2884	3138	6022	67648
8	$D_s^+ \rightarrow \rho^+ \eta', \rho^+ \rightarrow \pi^0 \pi^+, \eta' \rightarrow \rho^0 \gamma, \rho^0 \rightarrow \pi^+ \pi^-$	12	2097	2431	4528	72176
9	$D_s^+ \rightarrow K_L^0 K^+$	15	2064	2244	4308	76484
10	$D_s^+ \rightarrow \rho^+ \phi, \rho^+ \rightarrow \pi^0 \pi^+, \phi \rightarrow K_L^0 K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	16	2012	2292	4304	80788
11	$D_s^+ \rightarrow \pi^+ \pi^+ \pi^- \omega, \omega \rightarrow \pi^0 \pi^+ \pi^-$	106	1774	2206	3980	84768
12	$D_s^+ \rightarrow \bar{K}^* K^{*+}, \bar{K}^* \rightarrow \pi^+ K^-, K^{*+} \rightarrow \pi^0 K^+$	27	1792	2009	3801	88569
13	$D_s^+ \rightarrow K_S^0 K^+, K_S^0 \rightarrow \pi^+ \pi^-$	6	1688	1857	3545	92114
14	$D_s^+ \rightarrow \tau^+ \nu_\tau, \tau^+ \rightarrow \bar{\nu}_\tau \pi^0 \pi^+$	88	1622	1840	3462	95576
15	$D_s^+ \rightarrow \pi^+ \eta', \eta' \rightarrow \rho^0 \gamma, \rho^0 \rightarrow \pi^+ \pi^-$	7	1580	1814	3394	98970
16	$D_s^+ \rightarrow \bar{K}^* K^{*+}, \bar{K}^* \rightarrow \pi^+ K^-, K^{*+} \rightarrow \pi^+ K^0, K^0 \rightarrow K_L^0$	90	1478	1702	3180	102150
17	$D_s^+ \rightarrow \pi^+ \pi^+ \pi^-$	36	1447	1650	3097	105247
18	$D_s^+ \rightarrow \rho^+ \eta', \rho^+ \rightarrow \pi^0 \pi^+, \eta' \rightarrow \pi^+ \pi^- \eta, \eta \rightarrow \gamma\gamma$	56	1302	1560	2862	108109
19	$D_s^+ \rightarrow e^+ \nu_e \phi, \phi \rightarrow K^+ K^-$	20	1304	1424	2728	110837
20	$D_s^+ \rightarrow \rho^+ \eta', \rho^+ \rightarrow \pi^0 \pi^+, \eta' \rightarrow \pi^+ \pi^- \eta, \eta \rightarrow \pi^0 \pi^0 \pi^0$	22	1230	1343	2573	113410
21	$D_s^+ \rightarrow \bar{K}^* K^{*+}, \bar{K}^* \rightarrow \pi^+ K^-, K^{*+} \rightarrow \pi^+ K^0, K^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	75	1158	1352	2510	115920
22	$D_s^+ \rightarrow \pi^+ \phi, \phi \rightarrow K_L^0 K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	44	1087	1266	2353	118273
23	$D_s^+ \rightarrow \bar{K}^0 K^{*+}, \bar{K}^0 \rightarrow K_L^0, K^{*+} \rightarrow \pi^0 K^+$	68	1062	1149	2211	120484
24	$D_s^+ \rightarrow \mu^+ \nu_\mu \eta, \eta \rightarrow \pi^0 \pi^0 \pi^0$	62	1078	1088	2166	122650
25	$D_s^+ \rightarrow e^+ \nu_e \eta, \eta \rightarrow \gamma\gamma$	8	982	1143	2125	124775
26	$D_s^+ \rightarrow K_L^0 \pi^+ \pi^- K^+$	130	1007	1102	2109	126884
27	$D_s^+ \rightarrow \tau^+ \nu_\tau, \tau^+ \rightarrow \mu^+ \nu_\mu \bar{\nu}_\tau$	74	987	1101	2088	128972
28	$D_s^+ \rightarrow \tau^+ \nu_\tau, \tau^+ \rightarrow e^+ \nu_e \bar{\nu}_\tau$	129	969	1108	2077	131049
29	$D_s^+ \rightarrow \mu^+ \nu_\mu \eta, \eta \rightarrow \gamma\gamma$	23	977	1099	2076	133125
30	$D_s^+ \rightarrow \pi^0 \pi^0 \pi^+ \omega, \omega \rightarrow \pi^0 \pi^+ \pi^-$	2	963	1098	2061	135186
31	$D_s^+ \rightarrow \mu^+ \nu_\mu \phi, \phi \rightarrow K^+ K^-$	57	957	1103	2060	137246
32	$D_s^+ \rightarrow \pi^+ \pi^- K^+$	34	955	1077	2032	139278

rowNo	cascade decay branch of $D_s^+$	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
33	$D_s^+ \rightarrow \pi^+ \eta', \eta' \rightarrow \pi^+ \pi^- \eta, \eta \rightarrow \gamma\gamma$	118	932	1083	2015	141293
34	$D_s^+ \rightarrow \pi^+ \pi^+ \pi^+ \pi^- \pi^-$	72	924	1089	2013	143306
35	$D_s^+ \rightarrow \rho^+ \phi, \rho^+ \rightarrow \pi^0 \pi^+, \phi \rightarrow K_L^0 K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	51	882	1118	2000	145306
36	$D_s^+ \rightarrow e^+ \nu_e \eta, \eta \rightarrow \pi^0 \pi^0 \pi^0$	29	917	1048	1965	147271
37	$D_s^+ \rightarrow \pi^+ \eta, \eta \rightarrow \gamma\gamma$	114	934	1031	1965	149236
38	$D_s^+ \rightarrow \pi^+ \eta \omega, \eta \rightarrow \gamma\gamma, \omega \rightarrow \pi^0 \pi^+ \pi^-$	60	937	1025	1962	151198
39	$D_s^+ \rightarrow \pi^+ \eta', \eta' \rightarrow \pi^+ \pi^- \eta, \eta \rightarrow \pi^0 \pi^0 \pi^0$	13	858	1005	1863	153061
40	$D_s^+ \rightarrow \pi^+ \eta, \eta \rightarrow \pi^0 \pi^0 \pi^0$	14	857	978	1835	154896
41	$D_s^+ \rightarrow \pi^+ \eta \omega, \eta \rightarrow \pi^0 \pi^0 \pi^0, \omega \rightarrow \pi^0 \pi^+ \pi^-$	124	780	955	1735	156631
42	$D_s^+ \rightarrow \bar{K}^0 K^{*+}, \bar{K}^0 \rightarrow K_S^0, K^{*+} \rightarrow \pi^0 K^+, K_S^0 \rightarrow \pi^+ \pi^-$	1	786	929	1715	158346
43	$D_s^+ \rightarrow \pi^0 \pi^0 \pi^+$	49	811	889	1700	160046
44	$D_s^+ \rightarrow \pi^+ \pi^- K_S^0 K^+, K_S^0 \rightarrow \pi^+ \pi^-$	21	775	909	1684	161730
45	$D_s^+ \rightarrow \bar{K}^0 K^{*+}, \bar{K}^0 \rightarrow K_L^0, K^{*+} \rightarrow \pi^+ K^0, K^0 \rightarrow K_L^0$	25	773	904	1677	163407
46	$D_s^+ \rightarrow \rho^+ \eta', \rho^+ \rightarrow \pi^0 \pi^+, \eta' \rightarrow \pi^+ \pi^- \eta, \eta \rightarrow \pi^0 \pi^+ \pi^-$	117	759	911	1670	165077
47	$D_s^+ \rightarrow \tau^+ \nu_\tau, \tau^+ \rightarrow \bar{\nu}_\tau \pi^+$	46	741	865	1606	166683
48	$D_s^+ \rightarrow K^* K^+, K^* \rightarrow \pi^0 K^0, K^0 \rightarrow K_L^0$	194	763	838	1601	168284
49	$D_s^+ \rightarrow \pi^+ \pi^+ \pi^- \phi, \phi \rightarrow K^+ K^-$	211	707	777	1484	169768
50	$D_s^+ \rightarrow e^+ \nu_e \eta, \eta \rightarrow \pi^0 \pi^+ \pi^-$	41	676	757	1433	171201
51	$D_s^+ \rightarrow \mu^+ \nu_\mu \eta, \eta \rightarrow \pi^0 \pi^+ \pi^-$	31	650	781	1431	172632
52	$D_s^+ \rightarrow K_S^0 K^+, K_S^0 \rightarrow \pi^0 \pi^0$	55	679	724	1403	174035
53	$D_s^+ \rightarrow \bar{K}^0 K^{*+}, \bar{K}^0 \rightarrow K_L^0, K^{*+} \rightarrow \pi^+ K^0, K^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	190	618	741	1359	175394
54	$D_s^+ \rightarrow \rho^+ \eta', \rho^+ \rightarrow \pi^0 \pi^+, \eta' \rightarrow \pi^0 \pi^0 \eta, \eta \rightarrow \gamma\gamma$	67	630	704	1334	176728
55	$D_s^+ \rightarrow \pi^+ \eta, \eta \rightarrow \pi^0 \pi^+ \pi^-$	3	616	718	1334	178062
56	$D_s^+ \rightarrow \bar{K}^0 K^{*+}, \bar{K}^0 \rightarrow K_S^0, K^{*+} \rightarrow \pi^+ K^0, K_S^0 \rightarrow \pi^+ \pi^-, K^0 \rightarrow K_L^0$	39	607	701	1308	179370
57	$D_s^+ \rightarrow \rho^+ \eta, \rho^+ \rightarrow \pi^0 \pi^+, \eta \rightarrow \pi^0 \pi^0 \pi^0, \pi^0 \rightarrow e^+ e^-$	126	655	637	1292	180662
58	$D_s^+ \rightarrow K^* K^+, K^* \rightarrow \pi^0 K^0, K^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	10	565	713	1278	181940
59	$D_s^+ \rightarrow \pi^+ \eta', \eta' \rightarrow \pi^+ \pi^- \eta, \eta \rightarrow \pi^0 \pi^+ \pi^-$	43	597	681	1278	183218
60	$D_s^+ \rightarrow \rho^+ \eta', \rho^+ \rightarrow \pi^0 \pi^+, \eta' \rightarrow \pi^0 \pi^0 \eta, \eta \rightarrow \pi^0 \pi^0 \pi^0$	146	635	621	1256	184474
61	$D_s^+ \rightarrow \tau^+ \nu_\tau, \tau^+ \rightarrow \bar{\nu}_\tau \pi^+ \pi^+ \pi^-$	193	582	635	1217	185691
62	$D_s^+ \rightarrow \pi^+ \eta \omega, \eta \rightarrow \pi^0 \pi^+ \pi^-, \omega \rightarrow \pi^0 \pi^+ \pi^-$	92	549	666	1215	186906
63	$D_s^+ \rightarrow \mu^+ \nu_\mu$	9	556	649	1205	188111
64	$D_s^+ \rightarrow \pi^+ \pi^+ \pi^+ \pi^- \pi^-, \eta, \eta \rightarrow \gamma\gamma$	150	530	660	1190	189301

rowNo	cascade decay branch of $D_s^+$	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
65	$D_s^+ \rightarrow \bar{K}^* K^{*+}, \bar{K}^* \rightarrow \pi^+ K^-, K^{*+} \rightarrow \pi^+ K^0, K^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	105	551	625	1176	190477
66	$D_s^+ \rightarrow e^+ \nu_e \phi, \phi \rightarrow K_L^0 K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	64	537	638	1175	191652
67	$D_s^+ \rightarrow \tau^+ \nu_\tau, \tau^+ \rightarrow \bar{\nu}_\tau \pi^0 \pi^0 \pi^+$	120	533	614	1147	192799
68	$D_s^+ \rightarrow \rho^+ \eta, \rho^+ \rightarrow \pi^0 \pi^+, \eta \rightarrow \pi^+ \pi^-$	138	535	606	1141	193940
69	$D_s^+ \rightarrow \rho^+ \phi, \rho^+ \rightarrow \pi^0 \pi^+, \phi \rightarrow \pi^+ \rho^-, \rho^- \rightarrow \pi^0 \pi^-$	109	534	603	1137	195077
70	$D_s^+ \rightarrow \pi^0 K_L^0 \pi^+$	139	534	593	1127	196204
71	$D_s^+ \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \eta, \eta \rightarrow \gamma \gamma$	218	526	559	1085	197289
72	$D_s^+ \rightarrow \rho^+ \phi, \rho^+ \rightarrow \pi^0 \pi^+, \phi \rightarrow \pi^0 \rho^0, \rho^0 \rightarrow \pi^+ \pi^-$	103	522	559	1081	198370
73	$D_s^+ \rightarrow \pi^+ \phi, \phi \rightarrow K_L^0 K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	53	518	560	1078	199448
74	$D_s^+ \rightarrow \rho^+ \phi, \rho^+ \rightarrow \pi^0 \pi^+, \phi \rightarrow \pi^- \rho^+, \rho^+ \rightarrow \pi^0 \pi^+$	128	486	576	1062	200510
75	$D_s^+ \rightarrow \bar{K}^0 K^{*+}, \bar{K}^0 \rightarrow K_S^0, K^{*+} \rightarrow \pi^+ K^0, K_S^0 \rightarrow \pi^+ \pi^-, K^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	177	493	563	1056	201566
76	$D_s^+ \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \eta, \eta \rightarrow \pi^0 \pi^0 \pi^0$	45	468	573	1041	202607
77	$D_s^+ \rightarrow \pi^+ \pi^+ \pi^+ \pi^- \pi^- \eta, \eta \rightarrow \pi^0 \pi^0 \pi^0$	50	471	570	1041	203648
78	$D_s^+ \rightarrow \pi^+ \pi^+ \pi^- \eta, \eta \rightarrow \gamma \gamma$	77	443	574	1017	204665
79	$D_s^+ \rightarrow \pi^+ \eta', \eta' \rightarrow \pi^0 \pi^0 \eta, \eta \rightarrow \gamma \gamma$	84	478	490	968	205633
80	$D_s^+ \rightarrow \rho^+ \eta', \rho^+ \rightarrow \pi^0 \pi^+, \eta' \rightarrow \pi^0 \pi^0 \eta, \eta \rightarrow \pi^0 \pi^+ \pi^-$	175	472	489	961	206594
81	$D_s^+ \rightarrow \bar{K}^* K^{*+}, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, K^{*+} \rightarrow \pi^0 K^+, \bar{K}^0 \rightarrow K_L^0$	133	455	482	937	207531
82	$D_s^+ \rightarrow \pi^+ \eta', \eta' \rightarrow \pi^0 \pi^0 \eta, \eta \rightarrow \pi^0 \pi^0 \pi^0$	161	432	502	934	208465
83	$D_s^+ \rightarrow \pi^+ \pi^+ \pi^- \eta, \eta \rightarrow \pi^0 \pi^0 \pi^0$	226	447	479	926	209391
84	$D_s^+ \rightarrow \mu^+ \nu_\mu \phi, \phi \rightarrow K_L^0 K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	306	455	453	908	210299
85	$D_s^+ \rightarrow \pi^0 \pi^+ K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	168	422	455	877	211176
86	$D_s^+ \rightarrow \pi^0 \pi^+ \phi, \phi \rightarrow K^+ K^-$	134	390	461	851	212027
87	$D_s^+ \rightarrow \bar{K}^* K^{*+}, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, K^{*+} \rightarrow \pi^+ K^0, \bar{K}^0 \rightarrow K_L^0, K^0 \rightarrow K_L^0$	24	369	465	834	212861
88	$D_s^+ \rightarrow \mu^+ \nu_\mu \eta', \eta' \rightarrow \rho^0 \gamma, \rho^0 \rightarrow \pi^+ \pi^-$	80	366	449	815	213676
89	$D_s^+ \rightarrow \pi^+ \pi^- K_S^0 K^+, K_S^0 \rightarrow \pi^0 \pi^0$	98	362	378	740	214416
90	$D_s^+ \rightarrow \bar{K}^0 K^{*+}, \bar{K}^0 \rightarrow K_S^0, K^{*+} \rightarrow \pi^0 K^+, K_S^0 \rightarrow \pi^0 \pi^0$	26	323	382	705	215121
91	$D_s^+ \rightarrow \bar{K}^* K^{*+}, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, K^{*+} \rightarrow \pi^0 K^+, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	37	332	373	705	215826
92	$D_s^+ \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \eta, \eta \rightarrow \pi^0 \pi^+ \pi^-$	219	328	377	705	216531
93	$D_s^+ \rightarrow \pi^+ \pi^+ \pi^+ \pi^- \pi^- \eta, \eta \rightarrow \pi^0 \pi^+ \pi^-$	54	304	398	702	217233
94	$D_s^+ \rightarrow \tau^+ \nu_\tau, \tau^+ \rightarrow \bar{\nu}_\tau \pi^0 \pi^+ \pi^+ \pi^-$	178	325	375	700	217933
95	$D_s^+ \rightarrow \pi^+ \omega, \omega \rightarrow \pi^0 \pi^+ \pi^-$	40	315	359	674	218607

rowNo	cascade decay branch of $D_s^+$	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
96	$D_s^+ \rightarrow K_L^0 \pi^+ \pi^+ \pi^-$	101	305	365	670	219277
97	$D_s^+ \rightarrow \rho^+ K^*, \rho^+ \rightarrow \pi^0 \pi^+, K^* \rightarrow \pi^- K^+$	253	304	365	669	219946
98	$D_s^+ \rightarrow \pi^+ \eta', \eta' \rightarrow \pi^0 \pi^0 \eta, \eta \rightarrow \pi^0 \pi^+ \pi^-$	174	329	335	664	220610
99	$D_s^+ \rightarrow \pi^0 \pi^+ K^*, K^* \rightarrow \pi^- K^+$	115	293	368	661	221271
100	$D_s^+ \rightarrow \pi^+ \pi^+ \pi^- \phi, \phi \rightarrow K_L^0 K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	173	289	369	658	221929
rest	$D_s^+ \rightarrow \text{others (1813 in total)}$	—	27331	30580	57911	279840

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	455616	370534	826150	826150
2	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^+ K^-$	18	31831	35189	67020	893170
3	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow e^+ \nu_e K^-$	23	10408	10986	21394	914564
4	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow \pi^+ \pi^+ K^-$	3	8800	9626	18426	932990
5	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \mu^+ \nu_\mu K^-$	6	7049	7789	14838	947828
6	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow \pi^0 K_L^0 \pi^+$	9	6255	6904	13159	960987
7	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^0 \pi^+ K^-$	1	5097	5786	10883	971870
8	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow K_L^0 \pi^+ \pi^-$	60	4885	5765	10650	982520
9	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \pi^0 \rho^+, \rho^+ \rightarrow \pi^0 \pi^+$	49	4905	5495	10400	992920
10	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow \pi^0 \pi^+ K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	104	4690	5316	10006	1002926
11	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \rho^0 \pi^+, \rho^0 \rightarrow \pi^+ \pi^-$	53	4494	5322	9816	1012742
12	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^0 K^-$	5	4523	5160	9683	1022425
13	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_L^0$	19	4165	4733	8898	1031323
14	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^+ \pi^- K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	75	3679	4469	8148	1039471
15	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow e^+ \nu_e \bar{K}^*, \bar{K}^* \rightarrow \pi^+ K^-$	109	3686	4032	7718	1047189
16	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^+ \omega K^-, \omega \rightarrow \pi^0 \pi^+ \pi^-$	82	3288	4125	7413	1054602
17	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow e^+ \nu_e \bar{K}^0, \bar{K}^0 \rightarrow K_L^0$	106	3421	3913	7334	1061936
18	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow \mu^+ \nu_\mu \bar{K}^0, \bar{K}^0 \rightarrow K_L^0$	116	3359	3776	7135	1069071
19	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^+ \pi^-$	24	3408	3631	7039	1076110
20	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	72	3117	3789	6906	1083016
21	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^+ \pi^- \bar{K}^*, \bar{K}^* \rightarrow \pi^+ K^-$	27	3118	3739	6857	1089873
22	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow \mu^+ \nu_\mu \bar{K}^*, \bar{K}^* \rightarrow \pi^+ K^-$	56	3089	3373	6462	1096335
23	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow \pi^0 \pi^+ \bar{K}^*, \bar{K}^* \rightarrow \pi^+ K^-$	156	2985	3118	6103	1102438
24	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow e^+ \nu_e \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	33	2547	3080	5627	1108065
25	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^+ \pi^- \bar{K}^*, \bar{K}^* \rightarrow \pi^+ K^-$	29	2501	2961	5462	1113527
26	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow \mu^+ \nu_\mu \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	50	2518	2902	5420	1118947
27	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \pi^+ \pi^+ \pi^-$	43	2198	2597	4795	1123742
28	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \rho^0 \bar{K}^*, \rho^0 \rightarrow \pi^+ \pi^-, \bar{K}^* \rightarrow \pi^+ K^-$	182	2001	2363	4364	1128106
29	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow \pi^0 \pi^+ K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	44	2072	2277	4349	1132455
30	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^-$	160	1976	2268	4244	1136699
31	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow K_L^0 \omega, \omega \rightarrow \pi^0 \pi^+ \pi^-$	12	1766	2173	3939	1140638

rowNo	cascade decay branch of $D^{*+}$	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
32	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^+ \pi^+ \pi^- K^-$	28	1772	2028	3800	1144438
33	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	16	1720	1982	3702	1148140
34	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \pi^+ f_0(600), f_0(600) \rightarrow \pi^+ \pi^-$	133	1629	2007	3636	1151776
35	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 K_L^0$	166	1630	1989	3619	1155395
36	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^+ \pi^- K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	107	1616	1990	3606	1159001
37	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	199	1710	1871	3581	1162582
38	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	38	1564	1940	3504	1166086
39	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow e^+ \nu_e K^{*-}, K^{*-} \rightarrow \pi^0 K^-$	88	1678	1763	3441	1169527
40	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^0 K_L^0$	25	1509	1809	3318	1172845
41	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^0 K_L^0$	112	1489	1674	3163	1176008
42	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	87	1409	1667	3076	1179084
43	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^0 \bar{K}^*, \bar{K}^* \rightarrow \pi^+ K^-$	186	1428	1567	2995	1182079
44	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \omega K_S^0, \omega \rightarrow \pi^0 \pi^+ \pi^-, K_S^0 \rightarrow \pi^+ \pi^-$	61	1312	1669	2981	1185060
45	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^- K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	97	1370	1610	2980	1188040
46	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \omega \bar{K}^*, \omega \rightarrow \pi^0 \pi^+ \pi^-, \bar{K}^* \rightarrow \pi^+ K^-$	4	1358	1520	2878	1190918
47	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \rho^+ K^-, \rho^+ \rightarrow \pi^0 \pi^+$	22	1322	1485	2807	1193725
48	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^+ K^-, \pi^0 \rightarrow e^+ e^-$	20	1389	1408	2797	1196522
49	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow e^+ \nu_e K^{*-}, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_L^0$	55	1311	1476	2787	1199309
50	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow K^+ K^-$	263	1331	1412	2743	1202052
51	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^- K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	128	1233	1469	2702	1204754
52	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^0 K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	93	1295	1385	2680	1207434
53	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \mu^+ \nu_\mu K^{*-}, K^{*-} \rightarrow \pi^0 K^-$	178	1285	1386	2671	1210105
54	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^-$	223	1215	1365	2580	1212685
55	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow K_L^0 \pi^+$	78	1240	1323	2563	1215248
56	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^+ \pi^+ \pi^- \pi^-$	64	1110	1358	2468	1217716
57	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \mu^+ \nu_\mu K^{*-}, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_L^0$	66	1092	1302	2394	1220110
58	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^0 K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	216	1107	1278	2385	1222495
59	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow e^+ \nu_e \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	206	1108	1258	2366	1224861
60	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow \pi^+ K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	121	1130	1232	2362	1227223
61	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow \mu^+ \nu_\mu \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	91	1100	1253	2353	1229576
62	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \rho^0 \pi^+ K^-, \rho^0 \rightarrow \pi^+ \pi^-$	291	1016	1298	2314	1231890
63	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow \pi^0 \pi^+ \pi^+ \pi^-$	70	1069	1240	2309	1234199
64	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 K_L^0 \pi^+ \pi^-$	103	1061	1199	2260	1236459
65	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^- K^+$	211	1002	1246	2248	1238707

rowNo	cascade decay branch of $D^{*+}$	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
66	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow e^+ \nu_e K^{*-}, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S^0,$ $K_S^0 \rightarrow \pi^+ \pi^-$	212	989	1138	2127	1240834
67	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow \pi^+ K^+ K^-$	137	916	1025	1941	1242775
68	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \pi^+ f_0(600), f_0(600) \rightarrow \pi^0 \pi^0$	76	870	944	1814	1244589
69	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^+ \pi^- K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	99	845	967	1812	1246401
70	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \mu^+ \nu_\mu K^{*-}, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S^0,$ $K_S^0 \rightarrow \pi^+ \pi^-$	316	807	936	1743	1248144
71	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \eta, \eta \rightarrow \gamma\gamma$	115	778	962	1740	1249884
72	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow \rho^+ \bar{K}^*, \rho^+ \rightarrow \pi^0 \pi^+, \bar{K}^* \rightarrow \pi^+ K^-$	161	838	870	1708	1251592
73	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^0 \pi^+ K^-$	98	785	893	1678	1253270
74	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow e^+ \nu_e \pi^+ K^-$	35	786	856	1642	1254912
75	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow e^+ \nu_e \bar{K}^*, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, \bar{K}^0 \rightarrow K_L^0$	10	732	861	1593	1256505
76	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \eta, \eta \rightarrow \pi^0 \pi^0 \pi^0$	84	698	856	1554	1258059
77	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 K_L^0 \eta, \eta \rightarrow \gamma\gamma$	198	737	802	1539	1259598
78	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow K_L^0 K^+ K^-$	11	692	846	1538	1261136
79	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^+ \pi^- \bar{K}^*, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, \bar{K}^0 \rightarrow K_L^0$	267	674	849	1523	1262659
80	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow \pi^+ \pi^+ \pi^- \eta, \eta \rightarrow \gamma\gamma$	169	699	821	1520	1264179
81	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow K_L^0 a_1^+, a_1^+ \rightarrow \pi^0 \rho^+, \rho^+ \rightarrow \pi^0 \pi^+$	125	711	785	1496	1265675
82	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow \pi^+ \rho^+ K^-, \rho^+ \rightarrow \pi^0 \pi^+$	204	663	833	1496	1267171
83	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^+ \eta K^-, \eta \rightarrow \gamma\gamma$	146	678	806	1484	1268655
84	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow \mu^+ \nu_\mu \bar{K}^*, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, \bar{K}^0 \rightarrow K_L^0$	123	725	732	1457	1270112
85	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	62	669	785	1454	1271566
86	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow \pi^0 \pi^+ \bar{K}^*, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, \bar{K}^0 \rightarrow K_L^0$	356	675	771	1446	1273012
87	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^+ \eta K^-, \eta \rightarrow \pi^0 \pi^0 \pi^0$	165	678	731	1409	1274421
88	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 K_L^0 \eta, \eta \rightarrow \pi^0 \pi^0 \pi^0$	63	679	719	1398	1275819
89	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow K_L^0 a_1^+, a_1^+ \rightarrow \rho^0 \pi^+, \rho^0 \rightarrow \pi^+ \pi^-$	244	632	764	1396	1277215
90	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow \pi^+ \pi^+ \pi^- \eta, \eta \rightarrow \pi^0 \pi^0 \pi^0$	306	642	750	1392	1278607
91	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^+ \pi^- \bar{K}^*, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, \bar{K}^0 \rightarrow K_L^0$	48	614	757	1371	1279978
92	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^- K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	281	637	730	1367	1281345
93	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \omega K_S^0, \omega \rightarrow \pi^0 \pi^+ \pi^-, K_S^0 \rightarrow \pi^0 \pi^0$	105	618	746	1364	1282709
94	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^+ \pi^- K^+ K^-$	236	637	726	1363	1284072
95	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^+ K^{*-}, K^{*-} \rightarrow \pi^0 K^-$	277	609	708	1317	1285389
96	$D^{*+} \rightarrow \pi^0 D^+, D^+ \rightarrow \pi^0 \pi^+ K^+ K^-$	113	630	651	1281	1286670
97	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^+ K^{*-}, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_L^0$	155	533	701	1234	1287904
98	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow e^+ \nu_e \pi^-$	481	578	644	1222	1289126

rowNo	cascade decay branch of $D^{*+}$	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
99	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \eta K_S^0, \eta \rightarrow \gamma\gamma, K_S^0 \rightarrow \pi^+ \pi^-$	152	560	661	1221	1290347
100	$D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^+ \pi^- \bar{K}^*, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, \bar{K}^0 \rightarrow K_S^0,$ $K_S^0 \rightarrow \pi^+ \pi^-$	65	563	646	1209	1291556
rest	$D^{*+} \rightarrow \text{others (5249 in total)}$	—	95501	108197	203698	1495254

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

rowNo	cascade decay branch of $D^{*0}$	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
1	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^+ K^-$	0	297181	274619	571800	571800
2	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \pi^+ K^-$	2	160423	146682	307105	878905
3	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^0 \pi^+ K^-$	14	31857	34039	65896	944801
4	$D^{*0} \rightarrow \pi^0 D^0, \pi^0 \rightarrow e^+ e^-, D^0 \rightarrow \pi^+ K^-$	1	18400	17506	35906	980707
5	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \pi^0 \pi^+ K^-$	36	17212	18429	35641	1016348
6	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow e^+ \nu_e K^-$	5	12617	12675	25292	1041640
7	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \mu^+ \nu_\mu K^-$	21	7212	7605	14817	1056457
8	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow e^+ \nu_e K^-$	25	6839	6865	13704	1070161
9	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^0 \pi^0 \pi^+ K^-$	45	5187	5538	10725	1080886
10	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow K_L^0 \pi^+ \pi^-$	46	4862	5471	10333	1091219
11	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \pi^0 \rho^+, \rho^+ \rightarrow \pi^0 \pi^+$	48	4801	5197	9998	1101217
12	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \rho^0 \pi^+, \rho^0 \rightarrow \pi^+ \pi^-$	142	4511	5326	9837	1111054
13	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^0 K^-$	33	4544	4912	9456	1120510
14	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^- \bar{K}^0,$ $\bar{K}^0 \rightarrow K_L^0$	20	3851	4511	8362	1128872
15	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \mu^+ \nu_\mu K^-$	3	3804	4190	7994	1136866
16	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^+ \pi^- K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	117	3618	4349	7967	1144833
17	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^+ \omega K^-, \omega \rightarrow \pi^0 \pi^+ \pi^-$	17	3352	4018	7370	1152203
18	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^0 \pi^+ \pi^-$	30	3193	3570	6763	1158966
19	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^- \bar{K}^0,$ $\bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	9	3019	3640	6659	1165625
20	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^+ \pi^- \bar{K}^*, \bar{K}^* \rightarrow \pi^+ K^-$	97	3088	3495	6583	1172208
21	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \pi^0 \pi^0 \pi^+ K^-$	122	2763	2967	5730	1177938
22	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \pi^0 \rho^+, \rho^+ \rightarrow \pi^0 \pi^+$	34	2591	2899	5490	1183428
23	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^0 \pi^+ \pi^- \bar{K}^*, \bar{K}^* \rightarrow \pi^+ K^-$	43	2563	2906	5469	1188897
24	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow K_L^0 \pi^+ \pi^-$	171	2502	2923	5425	1194322
25	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \rho^0 \pi^+, \rho^0 \rightarrow \pi^+ \pi^-$	106	2350	2792	5142	1199464
26	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^0 K^-$	71	2364	2587	4951	1204415
27	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \pi^+ \pi^+ \pi^-$	28	2235	2555	4790	1209205
28	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^- \bar{K}^0,$ $\bar{K}^0 \rightarrow K_L^0$	121	2154	2444	4598	1213803
29	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \pi^+ \pi^- K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	112	1906	2307	4213	1218016
30	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \rho^0 \bar{K}^*, \rho^0 \rightarrow \pi^+ \pi^-, \bar{K}^* \rightarrow \pi^+ K^-$	6	1946	2240	4186	1222202

rowNo	cascade decay branch of $D^{*0}$	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
31	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^-$	63	1876	2118	3994	1226196
32	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow K_L^0 \omega, \omega \rightarrow \pi^0 \pi^+ \pi^-$	91	1839	2073	3912	1230108
33	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \pi^+ \omega K^-, \omega \rightarrow \pi^0 \pi^+ \pi^-$	143	1757	2135	3892	1234000
34	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow e^+ \nu_e K^{*-}, K^{*-} \rightarrow \pi^0 K^-$	29	1752	1916	3668	1237668
35	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	82	1708	1921	3629	1241297
36	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \pi^0 \pi^+ \pi^-$	84	1672	1907	3579	1244876
37	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	74	1591	1958	3549	1248425
38	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^+ \pi^+ \pi^- K^-$	191	1654	1883	3537	1251962
39	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	138	1638	1892	3530	1255492
40	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \pi^+ \pi^- \bar{K}^*, \bar{K}^* \rightarrow \pi^+ K^-$	108	1613	1869	3482	1258974
41	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^0 K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	39	1616	1824	3440	1262414
42	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \pi^+ f_0(600), f_0(600) \rightarrow \pi^+ \pi^-$	133	1523	1909	3432	1265846
43	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^0 K_L^0$	35	1580	1793	3373	1269219
44	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^+ \pi^- K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	156	1622	1750	3372	1272591
45	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^0 \pi^0 \pi^0 K_L^0$	60	1525	1666	3191	1275782
46	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^0 \pi^0 \bar{K}^*, \bar{K}^* \rightarrow \pi^+ K^-$	13	1495	1582	3077	1278859
47	$D^{*0} \rightarrow \pi^0 D^0, \pi^0 \rightarrow e^+ e^-, D^0 \rightarrow \pi^0 \pi^+ K^-$	202	1526	1488	3014	1281873
48	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \pi^0 \pi^+ \pi^- \bar{K}^*, \bar{K}^* \rightarrow \pi^+ K^-$	248	1359	1614	2973	1284846
49	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^0 \pi^+ K^-, \pi^0 \rightarrow e^+ e^-$	242	1338	1602	2940	1287786
50	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^0 \pi^0 K_L^0$	37	1400	1520	2920	1290706
51	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	275	1413	1498	2911	1293617
52	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \omega K_S^0, \omega \rightarrow \pi^0 \pi^+ \pi^-, K_S^0 \rightarrow \pi^+ \pi^-$	99	1372	1534	2906	1296523
53	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^- K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	316	1333	1502	2835	1299358
54	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \omega \bar{K}^*, \omega \rightarrow \pi^0 \pi^+ \pi^-, \bar{K}^* \rightarrow \pi^+ K^-$	26	1271	1474	2745	1302103
55	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^0 \rho^+ K^-, \rho^+ \rightarrow \pi^0 \pi^+$	75	1255	1411	2666	1304769
56	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow e^+ \nu_e K^{*-}, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_L^0$	168	1231	1422	2653	1307422
57	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^- K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	405	1226	1419	2645	1310067
58	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \pi^+ \pi^+ \pi^-$	105	1148	1375	2523	1312590
59	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \mu^+ \nu_\mu K^{*-}, K^{*-} \rightarrow \pi^0 K^-$	31	1181	1330	2511	1315101
60	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^0 \pi^0 \pi^0 K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	227	1179	1311	2490	1317591
61	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^-$	139	1202	1277	2479	1320070
62	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow K^+ K^-$	27	1160	1293	2453	1322523
63	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^+ \pi^+ \pi^- \pi^-$	174	1165	1262	2427	1324950

rowNo	cascade decay branch of $D^{*0}$	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
64	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^0 \pi^0 K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	73	1071	1314	2385	1327335
65	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^0 K_L^0 \pi^+ \pi^-$	208	1070	1218	2288	1329623
66	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \mu^+ \nu_\mu K^{*-}, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_L^0$	350	1022	1220	2242	1331865
67	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^-$	169	1035	1178	2213	1334078
68	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \rho^0 \bar{K}^*, \rho^0 \rightarrow \pi^+ \pi^-, \bar{K}^* \rightarrow \pi^+ K^-$	351	969	1233	2202	1336280
69	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^- K^+$	342	1012	1143	2155	1338435
70	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \rho^0 \pi^+ K^-, \rho^0 \rightarrow \pi^+ \pi^-$	186	989	1111	2100	1340535
71	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow K_L^0 \omega, \omega \rightarrow \pi^0 \pi^+ \pi^-$	150	938	1121	2059	1342594
72	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow e^+ \nu_e K^{*-}, K^{*-} \rightarrow \pi^0 K^-$	215	959	1063	2022	1344616
73	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \pi^+ \pi^+ \pi^- K^-$	128	912	1064	1976	1346592
74	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow e^+ \nu_e K^{*-}, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	159	892	1077	1969	1348561
75	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	10	882	1012	1894	1350455
76	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	214	826	987	1813	1352268
77	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \pi^+ f_0(600), f_0(600) \rightarrow \pi^+ \pi^-$	335	849	956	1805	1354073
78	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \pi^+ f_0(600), f_0(600) \rightarrow \pi^0 \pi^0$	323	863	929	1792	1355865
79	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^0 \pi^+ \pi^- K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	42	826	953	1779	1357644
80	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \pi^+ \pi^- K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	235	812	961	1773	1359417
81	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \mu^+ \nu_\mu K^{*-}, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	153	793	952	1745	1361162
82	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \pi^0 K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	119	820	919	1739	1362901
83	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \pi^0 K_L^0$	216	790	935	1725	1364626
84	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \pi^0 \pi^0 \pi^0 K_L^0$	80	761	932	1693	1366319
85	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \omega \bar{K}^*, \omega \rightarrow \pi^0 \pi^+ \pi^-, \bar{K}^* \rightarrow \pi^+ K^-$	184	742	859	1601	1367920
86	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \omega K_S^0, \omega \rightarrow \pi^0 \pi^+ \pi^-, K_S^0 \rightarrow \pi^+ \pi^-$	355	715	874	1589	1369509
87	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ K^-$	61	741	816	1557	1371066
88	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^+ \eta K^-, \eta \rightarrow \gamma \gamma$	263	743	812	1555	1372621
89	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	340	724	827	1551	1374172
90	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^- K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	140	736	810	1546	1375718
91	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \pi^0 \pi^+ K^-, \pi^0 \rightarrow e^+ e^-$	137	716	825	1541	1377259
92	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \pi^0 \pi^0 K_L^0$	252	723	810	1533	1378792
93	$D^{*0} \rightarrow D^0 \gamma, D^0 \rightarrow \pi^0 \pi^0 \bar{K}^*, \bar{K}^* \rightarrow \pi^+ K^-$	47	718	809	1527	1380319
94	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^+ \pi^- \bar{K}^*, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, \bar{K}^0 \rightarrow K_L^0$	101	718	804	1522	1381841
95	$D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow K_L^0 K^+ K^-$	90	720	787	1507	1383348

rowNo	cascade decay branch of $D^{*0}$	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
96	$D^{*0} \rightarrow D^0\gamma, D^0 \rightarrow \pi^0\pi^0\pi^+\pi^-K_S^0, K_S^0 \rightarrow \pi^+\pi^-$	278	648	752	1400	1384748
97	$D^{*0} \rightarrow D^0\gamma, D^0 \rightarrow \pi^0\rho^+K^-, \rho^+ \rightarrow \pi^0\pi^+$	124	688	708	1396	1386144
98	$D^{*0} \rightarrow \pi^0D^0, D^0 \rightarrow \pi^+\eta K^-, \eta \rightarrow \pi^0\pi^0\pi^0$	211	679	713	1392	1387536
99	$D^{*0} \rightarrow D^0\gamma, D^0 \rightarrow e^+\nu_e K^{*-}, K^{*-} \rightarrow \pi^-\bar{K}^0, \bar{K}^0 \rightarrow K_L^0$	114	653	738	1391	1388927
100	$D^{*0} \rightarrow \pi^0D^0, D^0 \rightarrow \pi^0K_L^0\eta, \eta \rightarrow \gamma\gamma$	81	663	721	1384	1390311
rest	$D^{*0} \rightarrow \text{others (5203 in total)}$	—	101325	114251	215576	1605887

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	1116857	976956	2093813	2093813
2	$D^0 \rightarrow \pi^0 \pi^+ K^-$	16	103791	112066	215857	2309670
3	$D^0 \rightarrow e^+ \nu_e K^-$	5	39378	40327	79705	2389375
4	$D^0 \rightarrow \mu^+ \nu_\mu K^-$	2	23122	25085	48207	2437582
5	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ K^-$	1	16655	18283	34938	2472520
6	$D^0 \rightarrow K_L^0 \pi^+ \pi^-$	53	15574	17936	33510	2506030
7	$D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \pi^0 \rho^+, \rho^+ \rightarrow \pi^0 \pi^+$	40	15617	17330	32947	2538977
8	$D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \rho^0 \pi^+, \rho^0 \rightarrow \pi^+ \pi^-$	75	14432	17081	31513	2570490
9	$D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^0 K^-$	12	14623	16183	30806	2601296
10	$D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_L^0$	27	12874	14806	27680	2628976
11	$D^0 \rightarrow \pi^+ \pi^- K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	106	11677	14105	25782	2654758
12	$D^0 \rightarrow \pi^+ \omega K^-, \omega \rightarrow \pi^0 \pi^+ \pi^-$	22	10851	12956	23807	2678565
13	$D^0 \rightarrow \pi^0 \pi^+ \pi^-$	37	10464	11650	22114	2700679
14	$D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	9	9868	11891	21759	2722438
15	$D^0 \rightarrow \pi^+ \pi^- \bar{K}^*, \bar{K}^* \rightarrow \pi^+ K^-$	14	9945	11513	21458	2743896
16	$D^0 \rightarrow \pi^0 \pi^+ \pi^- \bar{K}^*, \bar{K}^* \rightarrow \pi^+ K^-$	51	8226	9512	17738	2761634
17	$D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \pi^+ \pi^+ \pi^-$	35	7109	8426	15535	2777169
18	$D^0 \rightarrow \rho^0 \bar{K}^*, \rho^0 \rightarrow \pi^+ \pi^-, \bar{K}^* \rightarrow \pi^+ K^-$	6	6222	7394	13616	2790785
19	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^-$	77	6243	7039	13282	2804067
20	$D^0 \rightarrow K_L^0 \omega, \omega \rightarrow \pi^0 \pi^+ \pi^-$	25	5716	6838	12554	2816621
21	$D^0 \rightarrow e^+ \nu_e K^{*-}, K^{*-} \rightarrow \pi^0 K^-$	36	5797	6144	11941	2828562
22	$D^0 \rightarrow \pi^+ \pi^+ \pi^- K^-$	60	5555	6334	11889	2840451
23	$D^0 \rightarrow \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	10	5478	6266	11744	2852195
24	$D^0 \rightarrow \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	86	5288	6038	11326	2863521
25	$D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \pi^+ f_0(600), f_0(600) \rightarrow \pi^+ \pi^-$	145	5117	6201	11318	2874839
26	$D^0 \rightarrow \pi^+ \pi^- K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	131	5139	6023	11162	2886001
27	$D^0 \rightarrow \pi^0 K_L^0$	42	5087	5980	11067	2897068
28	$D^0 \rightarrow \pi^0 K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	45	5087	5877	10964	2908032
29	$D^0 \rightarrow \pi^0 \pi^0 K_L^0$	50	4835	5528	10363	2918395
30	$D^0 \rightarrow \pi^0 \pi^0 \bar{K}^*, \bar{K}^* \rightarrow \pi^+ K^-$	15	4679	5064	9743	2928138
31	$D^0 \rightarrow \pi^0 \pi^0 K_L^0$	43	4557	5046	9603	2937741

rowNo	cascade decay branch of $D^0$	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
32	$D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S^0,$ $K_S^0 \rightarrow \pi^0 \pi^0$	114	4457	5088	9545	2947286
33	$D^0 \rightarrow \omega K_S^0, \omega \rightarrow \pi^0 \pi^+ \pi^-, K_S^0 \rightarrow \pi^+ \pi^-$	93	4301	5201	9502	2956788
34	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^- K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	124	4348	5003	9351	2966139
35	$D^0 \rightarrow \omega \bar{K}^*, \omega \rightarrow \pi^0 \pi^+ \pi^-, \bar{K}^* \rightarrow \pi^+ K^-$	4	4335	4931	9266	2975405
36	$D^0 \rightarrow \pi^0 \pi^+ K^-, \pi^0 \rightarrow e^+ e^-$	41	4419	4820	9239	2984644
37	$D^0 \rightarrow e^+ \nu_e K^{*-}, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_L^0$	91	4049	4616	8665	2993309
38	$D^0 \rightarrow \pi^0 \rho^+ K^-, \rho^+ \rightarrow \pi^0 \pi^+$	46	4118	4532	8650	3001959
39	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^- K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	150	3954	4583	8537	3010496
40	$D^0 \rightarrow \mu^+ \nu_\mu K^{*-}, K^{*-} \rightarrow \pi^0 K^-$	38	3946	4394	8340	3018836
41	$D^0 \rightarrow K^+ K^-$	34	4008	4314	8322	3027158
42	$D^0 \rightarrow \pi^0 \pi^0 K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	121	3960	4313	8273	3035431
43	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^-$	152	3861	4279	8140	3043571
44	$D^0 \rightarrow \pi^+ \pi^+ \pi^- \pi^-$	31	3577	4248	7825	3051396
45	$D^0 \rightarrow \pi^0 \pi^0 K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	88	3500	4095	7595	3058991
46	$D^0 \rightarrow \pi^0 K_L^0 \pi^+ \pi^-$	71	3486	3859	7345	3066336
47	$D^0 \rightarrow \mu^+ \nu_\mu K^{*-}, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_L^0$	98	3317	3999	7316	3073652
48	$D^0 \rightarrow \pi^- K^+$	231	3302	3812	7114	3080766
49	$D^0 \rightarrow \rho^0 \pi^+ K^-, \rho^0 \rightarrow \pi^+ \pi^-$	148	3151	3813	6964	3087730
50	$D^0 \rightarrow e^+ \nu_e K^{*-}, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	175	3037	3587	6624	3094354
51	$D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \pi^+ f_0(600), f_0(600) \rightarrow \pi^0 \pi^0$	107	2788	3014	5802	3100156
52	$D^0 \rightarrow \pi^0 \pi^+ \pi^- K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	49	2656	3104	5760	3105916
53	$D^0 \rightarrow \mu^+ \nu_\mu K^{*-}, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	170	2546	3052	5598	3111514
54	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ K^-$	74	2402	2699	5101	3116615
55	$D^0 \rightarrow \pi^+ \eta K^-, \eta \rightarrow \gamma\gamma$	165	2349	2630	4979	3121594
56	$D^0 \rightarrow K_L^0 K^+ K^-$	24	2268	2636	4904	3126498
57	$D^0 \rightarrow \pi^+ \pi^- \bar{K}^*, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, \bar{K}^0 \rightarrow K_L^0$	13	2242	2626	4868	3131366
58	$D^0 \rightarrow \pi^0 K_L^0 \eta, \eta \rightarrow \gamma\gamma$	99	2206	2427	4633	3135999
59	$D^0 \rightarrow \pi^0 K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	94	2085	2402	4487	3140486
60	$D^0 \rightarrow \pi^+ \eta K^-, \eta \rightarrow \pi^0 \pi^0 \pi^0$	127	2197	2255	4452	3144938
61	$D^0 \rightarrow \pi^0 \pi^+ \pi^- K^+ K^-$	256	1984	2325	4309	3149247
62	$D^0 \rightarrow \pi^0 K_L^0 \eta, \eta \rightarrow \pi^0 \pi^0 \pi^0$	96	2011	2255	4266	3153513
63	$D^0 \rightarrow \omega K_S^0, \omega \rightarrow \pi^0 \pi^+ \pi^-, K_S^0 \rightarrow \pi^0 \pi^0$	129	1981	2252	4233	3157746
64	$D^0 \rightarrow \pi^0 \pi^+ K^{*-}, K^{*-} \rightarrow \pi^0 K^-$	219	1976	2257	4233	3161979
65	$D^0 \rightarrow \pi^0 \pi^+ \pi^- \bar{K}^*, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, \bar{K}^0 \rightarrow K_L^0$	87	1914	2242	4156	3166135

rowNo	cascade decay branch of $D^0$	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
66	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^- K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	39	1936	2183	4119	3170254
67	$D^0 \rightarrow e^+ \nu_e \pi^-$	132	1820	2165	3985	3174239
68	$D^0 \rightarrow \pi^+ \pi^- \bar{K}^*, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	52	1736	2079	3815	3178054
69	$D^0 \rightarrow \pi^0 \bar{K}^*, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, \bar{K}^0 \rightarrow K_L^0$	112	1764	2030	3794	3181848
70	$D^0 \rightarrow \pi^0 \pi^0 K^+ K^-$	3	1813	1947	3760	3185608
71	$D^0 \rightarrow \pi^0 \pi^+ K^{*-}, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_L^0$	174	1705	2025	3730	3189338
72	$D^0 \rightarrow \pi^0 \eta K_S^0, \eta \rightarrow \gamma\gamma, K_S^0 \rightarrow \pi^+ \pi^-$	166	1743	1957	3700	3193038
73	$D^0 \rightarrow K_S^0 K^+ K^-, K_S^0 \rightarrow \pi^+ \pi^-$	30	1699	1994	3693	3196731
74	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^- K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	47	1716	1975	3691	3200422
75	$D^0 \rightarrow \pi^0 \pi^0 K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	64	1707	1811	3518	3203940
76	$D^0 \rightarrow K_L^0 \pi^+ \pi^+ \pi^- \pi^-$	126	1556	1940	3496	3207436
77	$D^0 \rightarrow \mu^+ \nu_\mu \pi^-$	72	1634	1838	3472	3210908
78	$D^0 \rightarrow K_L^0 \eta', \eta' \rightarrow \rho^0 \gamma, \rho^0 \rightarrow \pi^+ \pi^-$	211	1608	1856	3464	3214372
79	$D^0 \rightarrow \pi^0 \eta K_S^0, \eta \rightarrow \pi^0 \pi^0 \pi^0, K_S^0 \rightarrow \pi^+ \pi^-$	168	1630	1759	3389	3217761
80	$D^0 \rightarrow \pi^0 \pi^+ \pi^- \bar{K}^*, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	169	1430	1812	3242	3221003
81	$D^0 \rightarrow \pi^0 K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	140	1538	1685	3223	3224226
82	$D^0 \rightarrow \rho^0 \bar{K}^*, \rho^0 \rightarrow \pi^+ \pi^-, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, \bar{K}^0 \rightarrow K_L^0$	159	1536	1682	3218	3227444
83	$D^0 \rightarrow \pi^0 K_L^0 \eta, \eta \rightarrow \pi^0 \pi^+ \pi^-$	246	1466	1662	3128	3230572
84	$D^0 \rightarrow \pi^+ \eta K^-, \eta \rightarrow \pi^0 \pi^+ \pi^-$	69	1493	1634	3127	3233699
85	$D^0 \rightarrow \pi^+ K_1^-, K_1^- \rightarrow \pi^+ \pi^- K^-$	128	1439	1652	3091	3236790
86	$D^0 \rightarrow \pi^0 \bar{K}^*, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	236	1451	1551	3002	3239792
87	$D^0 \rightarrow \pi^+ K^- \eta', \eta' \rightarrow \rho^0 \gamma, \rho^0 \rightarrow \pi^+ \pi^-$	160	1374	1602	2976	3242768
88	$D^0 \rightarrow \pi^0 \pi^+ K^{*-}, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	307	1348	1580	2928	3245696
89	$D^0 \rightarrow e^+ \nu_e K^{*-}, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	78	1314	1576	2890	3248586
90	$D^0 \rightarrow \pi^+ \pi^+ \pi^- \pi^- K_S^0, K_S^0 \rightarrow \pi^+ \pi^-$	116	1264	1588	2852	3251438
91	$D^0 \rightarrow \pi^+ K_1^-, K_1^- \rightarrow \rho^0 K^-, \rho^0 \rightarrow \pi^+ \pi^-$	21	1313	1534	2847	3254285
92	$D^0 \rightarrow \pi^+ K_1^-, K_1^- \rightarrow \rho^- \bar{K}^0, \rho^- \rightarrow \pi^0 \pi^-, \bar{K}^0 \rightarrow K_L^0$	225	1237	1499	2736	3257021
93	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ K^-, \pi^0 \rightarrow e^+ e^-$	155	1298	1364	2662	3259683
94	$D^0 \rightarrow K_S^0 \eta', K_S^0 \rightarrow \pi^+ \pi^-, \eta' \rightarrow \rho^0 \gamma, \rho^0 \rightarrow \pi^+ \pi^-$	245	1241	1358	2599	3262282
95	$D^0 \rightarrow \pi^0 \pi^+ \pi^- K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	33	1138	1402	2540	3264822
96	$D^0 \rightarrow e^+ \nu_e \rho^-, \rho^- \rightarrow \pi^0 \pi^-$	85	1186	1309	2495	3267317
97	$D^0 \rightarrow \rho^0 \rho^0, \rho^0 \rightarrow \pi^+ \pi^-, \rho^0 \rightarrow \pi^+ \pi^-$	73	1095	1379	2474	3269791
98	$D^0 \rightarrow \mu^+ \nu_\mu K^{*-}, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S^0, K_S^0 \rightarrow \pi^0 \pi^0$	172	1161	1301	2462	3272253
99	$D^0 \rightarrow \rho^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^0 K^-, \pi^0 \rightarrow e^+ e^-$	297	1207	1247	2454	3274707

rowNo	cascade decay branch of $D^0$	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
100	$D^0 \rightarrow \rho^0 \bar{K}^*, \rho^0 \rightarrow \pi^+ \pi^-, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, \bar{K}^0 \rightarrow K_S^0,$ $K_S^0 \rightarrow \pi^+ \pi^-$	233	1114	1314	2428	3277135
rest	$D^0 \rightarrow \text{others (3325 in total)}$	—	114626	130112	244738	3521873

Table 12: Cascade decay branches of  $\pi^0$ .

rowNo	cascade decay branch of $\pi^0$	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
1	$\pi^0 \rightarrow e^+ e^-$	0	288155	—	288155	288155
2	$\pi^0 \rightarrow e^+ e^+ e^- e^-$	1	1302	—	1302	289457

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	455616	370534	826150	826150
2	$D^{*+} \rightarrow \pi^0 \pi^+ \pi^+ K^-$	3	40631	44815	85446	911596
3	$D^{*+} \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ K^-$	1	25633	28638	54271	965867
4	$D^{*+} \rightarrow \pi^+ \pi^+ \pi^+ \pi^- K^-$	7	17996	21390	39386	1005253
5	$D^{*+} \rightarrow \pi^0 K_L^0 \pi^+ \pi^+ \pi^-$	11	12816	15058	27874	1033127
6	$D^{*+} \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^-$	48	11249	13042	24291	1057418
7	$D^{*+} \rightarrow \pi^0 \pi^+ \pi^+ \pi^+ \pi^- \pi^-$	21	10564	12709	23273	1080691
8	$D^{*+} \rightarrow e^+ \nu_e \pi^+ K^-$	18	10408	10986	21394	1102085
9	$D^{*+} \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^+ \pi^-$	16	9576	10927	20503	1122588
10	$D^{*+} \rightarrow \pi^0 \pi^+ \pi^+ \pi^+ \pi^- K^-$	4	8731	10492	19223	1141811
11	$D^{*+} \rightarrow \pi^0 \pi^0 K_L^0 \pi^+$	8	8308	9223	17531	1159342
12	$D^{*+} \rightarrow \mu^+ \nu_\mu \pi^+ K^-$	5	7049	7789	14838	1174180
13	$D^{*+} \rightarrow \pi^0 \pi^+ \pi^+ \pi^-$	19	6468	7248	13716	1187896
14	$D^{*+} \rightarrow e^+ \nu_e \pi^0 \pi^+ K^-$	26	6335	6843	13178	1201074
15	$D^{*+} \rightarrow \pi^+ \pi^+ \pi^+ \pi^- \pi^-$	30	5180	6387	11567	1212641
16	$D^{*+} \rightarrow K_L^0 \pi^+ \pi^+ \pi^-$	44	4964	5852	10816	1223457
17	$D^{*+} \rightarrow \mu^+ \nu_\mu \pi^0 \pi^+ K^-$	41	4849	5292	10141	1233598
18	$D^{*+} \rightarrow \pi^0 \pi^0 \pi^0 K_L^0 \pi^+$	20	4261	4946	9207	1242805
19	$D^{*+} \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^-$	37	4107	5015	9122	1251927
20	$D^{*+} \rightarrow \pi^0 \pi^0 K_L^0 \pi^+ \pi^+ \pi^-$	35	4262	4743	9005	1260932
21	$D^{*+} \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \pi^-$	82	3757	4354	8111	1269043
22	$D^{*+} \rightarrow e^+ \nu_e \pi^0 K_L^0$	63	3421	3913	7334	1276377
23	$D^{*+} \rightarrow \mu^+ \nu_\mu \pi^0 K_L^0$	69	3359	3776	7135	1283512
24	$D^{*+} \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^+$	32	3379	3677	7056	1290568
25	$D^{*+} \rightarrow e^+ \nu_e \pi^0 \pi^+ \pi^-$	24	3172	3721	6893	1297461
26	$D^{*+} \rightarrow \mu^+ \nu_\mu \pi^0 \pi^+ \pi^-$	36	3107	3598	6705	1304166
27	$D^{*+} \rightarrow \pi^0 K_L^0 \pi^+$	51	2870	3312	6182	1310348
28	$D^{*+} \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^-$	60	2433	2822	5255	1315603
29	$D^{*+} \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^+ K^-$	12	2262	2504	4766	1320369
30	$D^{*+} \rightarrow \pi^0 \pi^0 \pi^0 K_L^0 \pi^+ \pi^+ \pi^-$	15	2187	2520	4707	1325076
31	$D^{*+} \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \pi^+ \pi^-$	13	1992	2361	4353	1329429
32	$D^{*+} \rightarrow e^+ e^- \pi^0 \pi^+ \pi^+ K^-$	112	2076	2153	4229	1333658
33	$D^{*+} \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \gamma \gamma$	87	1836	2121	3957	1337615

rowNo	decay final state of $D^{*+}$	iDcyFStP	nCase	nCcCase	nAllCase	nCCase
34	$D^{*+} \rightarrow e^+ e^- \pi^+ \pi^+ K^-$	17	1864	1900	3764	1341379
35	$D^{*+} \rightarrow \pi^0 \pi^+ K^+ K^-$	79	1640	1861	3501	1344880
36	$D^{*+} \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^+$	25	1557	1798	3355	1348235
37	$D^{*+} \rightarrow \pi^0 \pi^0 \pi^0 \pi^+$	45	1537	1796	3333	1351568
38	$D^{*+} \rightarrow \pi^0 \pi^0 \pi^+ K^-$	14	1563	1571	3134	1354702
39	$D^{*+} \rightarrow e^+ \nu_e K_L^0 \pi^+ \pi^-$	40	1447	1630	3077	1357779
40	$D^{*+} \rightarrow e^+ \nu_e \pi^0 \pi^0 \pi^+ \pi^-$	50	1508	1498	3006	1360785
41	$D^{*+} \rightarrow \mu^+ \nu_\mu K_L^0 \pi^+ \pi^-$	46	1377	1605	2982	1363767
42	$D^{*+} \rightarrow \pi^+ K^+ K^-$	135	1331	1412	2743	1366510
43	$D^{*+} \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 K_L^0 \pi^+$	34	1322	1418	2740	1369250
44	$D^{*+} \rightarrow \mu^+ \nu_\mu \pi^0 \pi^0 \pi^+ \pi^-$	104	1331	1393	2724	1371974
45	$D^{*+} \rightarrow \pi^0 K_L^0 \pi^+ \gamma\gamma$	66	1185	1322	2507	1374481
46	$D^{*+} \rightarrow e^+ \nu_e \pi^+ \pi^+ \pi^- \pi^-$	111	1192	1272	2464	1376945
47	$D^{*+} \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \gamma\gamma$	68	1099	1321	2420	1379365
48	$D^{*+} \rightarrow e^+ \nu_e \pi^0 \pi^0 \pi^0$	117	1108	1258	2366	1381731
49	$D^{*+} \rightarrow \mu^+ \nu_\mu \pi^0 \pi^0 \pi^0$	58	1100	1253	2353	1384084
50	$D^{*+} \rightarrow \pi^+ \pi^+ \pi^- K^+ K^-$	92	1088	1234	2322	1386406
51	$D^{*+} \rightarrow \pi^+ \pi^- K^+$	119	1002	1246	2248	1388654
52	$D^{*+} \rightarrow \mu^+ \nu_\mu \pi^+ \pi^+ \pi^- \pi^-$	96	1058	1189	2247	1390901
53	$D^{*+} \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \gamma\gamma$	116	1021	1089	2110	1393011
54	$D^{*+} \rightarrow e^+ e^- \pi^0 \pi^0 \pi^+ \pi^-$	22	1001	1058	2059	1395070
55	$D^{*+} \rightarrow e^+ e^- \pi^0 \pi^+ \pi^+ \pi^-$	75	1007	1024	2031	1397101
56	$D^{*+} \rightarrow \pi^0 \pi^0 \pi^+ \pi^- K^+$	123	914	1066	1980	1399081
57	$D^{*+} \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^0 \pi^+$	6	925	1045	1970	1401051
58	$D^{*+} \rightarrow e^+ \nu_e \pi^0 \pi^0 K_L^0$	9	872	1009	1881	1402932
59	$D^{*+} \rightarrow \pi^0 \pi^+ \pi^+ \pi^- K^+ K^-$	71	816	940	1756	1404688
60	$D^{*+} \rightarrow \pi^+ \pi^+ K^- \gamma\gamma$	85	792	936	1728	1406416
61	$D^{*+} \rightarrow \pi^0 \pi^0 K_L^0 K^+$	72	791	861	1652	1408068
62	$D^{*+} \rightarrow \pi^0 \pi^+ \pi^+ K^- \gamma$	31	813	808	1621	1409689
63	$D^{*+} \rightarrow \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^-$	57	705	868	1573	1411262
64	$D^{*+} \rightarrow K_L^0 \pi^+ \pi^+ \pi^+ \pi^- \pi^-$	74	700	867	1567	1412829
65	$D^{*+} \rightarrow \mu^+ \nu_\mu \pi^0 \pi^0 K_L^0$	73	766	773	1539	1414368
66	$D^{*+} \rightarrow K_L^0 \pi^+ K^+ K^-$	10	692	846	1538	1415906
67	$D^{*+} \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \gamma$	133	704	785	1489	1417395
68	$D^{*+} \rightarrow e^+ e^- \pi^0 K_L^0 \pi^+$	52	719	767	1486	1418881

rowNo	decay final state of $D^{*+}$	iDcyFStP	nCase	nCcCase	nAllCase	nCCase
69	$D^{*+} \rightarrow K_L^0 \pi^+ \pi^+ \pi^- \gamma$	113	632	782	1414	1420295
70	$D^{*+} \rightarrow e^+ \nu_e \pi^+ \pi^-$	206	578	644	1222	1421517
71	$D^{*+} \rightarrow \pi^+ \pi^+ \pi^+ \pi^- \pi^- \gamma$	124	552	608	1160	1422677
72	$D^{*+} \rightarrow e^+ e^- K_L^0 \pi^+ \pi^+ \pi^-$	100	554	599	1153	1423830
73	$D^{*+} \rightarrow K_L^0 \pi^+ \pi^+ K^-$	106	529	619	1148	1424978
74	$D^{*+} \rightarrow \pi^+ \pi^+ \pi^+ \pi^- K^- \gamma$	89	518	626	1144	1426122
75	$D^{*+} \rightarrow \mu^+ \nu_\mu \pi^+ \pi^-$	56	540	603	1143	1427265
76	$D^{*+} \rightarrow e^+ e^- \pi^0 \pi^0 \pi^0 \pi^+ \pi^-$	182	529	596	1125	1428390
77	$D^{*+} \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \gamma\gamma$	167	553	571	1124	1429514
78	$D^{*+} \rightarrow e^+ e^- \pi^0 \pi^0 K_L^0 \pi^+$	55	507	555	1062	1430576
79	$D^{*+} \rightarrow \pi^+ \pi^+ K^- \gamma$	67	472	581	1053	1431629
80	$D^{*+} \rightarrow \pi^0 K_L^0 \pi^+ \gamma$	23	514	508	1022	1432651
81	$D^{*+} \rightarrow e^+ e^- \pi^0 \pi^0 \pi^0 \pi^+$	136	486	493	979	1433630
82	$D^{*+} \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \gamma$	86	427	545	972	1434602
83	$D^{*+} \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^0 \pi^0 \pi^+$	88	495	464	959	1435561
84	$D^{*+} \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^+ \pi^- K^-$	114	424	515	939	1436500
85	$D^{*+} \rightarrow e^+ e^- \pi^+ \pi^+ \pi^+ \pi^- \pi^-$	191	449	462	911	1437411
86	$D^{*+} \rightarrow \pi^+ \pi^+ \pi^- \gamma\gamma$	39	419	489	908	1438319
87	$D^{*+} \rightarrow K_L^0 \pi^+ \pi^- K^+$	61	407	491	898	1439217
88	$D^{*+} \rightarrow e^+ e^- \pi^+ \pi^+ \pi^+ \pi^- K^-$	190	425	468	893	1440110
89	$D^{*+} \rightarrow K_L^0 \pi^+ \gamma\gamma$	29	385	441	826	1440936
90	$D^{*+} \rightarrow e^+ \nu_e \pi^0 \pi^0 \pi^0 \pi^0$	151	371	436	807	1441743
91	$D^{*+} \rightarrow \pi^0 \pi^+ \pi^- K^+$	211	378	426	804	1442547
92	$D^{*+} \rightarrow \pi^+ \pi^+ \pi^- \pi^- K^+$	144	361	441	802	1443349
93	$D^{*+} \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^+ \pi^- K^-$	90	356	425	781	1444130
94	$D^{*+} \rightarrow \pi^+ \pi^+ \pi^-$	204	345	410	755	1444885
95	$D^{*+} \rightarrow K_L^0 K_L^0 \pi^+ \pi^+ \pi^-$	47	345	398	743	1445628
96	$D^{*+} \rightarrow e^+ e^- \pi^0 K_L^0 \pi^+ \pi^+ \pi^-$	70	332	364	696	1446324
97	$D^{*+} \rightarrow e^+ e^- \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \pi^-$	108	317	378	695	1447019
98	$D^{*+} \rightarrow \pi^0 K_L^0 K^+$	120	323	356	679	1447698
99	$D^{*+} \rightarrow K_L^0 \pi^+ \pi^+ \pi^- \gamma\gamma$	212	294	383	677	1448375
100	$D^{*+} \rightarrow e^+ e^- \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^-$	78	352	321	673	1449048
rest	$D^{*+} \rightarrow \text{others (1048 in total)}$	—	21565	24641	46206	1495254

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

rowNo	decay final state of $D^{*0}$	iDcyFStP	nCase	nCcCase	nAllCase	nCCase
1	$D^{*0} \rightarrow \pi^0 \pi^+ K^-$	0	297181	274619	571800	571800
2	$D^{*0} \rightarrow \pi^+ K^- \gamma$	2	160423	146682	307105	878905
3	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^+ K^-$	14	31857	34039	65896	944801
4	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ K^-$	13	19803	21360	41163	985964
5	$D^{*0} \rightarrow \pi^0 \pi^+ \pi^+ \pi^- K^-$	6	17679	20557	38236	1024200
6	$D^{*0} \rightarrow e^+ e^- \pi^+ K^-$	1	18400	17506	35906	1060106
7	$D^{*0} \rightarrow \pi^0 \pi^+ K^- \gamma$	32	17281	18484	35765	1095871
8	$D^{*0} \rightarrow e^+ \nu_e \pi^0 K^-$	5	12617	12675	25292	1121163
9	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^+ K^- \gamma$	30	10893	12034	22927	1144090
10	$D^{*0} \rightarrow \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	8	9810	11254	21064	1165154
11	$D^{*0} \rightarrow \pi^+ \pi^+ \pi^- K^- \gamma$	48	9259	10999	20258	1185412
12	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^-$	9	8265	9672	17937	1203349
13	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- K^-$	17	8074	9366	17440	1220789
14	$D^{*0} \rightarrow \mu^+ \nu_\mu \pi^0 K^-$	20	7212	7605	14817	1235606
15	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \pi^-$	18	6554	7244	13798	1249404
16	$D^{*0} \rightarrow e^+ \nu_e K^- \gamma$	24	6839	6865	13704	1263108
17	$D^{*0} \rightarrow \pi^0 K_L^0 \pi^+ \pi^- \gamma$	12	5854	6544	12398	1275506
18	$D^{*0} \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \pi^-$	77	5225	6118	11343	1286849
19	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^-$	46	5120	5776	10896	1297745
20	$D^{*0} \rightarrow \pi^0 K_L^0 \pi^+ \pi^-$	36	4944	5549	10493	1308238
21	$D^{*0} \rightarrow \pi^0 \pi^+ \pi^+ \pi^- K^- \gamma$	88	4760	5691	10451	1318689
22	$D^{*0} \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \pi^- \gamma$	55	4692	5743	10435	1329124
23	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^+ \pi^-$	27	4816	5403	10219	1339343
24	$D^{*0} \rightarrow \mu^+ \nu_\mu K^- \gamma$	3	3804	4190	7994	1347337
25	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^- \gamma$	91	3610	4078	7688	1355025
26	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	67	3211	3681	6892	1361917
27	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^+ \pi^- \gamma$	105	2981	3368	6349	1368266
28	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^-$	93	2868	3266	6134	1374400
29	$D^{*0} \rightarrow e^+ e^- \pi^0 \pi^+ K^-$	120	2905	3141	6046	1380446
30	$D^{*0} \rightarrow \pi^+ \pi^+ \pi^- \pi^- \gamma$	22	2714	3280	5994	1386440
31	$D^{*0} \rightarrow K_L^0 \pi^+ \pi^- \gamma$	107	2534	2972	5506	1391946
32	$D^{*0} \rightarrow \pi^0 \pi^+ \pi^- \gamma$	62	2502	2836	5338	1397284
33	$D^{*0} \rightarrow e^+ e^- \pi^0 \pi^0 \pi^+ K^-$	56	2444	2516	4960	1402244

rowNo	decay final state of $D^{*0}$	iDcyFStP	nCase	nCcCase	nAllCase	nCCase
34	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 K_L^0$	43	2212	2450	4662	1406906
35	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	60	2058	2350	4408	1411314
36	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^0 K_L^0$	33	1959	2146	4105	1415419
37	$D^{*0} \rightarrow e^+ \nu_e \pi^0 \pi^0 K^-$	26	1946	2156	4102	1419521
38	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \pi^-$	35	1882	2182	4064	1423585
39	$D^{*0} \rightarrow \pi^0 \pi^0 K_L^0 \pi^+ \pi^- \gamma$	128	1740	1990	3730	1427315
40	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^-$	103	1730	1942	3672	1430987
41	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^- \gamma$	52	1569	1936	3505	1434492
42	$D^{*0} \rightarrow \pi^0 \pi^0 K_L^0$	31	1580	1793	3373	1437865
43	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ K^-$	44	1525	1643	3168	1441033
44	$D^{*0} \rightarrow \mu^+ \nu_\mu \pi^0 \pi^0 K^-$	28	1472	1655	3127	1444160
45	$D^{*0} \rightarrow e^+ \nu_e \pi^0 K_L^0 \pi^-$	104	1382	1589	2971	1447131
46	$D^{*0} \rightarrow \mu^+ \nu_\mu \pi^0 K_L^0 \pi^-$	170	1281	1510	2791	1449922
47	$D^{*0} \rightarrow \pi^0 \pi^0 K_L^0 \gamma$	23	1142	1354	2496	1452418
48	$D^{*0} \rightarrow \pi^0 \pi^0 K_L^0 \gamma$	7	1171	1321	2492	1454910
49	$D^{*0} \rightarrow \pi^0 K^+ K^-$	25	1160	1293	2453	1457363
50	$D^{*0} \rightarrow \pi^0 \pi^+ K^- \gamma \gamma$	149	1118	1214	2332	1459695
51	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^0 K_L^0 \pi^+ \pi^- \gamma$	10	1080	1245	2325	1462020
52	$D^{*0} \rightarrow e^+ \nu_e \pi^0 \pi^+ \pi^- \pi^-$	99	1069	1201	2270	1464290
53	$D^{*0} \rightarrow e^+ \nu_e \pi^0 K^- \gamma$	129	1075	1182	2257	1466547
54	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \pi^- \gamma$	42	1039	1214	2253	1468800
55	$D^{*0} \rightarrow \pi^0 \pi^+ \pi^- K^+ K^-$	151	985	1260	2245	1471045
56	$D^{*0} \rightarrow \mu^+ \nu_\mu \pi^0 \pi^+ \pi^- \pi^-$	95	1027	1173	2200	1473245
57	$D^{*0} \rightarrow \pi^0 \pi^- K^+$	177	1012	1143	2155	1475400
58	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^- \gamma$	87	960	1087	2047	1477447
59	$D^{*0} \rightarrow e^+ e^- \pi^0 \pi^0 \pi^0 \pi^+ \pi^-$	196	943	993	1936	1479383
60	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \pi^-$	29	897	1017	1914	1481297
61	$D^{*0} \rightarrow e^+ e^- \pi^0 \pi^+ K^- \gamma$	173	906	978	1884	1483181
62	$D^{*0} \rightarrow e^+ e^- \pi^0 K_L^0 \pi^+ \pi^-$	69	895	943	1838	1485019
63	$D^{*0} \rightarrow \pi^0 K_L^0 \gamma$	130	790	935	1725	1486744
64	$D^{*0} \rightarrow \mu^+ \nu_\mu \pi^0 K^- \gamma$	78	782	897	1679	1488423
65	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^0$	102	830	844	1674	1490097
66	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^+ \pi^- \gamma \gamma$	92	739	915	1654	1491751
67	$D^{*0} \rightarrow e^+ e^- \pi^+ \pi^+ \pi^- K^-$	39	796	858	1654	1493405
68	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^+ \pi^- K^+ K^-$	176	776	871	1647	1495052

rowNo	decay final state of $D^{*0}$	iDcyFStP	nCase	nCcCase	nAllCase	nCCase
69	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ K^- \gamma$	111	785	841	1626	1496678
70	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^0 K^+ K^-$	100	756	853	1609	1498287
71	$D^{*0} \rightarrow e^+ e^- \pi^+ K^- \gamma$	86	752	847	1599	1499886
72	$D^{*0} \rightarrow e^+ \nu_e K_L^0 \pi^- \gamma$	76	732	817	1549	1501435
73	$D^{*0} \rightarrow \pi^0 \pi^0 K^+ K^-$	57	734	777	1511	1502946
74	$D^{*0} \rightarrow \pi^0 K_L^0 K^+ K^-$	64	720	787	1507	1504453
75	$D^{*0} \rightarrow e^+ e^- \pi^0 \pi^+ \pi^+ \pi^- K^-$	81	768	735	1503	1505956
76	$D^{*0} \rightarrow e^+ e^- \pi^0 \pi^+ \pi^+ \pi^- \pi^-$	162	751	740	1491	1507447
77	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^0 \pi^0$	182	744	732	1476	1508923
78	$D^{*0} \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \pi^- \pi^-$	143	662	812	1474	1510397
79	$D^{*0} \rightarrow \pi^0 \pi^0 K_L^0 \gamma\gamma$	59	703	770	1473	1511870
80	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^0 \pi^0$	75	693	777	1470	1513340
81	$D^{*0} \rightarrow \mu^+ \nu_\mu K_L^0 \pi^- \gamma$	110	620	819	1439	1514779
82	$D^{*0} \rightarrow \pi^0 K_L^0 \pi^+ \pi^+ \pi^- \pi^-$	71	646	789	1435	1516214
83	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^0 K_L^0$	63	645	721	1366	1517580
84	$D^{*0} \rightarrow K^+ K^- \gamma$	54	662	690	1352	1518932
85	$D^{*0} \rightarrow e^+ e^- \pi^0 \pi^0 \pi^+ \pi^-$	66	627	655	1282	1520214
86	$D^{*0} \rightarrow e^+ \nu_e \pi^+ \pi^- \pi^- \gamma$	142	617	658	1275	1521489
87	$D^{*0} \rightarrow \pi^0 K_L^0 \pi^+ K^-$	16	570	646	1216	1522705
88	$D^{*0} \rightarrow \pi^+ \pi^- K^+ K^- \gamma$	21	539	639	1178	1523883
89	$D^{*0} \rightarrow \pi^- K^+ \gamma$	231	574	599	1173	1525056
90	$D^{*0} \rightarrow e^+ \nu_e \pi^0 \pi^-$	72	524	645	1169	1526225
91	$D^{*0} \rightarrow \mu^+ \nu_\mu \pi^+ \pi^- \pi^- \gamma$	168	532	632	1164	1527389
92	$D^{*0} \rightarrow \mu^+ \nu_\mu \pi^0 \pi^-$	41	488	548	1036	1528425
93	$D^{*0} \rightarrow \pi^0 \pi^+ \pi^- \gamma\gamma$	122	499	529	1028	1529453
94	$D^{*0} \rightarrow \pi^+ K^- \gamma\gamma\gamma$	106	450	535	985	1530438
95	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \pi^- \gamma$	153	485	492	977	1531415
96	$D^{*0} \rightarrow e^+ \nu_e \pi^0 \pi^0 \pi^0 \pi^-$	47	432	543	975	1532390
97	$D^{*0} \rightarrow \mu^+ \nu_\mu \pi^0 \pi^0 \pi^0 \pi^-$	97	449	491	940	1533330
98	$D^{*0} \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 \gamma$	217	424	506	930	1534260
99	$D^{*0} \rightarrow \pi^0 \pi^0 K^+ K^- \gamma$	4	433	491	924	1535184
100	$D^{*0} \rightarrow \pi^0 K_L^0 \gamma\gamma$	134	448	443	891	1536075
rest	$D^{*0} \rightarrow \text{others (1168 in total)}$	—	32785	37027	69812	1605887

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	1116857	976956	2093813	2093813
2	$D^0 \rightarrow \pi^0 \pi^+ K^-$	12	103791	112066	215857	2309670
3	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ K^-$	1	63819	70463	134282	2443952
4	$D^0 \rightarrow \pi^+ \pi^+ \pi^- K^-$	6	57242	67335	124577	2568529
5	$D^0 \rightarrow e^+ \nu_e K^-$	5	39378	40327	79705	2648234
6	$D^0 \rightarrow \pi^0 K_L^0 \pi^+ \pi^-$	8	31972	36932	68904	2717138
7	$D^0 \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \pi^-$	9	26671	31824	58495	2775633
8	$D^0 \rightarrow \pi^0 \pi^+ \pi^+ \pi^- K^-$	4	26179	30554	56733	2832366
9	$D^0 \rightarrow \mu^+ \nu_\mu K^-$	2	23122	25085	48207	2880573
10	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^-$	16	21119	23817	44936	2925509
11	$D^0 \rightarrow \pi^+ \pi^+ \pi^- \pi^-$	21	16613	20023	36636	2962145
12	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^-$	44	16726	19167	35893	2998038
13	$D^0 \rightarrow K_L^0 \pi^+ \pi^-$	32	15801	18210	34011	3032049
14	$D^0 \rightarrow \pi^0 \pi^+ \pi^-$	25	15577	17558	33135	3065184
15	$D^0 \rightarrow \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	51	10423	11912	22335	3087519
16	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^-$	49	9229	10984	20213	3107732
17	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 K_L^0$	22	7051	8029	15080	3122812
18	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	10	6686	7685	14371	3137183
19	$D^0 \rightarrow \pi^0 \pi^0 K_L^0$	30	6321	7076	13397	3150580
20	$D^0 \rightarrow e^+ \nu_e \pi^0 K^-$	24	6436	6859	13295	3163875
21	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \pi^-$	31	6087	6998	13085	3176960
22	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^-$	68	5664	6566	12230	3189190
23	$D^0 \rightarrow \pi^0 K_L^0$	29	5087	5980	11067	3200257
24	$D^0 \rightarrow e^+ e^- \pi^0 \pi^+ K^-$	53	5135	5362	10497	3210754
25	$D^0 \rightarrow \mu^+ \nu_\mu \pi^0 K^-$	26	4911	5451	10362	3221116
26	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ K^-$	19	4921	5296	10217	3231333
27	$D^0 \rightarrow e^+ \nu_e K_L^0 \pi^-$	54	4516	5125	9641	3240974
28	$D^0 \rightarrow e^+ e^- \pi^+ K^-$	28	4570	4968	9538	3250512
29	$D^0 \rightarrow \mu^+ \nu_\mu K_L^0 \pi^-$	59	4123	4966	9089	3259601
30	$D^0 \rightarrow K^+ K^-$	23	4008	4314	8322	3267923
31	$D^0 \rightarrow e^+ \nu_e \pi^+ \pi^- \pi^-$	92	3626	4009	7635	3275558
32	$D^0 \rightarrow \pi^+ \pi^- K^+ K^-$	20	3322	3993	7315	3282873
33	$D^0 \rightarrow \mu^+ \nu_\mu \pi^+ \pi^- \pi^-$	89	3324	3804	7128	3290001

rowNo	decay final state of $D^0$	iDcyFStP	nCase	nCcCase	nAllCase	nCCase
34	$D^0 \rightarrow \pi^- K^+$	116	3302	3812	7114	3297115
35	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \pi^-$	27	2929	3376	6305	3303420
36	$D^0 \rightarrow \pi^+ K^- \gamma\gamma$	86	2741	3047	5788	3309208
37	$D^0 \rightarrow \pi^0 \pi^0 K^+ K^-$	3	2606	2804	5410	3314618
38	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^0$	37	2600	2753	5353	3319971
39	$D^0 \rightarrow \pi^0 \pi^+ \pi^- K^+ K^-$	14	2422	2856	5278	3325249
40	$D^0 \rightarrow \pi^0 K^+ K^-$	55	2309	2599	4908	3330157
41	$D^0 \rightarrow K_L^0 K^+ K^-$	17	2268	2636	4904	3335061
42	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^0$	75	2325	2564	4889	3339950
43	$D^0 \rightarrow \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^-$	64	2168	2682	4850	3344800
44	$D^0 \rightarrow K_L^0 \pi^+ \pi^+ \pi^- \pi^-$	70	2163	2629	4792	3349592
45	$D^0 \rightarrow \pi^0 K_L^0 \gamma\gamma$	60	2273	2498	4771	3354363
46	$D^0 \rightarrow \pi^0 \pi^0 \pi^0$	56	2209	2546	4755	3359118
47	$D^0 \rightarrow \pi^0 \pi^+ \pi^- \gamma\gamma$	87	2167	2494	4661	3363779
48	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 K_L^0$	58	2138	2391	4529	3368308
49	$D^0 \rightarrow e^+ e^- \pi^0 \pi^0 \pi^+ \pi^-$	133	2196	2268	4464	3372772
50	$D^0 \rightarrow e^+ \nu_e \pi^-$	71	1820	2165	3985	3376757
51	$D^0 \rightarrow K_L^0 \pi^+ K^-$	15	1806	2036	3842	3380599
52	$D^0 \rightarrow K_L^0 \pi^+ \pi^- \gamma$	108	1645	1908	3553	3384152
53	$D^0 \rightarrow \mu^+ \nu_\mu \pi^-$	42	1634	1838	3472	3387624
54	$D^0 \rightarrow e^+ \nu_e \pi^0 \pi^0 \pi^-$	45	1525	1774	3299	3390923
55	$D^0 \rightarrow \pi^+ \pi^+ \pi^- K^- \gamma$	83	1470	1744	3214	3394137
56	$D^0 \rightarrow \pi^0 \pi^+ K^- \gamma$	62	1512	1653	3165	3397302
57	$D^0 \rightarrow \mu^+ \nu_\mu \pi^0 \pi^0 \pi^-$	65	1507	1640	3147	3400449
58	$D^0 \rightarrow e^+ e^- K_L^0 \pi^+ \pi^-$	69	1384	1479	2863	3403312
59	$D^0 \rightarrow \pi^+ \pi^+ \pi^- \pi^- \gamma$	120	1364	1487	2851	3406163
60	$D^0 \rightarrow K_L^0 \pi^- K^+$	43	1253	1491	2744	3408907
61	$D^0 \rightarrow \pi^+ \pi^- \gamma\gamma$	52	1234	1402	2636	3411543
62	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 \gamma\gamma$	113	1261	1322	2583	3414126
63	$D^0 \rightarrow e^+ e^- \pi^0 \pi^+ \pi^-$	98	1245	1312	2557	3416683
64	$D^0 \rightarrow e^+ \nu_e \pi^0 \pi^-$	50	1239	1309	2548	3419231
65	$D^0 \rightarrow \pi^+ \pi^- \pi^- K^+$	122	1133	1373	2506	3421737
66	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^+ \pi^- K^-$	93	1191	1277	2468	3424205
67	$D^0 \rightarrow e^+ e^- \pi^+ \pi^+ \pi^- K^-$	163	1216	1251	2467	3426672
68	$D^0 \rightarrow K_L^0 \gamma\gamma$	40	1133	1277	2410	3429082

rowNo	decay final state of $D^0$	iDcyFStP	nCase	nCcCase	nAllCase	nCCase
69	$D^0 \rightarrow \mu^+ \nu_\mu \pi^0 \pi^-$	78	1138	1261	2399	3431481
70	$D^0 \rightarrow K_L^0 K_L^0 \pi^+ \pi^-$	61	1068	1253	2321	3433802
71	$D^0 \rightarrow e^+ e^- \pi^+ \pi^+ \pi^- \pi^-$	111	1101	1193	2294	3436096
72	$D^0 \rightarrow \pi^+ \pi^-$	100	1079	1201	2280	3438376
73	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^0$	13	1011	1103	2114	3440490
74	$D^0 \rightarrow K_L^0 \pi^+ \pi^- \gamma\gamma$	101	924	1128	2052	3442542
75	$D^0 \rightarrow \pi^+ \pi^+ \pi^- K^- \gamma\gamma$	73	900	1086	1986	3444528
76	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^- \gamma\gamma$	80	888	978	1866	3446394
77	$D^0 \rightarrow \pi^+ \pi^+ \pi^- \pi^- \gamma\gamma$	74	813	959	1772	3448166
78	$D^0 \rightarrow e^+ e^- \pi^0 \pi^0 K_L^0$	63	837	901	1738	3449904
79	$D^0 \rightarrow \pi^0 \pi^+ \pi^- \gamma$	112	805	880	1685	3451589
80	$D^0 \rightarrow e^+ e^- \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	110	829	846	1675	3453264
81	$D^0 \rightarrow e^+ e^- \pi^0 \pi^0 \pi^0 \pi^+ \pi^-$	105	781	865	1646	3454910
82	$D^0 \rightarrow e^+ e^- \pi^0 K_L^0 \pi^+ \pi^-$	67	791	851	1642	3456552
83	$D^0 \rightarrow \pi^+ \pi^+ \pi^+ \pi^- \pi^- K^-$	106	789	848	1637	3458189
84	$D^0 \rightarrow e^+ e^- \pi^+ \pi^-$	107	700	734	1434	3459623
85	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^- \gamma$	88	627	803	1430	3461053
86	$D^0 \rightarrow e^+ e^- \pi^0 \pi^+ \pi^+ \pi^- \pi^-$	11	705	706	1411	3462464
87	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- K^-$	109	633	739	1372	3463836
88	$D^0 \rightarrow \pi^0 \pi^0 \pi^- K^+$	160	649	723	1372	3465208
89	$D^0 \rightarrow \pi^0 K_L^0 \pi^+ \pi^+ \pi^- \pi^-$	33	594	767	1361	3466569
90	$D^0 \rightarrow e^+ e^- \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^-$	129	618	653	1271	3467840
91	$D^0 \rightarrow e^+ e^- \pi^0 K_L^0$	96	555	677	1232	3469072
92	$D^0 \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \pi^- K^-$	135	540	673	1213	3470285
93	$D^0 \rightarrow e^+ e^- \pi^0 \pi^0 \pi^+ K^-$	66	575	631	1206	3471491
94	$D^0 \rightarrow \pi^0 K_L^0 K^+ K^-$	144	541	637	1178	3472669
95	$D^0 \rightarrow \pi^0 \pi^0 K_L^0 K_L^0$	155	559	594	1153	3473822
96	$D^0 \rightarrow \pi^0 K_L^0 \gamma$	7	554	586	1140	3474962
97	$D^0 \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \pi^- \pi^-$	81	454	648	1102	3476064
98	$D^0 \rightarrow \pi^0 \pi^0 K_L^0 \gamma\gamma$	77	494	555	1049	3477113
99	$D^0 \rightarrow \pi^0 \pi^0$	95	432	561	993	3478106
100	$D^0 \rightarrow \pi^0 \pi^0 \gamma\gamma$	146	459	530	989	3479095
rest	$D^0 \rightarrow$ others (719 in total)	—	19792	22986	42778	3521873

Table 16: Decay final states of  $\pi^0$ .

rowNo	decay final state of $\pi^0$	iDcyFStP	nCase	nCcCase	nAllCase	nCCase
1	$\pi^0 \dashrightarrow e^+ e^-$	0	288155	—	288155	288155
2	$\pi^0 \dashrightarrow e^+ e^+ e^- e^-$	1	1302	—	1302	289457

Table 17: Production branches of  $D_s^+$ .

rowNo	production branch of $D_s^+$	iProdBrP	nCase	nCcCase	nAllCase	nCCase
1	$D_s^{*+} \rightarrow \textcolor{blue}{D}_s^+ \gamma$	0	86572	97849	184421	184421
2	$D_s^{*+} \rightarrow \pi^0 \textcolor{blue}{D}_s^+$	46	5725	6439	12164	196585
3	$D_{s0}^{*+} \rightarrow \pi^0 \textcolor{blue}{D}_s^+$	1	5322	5966	11288	207873
4	$D_{s1}'^+ \rightarrow \textcolor{blue}{D}_s^+ \gamma$	3	928	1110	2038	209911
5	$e^- \rightarrow e^+ \bar{K}^0 D^{*-} \textcolor{blue}{D}_s^+ \gamma^I$	31	0	399	399	210310
6	$e^+ e^- \rightarrow K^- \bar{D}^{*0} \textcolor{blue}{D}_s^+ \gamma^I$	93	392	0	392	210702
7	$e^- \rightarrow e^+ K^- \bar{D}^{*0} \textcolor{blue}{D}_s^+ \gamma^I$	21	0	368	368	211070
8	$e^- \rightarrow e^+ \pi^+ K^- D^{*-} \textcolor{blue}{D}_s^+ \gamma^I$	821	0	368	368	211438
9	$e^+ e^- \rightarrow \bar{K}^0 D^{*-} \textcolor{blue}{D}_s^+ \gamma^I$	330	320	0	320	211758
10	$e^- \rightarrow e^+ \pi^- \bar{K}^0 \bar{D}^{*0} \textcolor{blue}{D}_s^+$	147	0	316	316	212074
11	$e^- \rightarrow e^+ \pi^- \bar{K}^0 \bar{D}^{*0} \textcolor{blue}{D}_s^+ \gamma^I$	98	0	314	314	212388
12	$e^- \rightarrow e^+ \pi^+ K^- D^{*-} \textcolor{blue}{D}_s^+$	70	0	311	311	212699
13	$e^+ e^- \rightarrow \pi^+ K^- D^{*-} \textcolor{blue}{D}_s^+$	7	308	0	308	213007
14	$e^+ e^- \rightarrow \pi^+ K^- D^{*-} \textcolor{blue}{D}_s^+ \gamma^I$	76	308	0	308	213315
15	$e^+ e^- \rightarrow \pi^- \bar{K}^0 \bar{D}^{*0} \textcolor{blue}{D}_s^+$	109	308	0	308	213623
16	$e^- \rightarrow e^+ \bar{K}^0 D^{*-} \textcolor{blue}{D}_s^+$	77	0	293	293	213916
17	$e^+ e^- \rightarrow \pi^- \bar{K}^0 \bar{D}^{*0} \textcolor{blue}{D}_s^+ \gamma^I$	190	284	0	284	214200
18	$e^+ e^- \rightarrow K^- \bar{D}^{*0} \textcolor{blue}{D}_s^+$	224	280	0	280	214480
19	$e^- \rightarrow e^+ K^- \bar{D}^{*0} \textcolor{blue}{D}_s^+$	619	0	249	249	214729
20	$e^+ e^- \rightarrow \bar{K}^0 D^{*-} \textcolor{blue}{D}_s^+$	249	247	0	247	214976
21	$e^- \rightarrow e^+ \pi^0 K^- \bar{D}^{*0} \textcolor{blue}{D}_s^+ \gamma^I$	438	0	221	221	215197
22	$e^- \rightarrow e^+ \bar{K}^0 D^{*-} \textcolor{blue}{D}_s^+ \gamma^I \gamma^I$	327	0	217	217	215414
23	$e^- \rightarrow e^+ \pi^0 \bar{K}^0 D^{*-} \textcolor{blue}{D}_s^+ \gamma^I$	134	0	216	216	215630
24	$e^- \rightarrow e^+ K^- \bar{D}^{*0} \textcolor{blue}{D}_s^+ \gamma^I \gamma^I$	546	0	208	208	215838
25	$e^- \rightarrow e^+ \pi^0 \pi^+ K^- D^{*-} \textcolor{blue}{D}_s^+$	140	0	204	204	216042
26	$e^- \rightarrow e^+ \pi^0 \bar{K}^0 D^{*-} \textcolor{blue}{D}_s^+$	309	0	204	204	216246
27	$e^+ e^- \rightarrow K^- \bar{D}^{*0} \textcolor{blue}{D}_s^+ \gamma^I \gamma^I$	53	198	0	198	216444
28	$e^- \rightarrow e^+ \pi^0 K^- \bar{D}^{*0} \textcolor{blue}{D}_s^+$	613	0	195	195	216639
29	$e^- \rightarrow e^+ \pi^0 \pi^+ K^- D^{*-} \textcolor{blue}{D}_s^+ \gamma^I$	431	0	192	192	216831
30	$e^+ e^- \rightarrow \pi^0 K^- \bar{D}^{*0} \textcolor{blue}{D}_s^+ \gamma^I$	530	191	0	191	217022
31	$e^- \rightarrow e^+ \pi^+ K^- D^{*-} \textcolor{blue}{D}_s^+ \gamma^I \gamma^I$	544	0	190	190	217212
32	$e^+ e^- \rightarrow \pi^0 K^- \bar{D}^{*0} \textcolor{blue}{D}_s^+$	15	185	0	185	217397

rowNo	production branch of $D_s^+$	iProdBrP	nCase	nCcCase	nAllCase	nCCase
33	$e^+e^- \rightarrow \pi^0\bar{K}^0D^{*-}\textcolor{blue}{D}_s^+$	500	185	0	185	217582
34	$e^- \rightarrow e^+\pi^0\pi^-\bar{K}^0\bar{D}^{*0}\textcolor{blue}{D}_s^+$	167	0	184	184	217766
35	$e^- \rightarrow e^+\pi^0\pi^-\bar{K}^0\bar{D}^{*0}\textcolor{blue}{D}_s^+\gamma^I$	62	0	178	178	217944
36	$e^+e^- \rightarrow \pi^0\pi^+K^-\bar{D}^{*-}\textcolor{blue}{D}_s^+$	472	175	0	175	218119
37	$e^+e^- \rightarrow \pi^0\pi^+K^-\bar{D}^{*-}\textcolor{blue}{D}_s^+\gamma^I$	151	174	0	174	218293
38	$e^+e^- \rightarrow \bar{K}^0D^{*-}\textcolor{blue}{D}_s^+\gamma^I\gamma^I$	166	174	0	174	218467
39	$e^- \rightarrow e^+\pi^+\pi^-K^-\bar{D}^{*0}\textcolor{blue}{D}_s^+$	640	0	173	173	218640
40	$e^+e^- \rightarrow \pi^0\pi^-\bar{K}^0\bar{D}^{*0}\textcolor{blue}{D}_s^+$	807	171	0	171	218811
41	$e^- \rightarrow e^+\pi^+K^{*-}\bar{D}^{*-}\textcolor{blue}{D}_s^+$	474	0	170	170	218981
42	$e^+e^- \rightarrow \pi^0\bar{K}^0D^{*-}\textcolor{blue}{D}_s^+\gamma^I$	505	169	0	169	219150
43	$e^+e^- \rightarrow \pi^0\pi^-\bar{K}^0\bar{D}^{*0}\textcolor{blue}{D}_s^+\gamma^I$	11	166	0	166	219316
44	$e^+e^- \rightarrow \pi^-\bar{K}^0\bar{D}^{*0}\textcolor{blue}{D}_s^+\gamma^I\gamma^I$	499	161	0	161	219477
45	$e^+e^- \rightarrow \pi^+\pi^-K^-\bar{D}^{*0}\textcolor{blue}{D}_s^+$	367	158	0	158	219635
46	$e^- \rightarrow e^+\pi^+\pi^-\bar{K}^0D^{*-}\textcolor{blue}{D}_s^+$	1076	0	158	158	219793
47	$e^- \rightarrow e^+\pi^+K^{*-}\bar{D}^{*-}\textcolor{blue}{D}_s^+\gamma^I$	5	0	157	157	219950
48	$e^+e^- \rightarrow \pi^-\bar{K}^*\bar{D}^{*0}\textcolor{blue}{D}_s^+\gamma^I$	192	157	0	157	220107
49	$e^- \rightarrow e^+\pi^-\bar{K}^*\bar{D}^{*0}\textcolor{blue}{D}_s^+$	2	0	155	155	220262
50	$e^- \rightarrow e^+\pi^-\bar{K}^*\bar{D}^{*0}\textcolor{blue}{D}_s^+\gamma^I$	372	0	155	155	220417
51	$e^- \rightarrow e^+\pi^-\bar{K}^0\bar{D}^{*0}\textcolor{blue}{D}_s^+\gamma^I\gamma^I$	296	0	150	150	220567
52	$e^- \rightarrow e^+\pi^+\pi^-K^-\bar{D}^{*0}\textcolor{blue}{D}_s^+\gamma^I$	800	0	150	150	220717
53	$e^+e^- \rightarrow \pi^+K^{*-}\bar{D}^{*-}\textcolor{blue}{D}_s^+\gamma^I$	237	148	0	148	220865
54	$e^- \rightarrow e^+\pi^+\pi^-\bar{K}^0D^{*-}\textcolor{blue}{D}_s^+\gamma^I$	196	0	147	147	221012
55	$e^+e^- \rightarrow \pi^-\bar{K}^*\bar{D}^{*0}\textcolor{blue}{D}_s^+$	835	146	0	146	221158
56	$e^+e^- \rightarrow \pi^+K^-\bar{D}^{*-}\textcolor{blue}{D}_s^+\gamma^I\gamma^I$	503	145	0	145	221303
57	$e^- \rightarrow e^+\rho^+K^-\bar{D}^{*-}\textcolor{blue}{D}_s^+$	185	0	142	142	221445
58	$e^- \rightarrow e^+\rho^+K^-\bar{D}^{*-}\textcolor{blue}{D}_s^+\gamma^I$	589	0	139	139	221584
59	$e^+e^- \rightarrow K^{*-}\bar{D}^{*0}\textcolor{blue}{D}_s^+\gamma^I$	881	132	0	132	221716
60	$e^+e^- \rightarrow \pi^+\pi^-K^-\bar{D}^{*0}\textcolor{blue}{D}_s^+\gamma^I$	385	128	0	128	221844
61	$e^+e^- \rightarrow \pi^+\pi^-\bar{K}^0\bar{D}^{*-}\textcolor{blue}{D}_s^+$	388	128	0	128	221972
62	$e^+e^- \rightarrow \pi^+K^{*-}\bar{D}^{*-}\textcolor{blue}{D}_s^+$	45	127	0	127	222099
63	$e^+e^- \rightarrow \pi^+\pi^-\bar{K}^0D^{*-}\textcolor{blue}{D}_s^+\gamma^I$	1045	125	0	125	222224
64	$e^- \rightarrow e^+\pi^0\pi^-\bar{K}^*\bar{D}^{*0}\textcolor{blue}{D}_s^+$	218	0	122	122	222346
65	$e^+e^- \rightarrow \rho^+K^-\bar{D}^{*-}\textcolor{blue}{D}_s^+$	292	121	0	121	222467
66	$e^- \rightarrow e^+\rho^-\bar{K}^0\bar{D}^{*0}\textcolor{blue}{D}_s^+\gamma^I$	801	0	121	121	222588

rowNo	production branch of $D_s^+$	iProdBrP	nCase	nCcCase	nAllCase	nCCase
67	$e^- \rightarrow e^+ \pi^0 K^- \bar{D}^{*0} \textcolor{blue}{D}_s^+ \gamma^I \gamma^I$	509	0	120	120	222708
68	$e^- \rightarrow e^+ \bar{K}^* D^{*-} \textcolor{blue}{D}_s^+$	532	0	118	118	222826
69	$e^+ e^- \rightarrow \rho^- \bar{K}^0 \bar{D}^{*0} \textcolor{blue}{D}_s^+ \gamma^I$	1174	117	0	117	222943
70	$e^- \rightarrow e^+ \bar{K}^* D^{*-} \textcolor{blue}{D}_s^+ \gamma^I$	711	0	115	115	223058
71	$e^+ e^- \rightarrow \bar{K}^* D^{*-} \textcolor{blue}{D}_s^+ \gamma^I$	245	109	0	109	223167
72	$e^- \rightarrow e^+ \rho^- \bar{K}^0 \bar{D}^{*0} \textcolor{blue}{D}_s^+$	128	0	108	108	223275
73	$e^+ e^- \rightarrow K^- \bar{D}^0 \textcolor{blue}{D}_s^+ \gamma^I$	469	107	0	107	223382
74	$e^+ e^- \rightarrow \rho^+ K^- D^{*-} \textcolor{blue}{D}_s^+ \gamma^I$	435	106	0	106	223488
75	$e^- \rightarrow e^+ \pi^0 \bar{K}^0 D^{*-} \textcolor{blue}{D}_s^+ \gamma^I \gamma^I$	538	0	106	106	223594
76	$e^- \rightarrow e^+ K^{*-} \bar{D}^{*0} \textcolor{blue}{D}_s^+ \gamma^I$	428	0	105	105	223699
77	$e^+ e^- \rightarrow \pi^0 \pi^- \bar{K}^* \bar{D}^{*0} \textcolor{blue}{D}_s^+ \gamma^I$	556	103	0	103	223802
78	$e^- \rightarrow e^+ \omega \bar{K}^0 D^{*-} \textcolor{blue}{D}_s^+ \gamma^I$	48	0	102	102	223904
79	$e^- \rightarrow e^+ \pi^- \bar{K}^0 \bar{D}^0 \textcolor{blue}{D}_s^+ \gamma^I$	229	0	102	102	224006
80	$e^+ e^- \rightarrow \pi^0 \pi^- \bar{K}^* \bar{D}^{*0} \textcolor{blue}{D}_s^+$	376	102	0	102	224108
81	$e^- \rightarrow e^+ \pi^0 \pi^+ K^{*-} D^{*-} \textcolor{blue}{D}_s^+$	422	0	102	102	224210
82	$e^- \rightarrow e^+ \pi^0 K^{*-} \bar{D}^{*0} \textcolor{blue}{D}_s^+ \gamma^I$	1622	0	99	99	224309
83	$e^+ e^- \rightarrow \rho^- \bar{K}^0 \bar{D}^{*0} \textcolor{blue}{D}_s^+$	379	98	0	98	224407
84	$e^- \rightarrow e^+ \pi^0 \pi^+ K^{*-} D^{*-} \textcolor{blue}{D}_s^+ \gamma^I$	1551	0	98	98	224505
85	$e^- \rightarrow e^+ \pi^- \omega \bar{K}^0 \bar{D}^{*0} \textcolor{blue}{D}_s^+ \gamma^I$	591	0	97	97	224602
86	$e^- \rightarrow e^+ \pi^0 \bar{K}^* D^{*-} \textcolor{blue}{D}_s^+ \gamma^I$	52	0	96	96	224698
87	$e^- \rightarrow e^+ \pi^0 K^{*-} \bar{D}^{*0} \textcolor{blue}{D}_s^+$	136	0	96	96	224794
88	$e^- \rightarrow e^+ K^{*-} \bar{D}^{*0} \textcolor{blue}{D}_s^+$	412	0	96	96	224890
89	$e^+ e^- \rightarrow K^{*-} \bar{D}^{*0} \textcolor{blue}{D}_s^+$	100	95	0	95	224985
90	$e^- \rightarrow e^+ \omega K^- \bar{D}^{*0} \textcolor{blue}{D}_s^+ \gamma^I$	86	0	94	94	225079
91	$e^- \rightarrow e^+ K^- \bar{D}^0 \textcolor{blue}{D}_s^+ \gamma^I$	380	0	94	94	225173
92	$e^- \rightarrow e^+ \pi^+ \pi^- \bar{K}^* D^{*-} \textcolor{blue}{D}_s^+ \gamma^I$	692	0	93	93	225266
93	$e^+ e^- \rightarrow \pi^0 K^- \bar{D}^{*0} \textcolor{blue}{D}_s^+ \gamma^I \gamma^I$	940	91	0	91	225357
94	$e^+ e^- \rightarrow \bar{K}^* D^{*-} \textcolor{blue}{D}_s^+$	414	88	0	88	225445
95	$e^- \rightarrow e^+ \pi^0 \pi^- \bar{K}^* \bar{D}^{*0} \textcolor{blue}{D}_s^+ \gamma^I$	845	0	88	88	225533
96	$e^- \rightarrow e^+ K^{*-} \bar{D}^{*0} \textcolor{blue}{D}_s^+ \gamma^I \gamma^I$	88	0	87	87	225620
97	$e^- \rightarrow e^+ \pi^0 \pi^+ \pi^- K^- \bar{D}^{*0} \textcolor{blue}{D}_s^+$	282	0	87	87	225707
98	$e^+ e^- \rightarrow \omega \bar{K}^0 D^{*-} \textcolor{blue}{D}_s^+$	406	87	0	87	225794
99	$e^- \rightarrow e^+ \pi^- \bar{K}^* \bar{D}^{*0} \textcolor{blue}{D}_s^+ \gamma^I \gamma^I$	418	0	87	87	225881
100	$e^- \rightarrow e^+ K^- \bar{D}^{*0} \textcolor{blue}{D}_s^+ \gamma^I \gamma^I$	824	0	87	87	225968

rowNo	production branch of $D_s^+$	iProdBrP	nCase	nCcCase	nAllCase	nCCase
rest	others (12962 in total)	—	25477	28395	53872	279840

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

rowNo	production branch of $D^{*+}$	iProdBrP	nCase	nCcCase	nAllCase	nCCase
1	$D_1'^0 \rightarrow \pi^- D^{*+}$	28	21475	20732	42207	42207
2	$D_1'^+ \rightarrow \pi^0 D^{*+}$	46	11590	10885	22475	64682
3	$D_2'^0 \rightarrow \pi^- D^{*+}$	83	9165	8818	17983	82665
4	$D_2'^+ \rightarrow \pi^0 D^{*+}$	2	5020	4871	9891	92556
5	$D_1^0 \rightarrow \pi^- D^{*+}$	12	4647	4494	9141	101697
6	$e^+ e^- \rightarrow \pi^0 \pi^- D^{*+} \bar{D}^{*0} \gamma^I$	428	6816	0	6816	108513
7	$e^- \rightarrow e^+ \pi^0 \pi^- D^{*+} \bar{D}^{*0} \gamma^I$	198	0	6666	6666	115179
8	$e^+ e^- \rightarrow \pi^0 \pi^- D^{*+} \bar{D}^{*0}$	364	6432	0	6432	121611
9	$e^- \rightarrow e^+ \pi^0 \pi^- D^{*+} \bar{D}^{*0}$	165	0	6091	6091	127702
10	$e^+ e^- \rightarrow \pi^+ \pi^- D^{*+} D^{*-} \gamma^I$	504	5400	0	5400	133102
11	$e^- \rightarrow e^+ \pi^+ \pi^- D^{*+} D^{*-} \gamma^I$	505	0	5400	5400	138502
12	$e^- \rightarrow e^+ \pi^- D^{*+} \bar{D}^{*0} \gamma^I$	233	0	5221	5221	143723
13	$e^+ e^- \rightarrow \pi^- D^{*+} \bar{D}^{*0} \gamma^I$	185	5158	0	5158	148881
14	$D_1^+ \rightarrow \pi^0 D^{*+}$	47	2493	2450	4943	153824
15	$e^+ e^- \rightarrow \pi^+ \pi^- D^{*+} D^{*-}$	297	4790	0	4790	158614
16	$e^- \rightarrow e^+ \pi^+ \pi^- D^{*+} D^{*-}$	298	0	4790	4790	163404
17	$e^+ e^- \rightarrow \pi^0 \pi^+ \pi^- D^{*+} D^{*-} \gamma^I$	869	4459	0	4459	167863
18	$e^- \rightarrow e^+ \pi^0 \pi^+ \pi^- D^{*+} D^{*-} \gamma^I$	870	0	4459	4459	172322
19	$e^+ e^- \rightarrow \pi^0 \pi^+ \pi^- D^{*+} D^{*-}$	269	4396	0	4396	176718
20	$e^- \rightarrow e^+ \pi^0 \pi^+ \pi^- D^{*+} D^{*-}$	270	0	4396	4396	181114
21	$e^+ e^- \rightarrow \pi^- D^{*+} \bar{D}^{*0}$	84	3566	0	3566	184680
22	$e^+ e^- \rightarrow \pi^0 \pi^- D^{*+} \bar{D}^{*0} \gamma^I \gamma^I$	398	3527	0	3527	188207
23	$e^- \rightarrow e^+ \pi^- D^{*+} \bar{D}^{*0}$	133	0	3523	3523	191730
24	$e^- \rightarrow e^+ \pi^0 \pi^- D^{*+} \bar{D}^{*0} \gamma^I \gamma^I$	841	0	3424	3424	195154
25	$e^+ e^- \rightarrow \pi^- D^{*+} \bar{D}^{*0} \gamma^I \gamma^I$	1	3391	0	3391	198545
26	$e^- \rightarrow e^+ \pi^- D^{*+} \bar{D}^{*0} \gamma^I \gamma^I$	271	0	3266	3266	201811
27	$e^+ e^- \rightarrow \pi^0 D^{*+} D^{*-} \gamma^I$	260	3185	0	3185	204996
28	$e^- \rightarrow e^+ \pi^0 D^{*+} D^{*-} \gamma^I$	261	0	3185	3185	208181
29	$e^+ e^- \rightarrow \pi^0 \pi^0 \pi^- D^{*+} \bar{D}^{*0}$	554	2954	0	2954	211135
30	$D_{s1}^+ \rightarrow K^0 D^{*+}$	66	1586	1357	2943	214078
31	$e^+ e^- \rightarrow \pi^0 \pi^- \omega D^{*+} \bar{D}^{*0}$	256	2781	0	2781	216859
32	$e^+ e^- \rightarrow \pi^0 \pi^- \omega D^{*+} \bar{D}^{*0} \gamma^I$	296	2774	0	2774	219633

rowNo	production branch of $D^{*+}$	iProdBrP	nCase	nCcCase	nAllCase	nCCase
33	$e^+e^- \rightarrow \pi^+\pi^-\textcolor{blue}{D}^{*+}\textcolor{blue}{D}^{*-}\gamma^I\gamma^I$	98	2697	0	2697	222330
34	$e^- \rightarrow e^+\pi^+\pi^-\textcolor{blue}{D}^{*+}\textcolor{blue}{D}^{*-}\gamma^I\gamma^I$	99	0	2697	2697	225027
35	$e^- \rightarrow e^+\pi^0\pi^-\omega\textcolor{blue}{D}^{*+}\bar{D}^{*0}$	973	0	2684	2684	227711
36	$e^+e^- \rightarrow \pi^-\omega\textcolor{blue}{D}^{*+}\bar{D}^{*0}\gamma^I$	177	2675	0	2675	230386
37	$e^- \rightarrow e^+\pi^-\omega\textcolor{blue}{D}^{*+}\bar{D}^{*0}\gamma^I$	277	0	2669	2669	233055
38	$e^- \rightarrow e^+\pi^-\omega\textcolor{blue}{D}^{*+}\bar{D}^{*0}$	14	0	2631	2631	235686
39	$e^- \rightarrow e^+\pi^0\pi^-\textcolor{blue}{D}^{*+}\bar{D}^{*0}$	97	0	2629	2629	238315
40	$e^- \rightarrow e^+\pi^0\pi^-\textcolor{blue}{D}^{*+}\bar{D}^{*0}\gamma^I$	512	0	2614	2614	240929
41	$e^+e^- \rightarrow \pi^0\pi^-\omega\textcolor{blue}{D}^{*+}\bar{D}^{*0}\gamma^I$	742	2578	0	2578	243507
42	$e^+e^- \rightarrow \pi^+\pi^-\rho^-\textcolor{blue}{D}^{*+}\bar{D}^{*0}$	960	2575	0	2575	246082
43	$e^+e^- \rightarrow \pi^+\pi^-\pi^-\textcolor{blue}{D}^{*+}\bar{D}^{*0}$	836	2572	0	2572	248654
44	$e^+e^- \rightarrow \pi^0\rho^-\textcolor{blue}{D}^{*+}\bar{D}^{*0}\gamma^I$	516	2559	0	2559	251213
45	$e^+e^- \rightarrow \pi^-\omega\textcolor{blue}{D}^{*+}\bar{D}^{*0}$	526	2559	0	2559	253772
46	$e^+e^- \rightarrow \pi^+\pi^-\pi^-\textcolor{blue}{D}^{*+}\bar{D}^{*0}\gamma^I$	485	2530	0	2530	256302
47	$e^- \rightarrow e^+\pi^+\pi^-\rho^-\textcolor{blue}{D}^{*+}\bar{D}^{*0}$	276	0	2478	2478	258780
48	$e^+e^- \rightarrow \pi^0\rho^-\textcolor{blue}{D}^{*+}\bar{D}^{*0}$	40	2453	0	2453	261233
49	$e^- \rightarrow e^+\pi^0\pi^-\omega\textcolor{blue}{D}^{*+}\bar{D}^{*0}\gamma^I$	279	0	2426	2426	263659
50	$e^- \rightarrow e^+\pi^+\pi^-\pi^-\textcolor{blue}{D}^{*+}\bar{D}^{*0}$	402	0	2414	2414	266073
51	$e^- \rightarrow e^+\pi^+\pi^-\pi^-\textcolor{blue}{D}^{*+}\bar{D}^{*0}\gamma^I$	798	0	2379	2379	268452
52	$e^- \rightarrow e^+\pi^0\rho^-\textcolor{blue}{D}^{*+}\bar{D}^{*0}\gamma^I$	581	0	2356	2356	270808
53	$e^- \rightarrow e^+\pi^0\rho^-\textcolor{blue}{D}^{*+}\bar{D}^{*0}$	225	0	2354	2354	273162
54	$e^+e^- \rightarrow \pi^+\pi^-\rho^-\textcolor{blue}{D}^{*+}\bar{D}^{*0}\gamma^I$	536	2346	0	2346	275508
55	$e^+e^- \rightarrow \pi^0\textcolor{blue}{D}^{*+}\textcolor{blue}{D}^{*-}$	616	2310	0	2310	277818
56	$e^- \rightarrow e^+\pi^0\textcolor{blue}{D}^{*+}\textcolor{blue}{D}^{*-}$	617	0	2310	2310	280128
57	$e^- \rightarrow e^+\pi^+\pi^-\rho^-\textcolor{blue}{D}^{*+}\bar{D}^{*0}\gamma^I$	654	0	2264	2264	282392
58	$e^+e^- \rightarrow \pi^0\rho^-\pi^-\textcolor{blue}{D}^{*+}\bar{D}^{*0}$	481	2199	0	2199	284591
59	$e^+e^- \rightarrow \pi^+\pi^-\omega\textcolor{blue}{D}^{*+}\textcolor{blue}{D}^{*-}$	1543	2155	0	2155	286746
60	$e^- \rightarrow e^+\pi^+\pi^-\omega\textcolor{blue}{D}^{*+}\textcolor{blue}{D}^{*-}$	1544	0	2155	2155	288901
61	$e^- \rightarrow e^+\pi^0\rho^-\pi^-\textcolor{blue}{D}^{*+}\bar{D}^{*0}$	363	0	2113	2113	291014
62	$e^+e^- \rightarrow \rho^0\pi^-\textcolor{blue}{D}^{*+}\bar{D}^{*0}\gamma^I$	381	2107	0	2107	293121
63	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\textcolor{blue}{D}^{*+}\textcolor{blue}{D}^{*-}\gamma^I\gamma^I$	1695	2082	0	2082	295203
64	$e^- \rightarrow e^+\pi^0\pi^+\pi^-\textcolor{blue}{D}^{*+}\textcolor{blue}{D}^{*-}\gamma^I\gamma^I$	1696	0	2082	2082	297285
65	$e^+e^- \rightarrow \pi^0\pi^0\textcolor{blue}{D}^{*+}\textcolor{blue}{D}^{*-}\gamma^I$	272	2044	0	2044	299329
66	$e^- \rightarrow e^+\pi^0\pi^0\textcolor{blue}{D}^{*+}\textcolor{blue}{D}^{*-}\gamma^I$	273	0	2044	2044	301373

rowNo	production branch of $D^{*+}$	iProdBrP	nCase	nCcCase	nAllCase	nCCase
67	$e^+e^- \rightarrow \pi^0 \textcolor{blue}{D}^{*+} D^{*-} \gamma^I \gamma^I$	332	2034	0	2034	303407
68	$e^- \rightarrow e^+ \pi^0 \textcolor{blue}{D}^{*+} D^{*-} \gamma^I \gamma^I$	333	0	2034	2034	305441
69	$e^- \rightarrow e^+ \rho^0 \pi^- \textcolor{blue}{D}^{*+} \bar{D}^{*0} \gamma^I$	35	0	2033	2033	307474
70	$e^+e^- \rightarrow \pi^0 \pi^- \rho^+ \textcolor{blue}{D}^{*+} D^{*-}$	348	2013	0	2013	309487
71	$e^- \rightarrow e^+ \pi^0 \pi^+ \rho^- \textcolor{blue}{D}^{*+} D^{*-}$	349	0	2013	2013	311500
72	$e^- \rightarrow e^+ \rho^0 \pi^- \textcolor{blue}{D}^{*+} \bar{D}^{*0}$	135	0	1987	1987	313487
73	$e^+e^- \rightarrow \rho^0 \pi^- \textcolor{blue}{D}^{*+} \bar{D}^{*0}$	96	1982	0	1982	315469
74	$e^+e^- \rightarrow \pi^0 \pi^+ \rho^- \textcolor{blue}{D}^{*+} D^{*-}$	1030	1979	0	1979	317448
75	$e^- \rightarrow e^+ \pi^0 \pi^- \rho^+ \textcolor{blue}{D}^{*+} D^{*-}$	1031	0	1979	1979	319427
76	$e^+e^- \rightarrow \pi^+ \pi^- \omega \textcolor{blue}{D}^{*+} D^{*-} \gamma^I$	490	1974	0	1974	321401
77	$e^- \rightarrow e^+ \pi^+ \pi^- \omega \textcolor{blue}{D}^{*+} D^{*-} \gamma^I$	491	0	1974	1974	323375
78	$e^+e^- \rightarrow \pi^0 \pi^0 \textcolor{blue}{D}^{*+} D^{*-}$	521	1967	0	1967	325342
79	$e^- \rightarrow e^+ \pi^0 \pi^0 \textcolor{blue}{D}^{*+} D^{*-}$	522	0	1967	1967	327309
80	$e^+e^- \rightarrow \pi^0 \rho^0 \pi^- \textcolor{blue}{D}^{*+} \bar{D}^{*0} \gamma^I$	502	1945	0	1945	329254
81	$e^+e^- \rightarrow \pi^- \rho^+ \textcolor{blue}{D}^{*+} D^{*-}$	605	1928	0	1928	331182
82	$e^- \rightarrow e^+ \pi^+ \rho^- \textcolor{blue}{D}^{*+} D^{*-}$	606	0	1928	1928	333110
83	$e^+e^- \rightarrow \pi^- \rho^+ \textcolor{blue}{D}^{*+} D^{*-} \gamma^I$	1161	1922	0	1922	335032
84	$e^- \rightarrow e^+ \pi^+ \rho^- \textcolor{blue}{D}^{*+} D^{*-} \gamma^I$	1162	0	1922	1922	336954
85	$e^+e^- \rightarrow \pi^0 \pi^- \textcolor{blue}{D}^{*+} \bar{D}^0 \gamma^I$	310	1905	0	1905	338859
86	$e^+e^- \rightarrow \pi^0 \pi^- \rho^+ \textcolor{blue}{D}^{*+} D^{*-} \gamma^I$	37	1901	0	1901	340760
87	$e^- \rightarrow e^+ \pi^0 \pi^+ \rho^- \textcolor{blue}{D}^{*+} D^{*-} \gamma^I$	38	0	1901	1901	342661
88	$e^+e^- \rightarrow \pi^0 \pi^+ \rho^- \textcolor{blue}{D}^{*+} D^{*-} \gamma^I$	418	1896	0	1896	344557
89	$e^- \rightarrow e^+ \pi^0 \pi^- \rho^+ \textcolor{blue}{D}^{*+} D^{*-} \gamma^I$	419	0	1896	1896	346453
90	$e^+e^- \rightarrow \pi^0 \pi^+ \pi^- \pi^- \textcolor{blue}{D}^{*+} \bar{D}^{*0}$	374	1893	0	1893	348346
91	$e^- \rightarrow e^+ \pi^0 \pi^- \textcolor{blue}{D}^{*+} \bar{D}^0 \gamma^I$	422	0	1893	1893	350239
92	$e^+e^- \rightarrow \pi^+ \rho^- \textcolor{blue}{D}^{*+} D^{*-} \gamma^I$	240	1867	0	1867	352106
93	$e^- \rightarrow e^+ \pi^- \rho^+ \textcolor{blue}{D}^{*+} D^{*-} \gamma^I$	241	0	1867	1867	353973
94	$e^- \rightarrow e^+ \pi^0 \rho^0 \pi^- \textcolor{blue}{D}^{*+} \bar{D}^{*0} \gamma^I$	426	0	1857	1857	355830
95	$e^+e^- \rightarrow \pi^+ \rho^- \textcolor{blue}{D}^{*+} D^{*-}$	1049	1843	0	1843	357673
96	$e^- \rightarrow e^+ \pi^- \rho^+ \textcolor{blue}{D}^{*+} D^{*-}$	1050	0	1843	1843	359516
97	$e^+e^- \rightarrow K^0 K^- \textcolor{blue}{D}^{*+} \bar{D}^{*0} \gamma^I$	391	1800	0	1800	361316
98	$e^- \rightarrow e^+ \pi^0 \pi^+ \pi^- \pi^- \textcolor{blue}{D}^{*+} \bar{D}^{*0}$	1205	0	1794	1794	363110
99	$e^+e^- \rightarrow K^0 K^- \textcolor{blue}{D}^{*+} \bar{D}^{*0}$	346	1761	0	1761	364871
100	$e^+e^- \rightarrow \pi^0 \pi^- \textcolor{blue}{D}^{*+} \bar{D}^0$	480	1760	0	1760	366631

rowNo	production branch of $D^{*+}$		iProdBrP	nCase	nCcCase	nAllCase	nCCase
rest	others	(69011 in total)	—	580719	547904	1128623	1495254

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

rowNo	production branch of $D^{*0}$	iProdBrP	nCase	nCcCase	nAllCase	nCCase
1	$D_1^{\prime+} \rightarrow \pi^+ D^{*0}$	57	23989	23320	47309	47309
2	$D_1^0 \rightarrow \pi^0 D^{*0}$	75	12069	11960	24029	71338
3	$D_2^{*+} \rightarrow \pi^+ D^{*0}$	83	10548	10294	20842	92180
4	$D_2^0 \rightarrow \pi^0 D^{*0}$	107	5304	5468	10772	102952
5	$D_1^+ \rightarrow \pi^+ D^{*0}$	297	5433	5158	10591	113543
6	$e^- \rightarrow e^+ \pi^0 \pi^+ D^{*-} D^{*0} \gamma^I$	475	0	6816	6816	120359
7	$e^+ e^- \rightarrow \pi^0 \pi^+ D^{*-} D^{*0} \gamma^I$	243	6666	0	6666	127025
8	$e^- \rightarrow e^+ \pi^0 \pi^+ D^{*-} D^{*0}$	411	0	6432	6432	133457
9	$e^+ e^- \rightarrow \pi^0 \pi^+ D^{*-} D^{*0}$	216	6091	0	6091	139548
10	$e^+ e^- \rightarrow \pi^+ \pi^- D^{*0} \bar{D}^{*0} \gamma^I$	89	5373	0	5373	144921
11	$e^- \rightarrow e^+ \pi^+ \pi^- D^{*0} \bar{D}^{*0} \gamma^I$	90	0	5373	5373	150294
12	$D_1^0 \rightarrow \pi^0 D^{*0}$	25	2727	2632	5359	155653
13	$e^+ e^- \rightarrow \pi^+ D^{*-} D^{*0} \gamma^I$	275	5221	0	5221	160874
14	$e^- \rightarrow e^+ \pi^+ D^{*-} D^{*0} \gamma^I$	233	0	5158	5158	166032
15	$e^+ e^- \rightarrow \pi^0 \pi^+ \pi^- D^{*0} \bar{D}^{*0}$	101	4953	0	4953	170985
16	$e^- \rightarrow e^+ \pi^0 \pi^+ \pi^- D^{*0} \bar{D}^{*0}$	102	0	4953	4953	175938
17	$e^+ e^- \rightarrow \pi^+ \pi^- D^{*0} \bar{D}^{*0}$	280	4863	0	4863	180801
18	$e^- \rightarrow e^+ \pi^+ \pi^- D^{*0} \bar{D}^{*0}$	281	0	4863	4863	185664
19	$e^+ e^- \rightarrow \pi^0 \pi^+ \pi^- D^{*0} \bar{D}^{*0} \gamma^I$	159	4711	0	4711	190375
20	$e^- \rightarrow e^+ \pi^0 \pi^+ \pi^- D^{*0} \bar{D}^{*0} \gamma^I$	160	0	4711	4711	195086
21	$D_{s1}^+ \rightarrow K^+ D^{*0}$	103	1779	1861	3640	198726
22	$e^- \rightarrow e^+ \pi^+ D^{*-} D^{*0}$	117	0	3566	3566	202292
23	$e^- \rightarrow e^+ \pi^0 \pi^+ D^{*-} D^{*0} \gamma^I \gamma^I$	452	0	3527	3527	205819
24	$e^+ e^- \rightarrow \pi^+ D^{*-} D^{*0}$	172	3523	0	3523	209342
25	$e^+ e^- \rightarrow \pi^0 \pi^+ D^{*-} D^{*0} \gamma^I \gamma^I$	897	3424	0	3424	212766
26	$e^- \rightarrow e^+ \pi^+ D^{*-} D^{*0} \gamma^I \gamma^I$	4	0	3391	3391	216157
27	$e^+ e^- \rightarrow \pi^+ D^{*-} D^{*0} \gamma^I \gamma^I$	314	3266	0	3266	219423
28	$e^+ e^- \rightarrow \pi^0 D^{*0} \bar{D}^{*0} \gamma^I$	304	3143	0	3143	222566
29	$e^- \rightarrow e^+ \pi^0 D^{*0} \bar{D}^{*0} \gamma^I$	305	0	3143	3143	225709
30	$e^- \rightarrow e^+ \pi^0 \pi^0 \pi^+ D^{*-} D^{*0}$	614	0	2954	2954	228663
31	$e^+ e^- \rightarrow \pi^+ \pi^- D^{*0} \bar{D}^{*0} \gamma^I \gamma^I$	321	2783	0	2783	231446
32	$e^- \rightarrow e^+ \pi^+ \pi^- D^{*0} \bar{D}^{*0} \gamma^I \gamma^I$	322	0	2783	2783	234229

rowNo	production branch of $D^{*0}$	iProdBrP	nCase	nCcCase	nAllCase	nCCase
33	$e^- \rightarrow e^+ \pi^0 \pi^+ \omega D^{*-} \textcolor{blue}{D}^{*0}$	300	0	2781	2781	237010
34	$e^- \rightarrow e^+ \pi^0 \pi^0 \pi^+ D^{*-} \textcolor{blue}{D}^{*0} \gamma^I$	339	0	2774	2774	239784
35	$e^+ e^- \rightarrow \pi^0 \pi^+ \omega D^{*-} \textcolor{blue}{D}^{*0}$	1043	2684	0	2684	242468
36	$e^- \rightarrow e^+ \pi^+ \omega D^{*-} \textcolor{blue}{D}^{*0} \gamma^I$	228	0	2675	2675	245143
37	$e^+ e^- \rightarrow \pi^+ \omega D^{*-} \textcolor{blue}{D}^{*0} \gamma^I$	317	2669	0	2669	247812
38	$e^+ e^- \rightarrow \pi^+ \omega D^{*-} \textcolor{blue}{D}^{*0}$	29	2631	0	2631	250443
39	$e^+ e^- \rightarrow \pi^0 \pi^0 \pi^+ D^{*-} \textcolor{blue}{D}^{*0}$	136	2629	0	2629	253072
40	$e^+ e^- \rightarrow \pi^0 \pi^0 \pi^+ D^{*-} \textcolor{blue}{D}^{*0} \gamma^I$	550	2614	0	2614	255686
41	$e^- \rightarrow e^+ \pi^0 \pi^+ \omega D^{*-} \textcolor{blue}{D}^{*0} \gamma^I$	794	0	2578	2578	258264
42	$e^- \rightarrow e^+ \pi^+ \pi^- \rho^+ D^{*-} \textcolor{blue}{D}^{*0}$	1027	0	2575	2575	260839
43	$e^- \rightarrow e^+ \pi^+ \pi^+ \pi^- D^{*-} \textcolor{blue}{D}^{*0}$	886	0	2572	2572	263411
44	$e^- \rightarrow e^+ \pi^0 \rho^+ D^{*-} \textcolor{blue}{D}^{*0} \gamma^I$	558	0	2559	2559	265970
45	$e^- \rightarrow e^+ \pi^+ \omega D^{*-} \textcolor{blue}{D}^{*0}$	572	0	2559	2559	268529
46	$e^- \rightarrow e^+ \pi^+ \pi^+ \pi^- D^{*-} \textcolor{blue}{D}^{*0} \gamma^I$	539	0	2530	2530	271059
47	$e^+ e^- \rightarrow \pi^+ \pi^- \rho^+ D^{*-} \textcolor{blue}{D}^{*0}$	316	2478	0	2478	273537
48	$e^- \rightarrow e^+ \pi^0 \rho^+ D^{*-} \textcolor{blue}{D}^{*0}$	52	0	2453	2453	275990
49	$e^+ e^- \rightarrow \pi^0 \pi^+ \omega D^{*-} \textcolor{blue}{D}^{*0} \gamma^I$	318	2426	0	2426	278416
50	$e^- \rightarrow e^+ \pi^+ \pi^- \omega \textcolor{blue}{D}^{*0} \bar{D}^{*0}$	2	0	2423	2423	280839
51	$e^+ e^- \rightarrow \pi^+ \pi^- \omega \textcolor{blue}{D}^{*0} \bar{D}^{*0}$	1	2423	0	2423	283262
52	$e^+ e^- \rightarrow \pi^+ \pi^+ \pi^- D^{*-} \textcolor{blue}{D}^{*0}$	458	2414	0	2414	285676
53	$e^+ e^- \rightarrow \pi^+ \pi^+ \pi^- D^{*-} \textcolor{blue}{D}^{*0} \gamma^I$	846	2379	0	2379	288055
54	$e^+ e^- \rightarrow \pi^0 \rho^+ D^{*-} \textcolor{blue}{D}^{*0} \gamma^I$	635	2356	0	2356	290411
55	$e^+ e^- \rightarrow \pi^0 \rho^+ D^{*-} \textcolor{blue}{D}^{*0}$	268	2354	0	2354	292765
56	$e^- \rightarrow e^+ \pi^+ \pi^- \rho^+ D^{*-} \textcolor{blue}{D}^{*0} \gamma^I$	588	0	2346	2346	295111
57	$e^+ e^- \rightarrow \pi^0 \pi^- \rho^+ \textcolor{blue}{D}^{*0} \bar{D}^{*0}$	49	2318	0	2318	297429
58	$e^- \rightarrow e^+ \pi^0 \pi^+ \rho^- D^{*-} \bar{D}^{*0}$	50	0	2318	2318	299747
59	$e^+ e^- \rightarrow \pi^+ \pi^- \rho^+ D^{*-} \textcolor{blue}{D}^{*0} \gamma^I$	703	2264	0	2264	302011
60	$e^+ e^- \rightarrow \pi^0 \pi^+ \rho^- D^{*-} \bar{D}^{*0}$	590	2250	0	2250	304261
61	$e^- \rightarrow e^+ \pi^0 \pi^- \rho^+ D^{*-} \bar{D}^{*0}$	591	0	2250	2250	306511
62	$e^+ e^- \rightarrow \pi^+ \pi^- \omega \textcolor{blue}{D}^{*0} \bar{D}^{*0} \gamma^I$	820	2249	0	2249	308760
63	$e^- \rightarrow e^+ \pi^+ \pi^- \omega \textcolor{blue}{D}^{*0} \bar{D}^{*0} \gamma^I$	821	0	2249	2249	311009
64	$e^- \rightarrow e^+ \pi^0 \rho^0 \pi^+ D^{*-} \textcolor{blue}{D}^{*0}$	536	0	2199	2199	313208
65	$e^+ e^- \rightarrow \pi^0 \pi^+ \pi^- \textcolor{blue}{D}^{*0} \bar{D}^{*0} \gamma^I \gamma^I$	497	2191	0	2191	315399
66	$e^- \rightarrow e^+ \pi^0 \pi^+ \pi^- \textcolor{blue}{D}^{*0} \bar{D}^{*0} \gamma^I \gamma^I$	498	0	2191	2191	317590

rowNo	production branch of $D^{*0}$	iProdBrP	nCase	nCcCase	nAllCase	nCCase
67	$e^+e^- \rightarrow \pi^0\rho^0\pi^+D^{*-}D^{*0}$	407	2113	0	2113	319703
68	$e^+e^- \rightarrow \pi^0\pi^-\rho^+\textcolor{blue}{D}^{*0}\bar{D}^{*0}\gamma^I$	416	2111	0	2111	321814
69	$e^- \rightarrow e^+\pi^0\pi^+\rho^-\textcolor{blue}{D}^{*0}\bar{D}^{*0}\gamma^I$	417	0	2111	2111	323925
70	$e^- \rightarrow e^+\rho^0\pi^+D^{*-}\textcolor{blue}{D}^{*0}\gamma^I$	438	0	2107	2107	326032
71	$e^+e^- \rightarrow \pi^0\pi^+\rho^-\textcolor{blue}{D}^{*0}\bar{D}^{*0}\gamma^I$	309	2090	0	2090	328122
72	$e^- \rightarrow e^+\pi^0\pi^-\rho^+\textcolor{blue}{D}^{*0}\bar{D}^{*0}\gamma^I$	310	0	2090	2090	330212
73	$e^+e^- \rightarrow \pi^-\rho^+\textcolor{blue}{D}^{*0}\bar{D}^{*0}\gamma^I$	188	2064	0	2064	332276
74	$e^- \rightarrow e^+\pi^+\rho^-\textcolor{blue}{D}^{*0}\bar{D}^{*0}\gamma^I$	189	0	2064	2064	334340
75	$e^+e^- \rightarrow \pi^+\rho^-D^{*0}\bar{D}^{*0}\gamma^I$	273	2049	0	2049	336389
76	$e^- \rightarrow e^+\pi^-\rho^+\textcolor{blue}{D}^{*0}\bar{D}^{*0}\gamma^I$	274	0	2049	2049	338438
77	$e^+e^- \rightarrow \rho^0\pi^+D^{*-}\textcolor{blue}{D}^{*0}\gamma^I$	45	2033	0	2033	340471
78	$e^- \rightarrow e^+\pi^-\rho^+\textcolor{blue}{D}^{*0}\bar{D}^{*0}$	78	0	2022	2022	342493
79	$e^+e^- \rightarrow \pi^+\rho^-D^{*0}\bar{D}^{*0}$	77	2022	0	2022	344515
80	$e^+e^- \rightarrow \rho^0\pi^+D^{*-}D^{*0}$	187	1987	0	1987	346502
81	$e^+e^- \rightarrow \pi^0\textcolor{blue}{D}^{*0}\bar{D}^{*0}$	1009	1984	0	1984	348486
82	$e^- \rightarrow e^+\pi^0\textcolor{blue}{D}^{*0}\bar{D}^{*0}$	1010	0	1984	1984	350470
83	$e^- \rightarrow e^+\rho^0\pi^+D^{*-}D^{*0}$	135	0	1982	1982	352452
84	$e^+e^- \rightarrow \pi^-\rho^+\textcolor{blue}{D}^{*0}\bar{D}^{*0}$	592	1974	0	1974	354426
85	$e^- \rightarrow e^+\pi^+\rho^-D^{*0}\bar{D}^{*0}$	593	0	1974	1974	356400
86	$e^+e^- \rightarrow \pi^0\pi^0D^{*0}\bar{D}^{*0}$	245	1951	0	1951	358351
87	$e^- \rightarrow e^+\pi^0\pi^0D^{*0}\bar{D}^{*0}$	246	0	1951	1951	360302
88	$e^- \rightarrow e^+\pi^0\rho^0\pi^+D^{*-}\textcolor{blue}{D}^{*0}\gamma^I$	545	0	1945	1945	362247
89	$e^+e^- \rightarrow \pi^0\textcolor{blue}{D}^{*0}\bar{D}^{*0}\gamma^I\gamma^I$	26	1943	0	1943	364190
90	$e^- \rightarrow e^+\pi^0\textcolor{blue}{D}^{*0}\bar{D}^{*0}\gamma^I\gamma^I$	27	0	1943	1943	366133
91	$e^+e^- \rightarrow \pi^0\pi^0\textcolor{blue}{D}^{*0}\bar{D}^{*0}\gamma^I$	929	1942	0	1942	368075
92	$e^- \rightarrow e^+\pi^0\pi^0D^{*0}\bar{D}^{*0}\gamma^I$	930	0	1942	1942	370017
93	$e^- \rightarrow e^+\pi^0\pi^+\pi^-\pi^-D^{*-}D^{*0}$	426	0	1893	1893	371910
94	$e^+e^- \rightarrow \pi^0\rho^0\pi^+D^{*-}\textcolor{blue}{D}^{*0}\gamma^I$	473	1857	0	1857	373767
95	$e^- \rightarrow e^+\bar{K}^0K^+D^{*-}\textcolor{blue}{D}^{*0}\gamma^I$	444	0	1800	1800	375567
96	$e^+e^- \rightarrow \rho^0\pi^+\pi^-\textcolor{blue}{D}^{*0}\bar{D}^{*0}$	361	1799	0	1799	377366
97	$e^- \rightarrow e^+\rho^0\pi^+\pi^-\textcolor{blue}{D}^{*0}\bar{D}^{*0}$	362	0	1799	1799	379165
98	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-D^{*-}D^{*0}$	1297	1794	0	1794	380959
99	$e^+e^- \rightarrow K^+K^-\textcolor{blue}{D}^{*0}\bar{D}^{*0}$	682	1787	0	1787	382746
100	$e^- \rightarrow e^+K^+K^-\textcolor{blue}{D}^{*0}\bar{D}^{*0}$	683	0	1787	1787	384533

rowNo	production branch of $D^{*0}$	iProdBrP	nCase	nCcCase	nAllCase	nCCase
rest	others (74162 in total)	—	612213	609141	1221354	1605887

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	664474	609007	1273481	1273481
2	$D^{*0} \rightarrow \pi^0 \textcolor{blue}{D}^0$	0	532467	532175	1064642	2338123
3	$D^{*0} \rightarrow \textcolor{blue}{D}^0 \gamma$	1	270441	270804	541245	2879368
4	$D_0^{*+} \rightarrow \pi^+ \textcolor{blue}{D}^0$	25	23053	22386	45439	2924807
5	$D_2^{*+} \rightarrow \pi^+ \textcolor{blue}{D}^0$	21	11933	12341	24274	2949081
6	$D_0^{*0} \rightarrow \pi^0 \textcolor{blue}{D}^0$	26	12012	12204	24216	2973297
7	$D_2^{*0} \rightarrow \pi^0 \textcolor{blue}{D}^0$	98	7347	7429	14776	2988073
8	$D_{s2}(2573)^+ \rightarrow K^+ \textcolor{blue}{D}^0$	28	4054	4261	8315	2996388
9	$D_1^0 \rightarrow \pi^+ \pi^- \textcolor{blue}{D}^0$	73	2304	2328	4632	3001020
10	$D_1^+ \rightarrow \pi^0 \pi^+ \textcolor{blue}{D}^0$	134	1657	1611	3268	3004288
11	$D_1^0 \rightarrow \pi^0 \pi^0 \textcolor{blue}{D}^0$	23	1597	1611	3208	3007496
12	$e^- \rightarrow e^+ \pi^0 \pi^+ D^{*-} \textcolor{blue}{D}^0 \gamma^I$	127	0	1905	1905	3009401
13	$e^+ e^- \rightarrow \pi^0 \pi^+ D^{*-} \textcolor{blue}{D}^0 \gamma^I$	172	1893	0	1893	3011294
14	$e^- \rightarrow e^+ \pi^0 \pi^+ D^{*-} \textcolor{blue}{D}^0$	189	0	1760	1760	3013054
15	$e^+ e^- \rightarrow \pi^0 \pi^+ D^{*-} \textcolor{blue}{D}^0$	185	1733	0	1733	3014787
16	$e^- \rightarrow e^+ \pi^+ D^{*-} \textcolor{blue}{D}^0 \gamma^I$	334	0	1661	1661	3016448
17	$e^+ e^- \rightarrow \pi^+ D^{*-} \textcolor{blue}{D}^0 \gamma^I$	355	1619	0	1619	3018067
18	$e^+ e^- \rightarrow \pi^+ \pi^- \textcolor{blue}{D}^0 \bar{D}^{*0} \gamma^I$	301	1546	0	1546	3019613
19	$e^- \rightarrow e^+ \pi^+ \pi^- \textcolor{blue}{D}^0 \bar{D}^{*0} \gamma^I$	38	0	1534	1534	3021147
20	$e^+ e^- \rightarrow \pi^0 \pi^+ \pi^- \textcolor{blue}{D}^0 \bar{D}^{*0} \gamma^I$	62	1501	0	1501	3022648
21	$e^- \rightarrow e^+ \pi^0 \pi^+ \pi^- \textcolor{blue}{D}^0 \bar{D}^{*0}$	612	0	1476	1476	3024124
22	$e^+ e^- \rightarrow \pi^0 \pi^+ \pi^- \textcolor{blue}{D}^0 \bar{D}^{*0}$	33	1425	0	1425	3025549
23	$e^- \rightarrow e^+ \pi^0 \pi^+ \pi^- \textcolor{blue}{D}^0 \bar{D}^{*0} \gamma^I$	336	0	1347	1347	3026896
24	$e^+ e^- \rightarrow \pi^+ \pi^- \textcolor{blue}{D}^0 \bar{D}^{*0}$	49	1332	0	1332	3028228
25	$e^- \rightarrow e^+ \pi^+ \pi^- \textcolor{blue}{D}^0 \bar{D}^{*0}$	130	0	1283	1283	3029511
26	$e^- \rightarrow e^+ \pi^0 \pi^+ D^{*-} \textcolor{blue}{D}^0 \gamma^I \gamma^I$	216	0	1085	1085	3030596
27	$e^- \rightarrow e^+ \pi^+ D^{*-} \textcolor{blue}{D}^0$	279	0	1054	1054	3031650
28	$e^- \rightarrow e^+ \pi^+ D^{*-} \textcolor{blue}{D}^0 \gamma^I \gamma^I$	71	0	1043	1043	3032693
29	$e^+ e^- \rightarrow \pi^+ D^{*-} \textcolor{blue}{D}^0 \gamma^I \gamma^I$	356	1039	0	1039	3033732
30	$e^+ e^- \rightarrow \pi^0 \pi^+ D^{*-} \textcolor{blue}{D}^0 \gamma^I \gamma^I$	484	1034	0	1034	3034766
31	$e^- \rightarrow e^+ \pi^0 \textcolor{blue}{D}^0 \bar{D}^{*0} \gamma^I$	646	0	989	989	3035755
32	$e^+ e^- \rightarrow \pi^0 \textcolor{blue}{D}^0 \bar{D}^{*0} \gamma^I$	47	979	0	979	3036734

rowNo	production branch of $D^0$	iProdBrP	nCase	nCcCase	nAllCase	nCCase
33	$e^+ e^- \rightarrow \pi^+ D^{*-} \textcolor{blue}{D^0}$	466	978	0	978	3037712
34	$e^- \rightarrow e^+ \pi^0 \pi^+ \omega D^{*-} \textcolor{blue}{D^0}$	807	0	897	897	3038609
35	$e^- \rightarrow e^+ \pi^+ \omega D^{*-} \textcolor{blue}{D^0} \gamma^I$	692	0	885	885	3039494
36	$e^- \rightarrow e^+ \pi^0 \pi^+ D^{*-} \textcolor{blue}{D^0}$	27	0	875	875	3040369
37	$e^+ e^- \rightarrow \pi^0 \pi^0 \pi^+ D^{*-} \textcolor{blue}{D^0}$	1146	869	0	869	3041238
38	$e^- \rightarrow e^+ \pi^0 \pi^0 \pi^+ D^{*-} \textcolor{blue}{D^0} \gamma^I$	1078	0	864	864	3042102
39	$e^+ e^- \rightarrow \pi^0 \pi^+ \omega D^{*-} \textcolor{blue}{D^0}$	247	855	0	855	3042957
40	$e^- \rightarrow e^+ \pi^0 \pi^+ \omega D^{*-} \textcolor{blue}{D^0} \gamma^I$	54	0	840	840	3043797
41	$e^+ e^- \rightarrow \pi^0 \pi^+ \omega D^{*-} \textcolor{blue}{D^0} \gamma^I$	1461	837	0	837	3044634
42	$e^- \rightarrow e^+ \pi^+ \pi^- \rho^+ D^{*-} \textcolor{blue}{D^0}$	287	0	830	830	3045464
43	$e^+ e^- \rightarrow \pi^+ \pi^- \textcolor{blue}{D^0} \bar{D}^{*0} \gamma^I \gamma^I$	149	828	0	828	3046292
44	$e^+ e^- \rightarrow \pi^+ \omega D^{*-} \textcolor{blue}{D^0} \gamma^I$	349	828	0	828	3047120
45	$e^- \rightarrow e^+ \pi^+ \pi^- \rho^+ D^{*-} \textcolor{blue}{D^0} \gamma^I$	1931	0	822	822	3047942
46	$e^- \rightarrow e^+ \pi^0 \rho^+ D^{*-} \textcolor{blue}{D^0} \gamma^I$	672	0	807	807	3048749
47	$e^+ e^- \rightarrow \pi^+ \pi^- \rho^+ D^{*-} \textcolor{blue}{D^0}$	278	802	0	802	3049551
48	$e^- \rightarrow e^+ \pi^+ \pi^+ \pi^- D^{*-} \textcolor{blue}{D^0}$	178	0	800	800	3050351
49	$e^+ e^- \rightarrow \pi^+ \pi^- \omega \textcolor{blue}{D^0} \bar{D}^{*0}$	206	796	0	796	3051147
50	$e^- \rightarrow e^+ \pi^+ \pi^- \omega \textcolor{blue}{D^0} \bar{D}^{*0}$	1188	0	796	796	3051943
51	$e^- \rightarrow e^+ \pi^+ \pi^- \textcolor{blue}{D^0} \bar{D}^{*0} \gamma^I \gamma^I$	318	0	795	795	3052738
52	$e^+ e^- \rightarrow \pi^0 \pi^0 \pi^+ D^{*-} \textcolor{blue}{D^0} \gamma^I$	361	792	0	792	3053530
53	$e^+ e^- \rightarrow \pi^+ \omega D^{*-} \textcolor{blue}{D^0}$	841	789	0	789	3054319
54	$e^- \rightarrow e^+ \pi^0 \rho^+ D^{*-} \textcolor{blue}{D^0}$	1555	0	775	775	3055094
55	$e^+ e^- \rightarrow \pi^0 \pi^+ \rho^- \textcolor{blue}{D^0} \bar{D}^{*0}$	96	764	0	764	3055858
56	$e^+ e^- \rightarrow \pi^0 \rho^+ D^{*-} \textcolor{blue}{D^0} \gamma^I$	327	763	0	763	3056621
57	$e^- \rightarrow e^+ \pi^0 \pi^- \rho^+ \textcolor{blue}{D^0} \bar{D}^{*0}$	2676	0	763	763	3057384
58	$e^- \rightarrow e^+ \pi^+ \omega D^{*-} \textcolor{blue}{D^0}$	45	0	758	758	3058142
59	$e^+ e^- \rightarrow \pi^0 \pi^- \rho^+ \textcolor{blue}{D^0} \bar{D}^{*0}$	303	745	0	745	3058887
60	$e^- \rightarrow e^+ \pi^+ \pi^- \omega \textcolor{blue}{D^0} \bar{D}^{*0} \gamma^I$	1238	0	741	741	3059628
61	$e^+ e^- \rightarrow \pi^+ \pi^- \omega \textcolor{blue}{D^0} \bar{D}^{*0} \gamma^I$	277	740	0	740	3060368
62	$e^- \rightarrow e^+ \pi^0 \pi^+ \rho^- \textcolor{blue}{D^0} \bar{D}^{*0}$	184	0	719	719	3061087
63	$e^- \rightarrow e^+ \pi^+ \pi^+ \pi^- D^{*-} \textcolor{blue}{D^0} \gamma^I$	500	0	716	716	3061803
64	$e^- \rightarrow e^+ \pi^0 \pi^+ \rho^- \textcolor{blue}{D^0} \bar{D}^{*0} \gamma^I$	477	0	709	709	3062512
65	$e^+ e^- \rightarrow \pi^+ \pi^+ \pi^- D^{*-} \textcolor{blue}{D^0} \gamma^I$	964	709	0	709	3063221
66	$e^- \rightarrow e^+ \pi^0 \rho^0 \pi^+ D^{*-} \textcolor{blue}{D^0}$	84	0	695	695	3063916

rowNo	production branch of $D^0$	iProdBrP	nCase	nCcCase	nAllCase	nCCase
67	$e^+e^- \rightarrow \pi^0\pi^+\rho^-\textcolor{blue}{D}^0\bar{D}^{*0}\gamma^I$	1227	695	0	695	3064611
68	$e^+e^- \rightarrow \pi^+\pi^-\rho^+D^{*-}\textcolor{blue}{D}^0\gamma^I$	322	692	0	692	3065303
69	$e^- \rightarrow e^+\pi^0\rho^0\pi^+\bar{D}^{*0}\textcolor{blue}{D}^0\gamma^I$	1264	0	692	692	3065995
70	$e^- \rightarrow e^+\pi^0\pi^-\rho^+\textcolor{blue}{D}^0\bar{D}^{*0}\gamma^I$	644	0	689	689	3066684
71	$e^+e^- \rightarrow \pi^+\pi^+\pi^-D^{*-}\textcolor{blue}{D}^0$	1176	688	0	688	3067372
72	$e^+e^- \rightarrow \pi^0\textcolor{blue}{D}^0\bar{D}^{*0}\gamma^I\gamma^I$	812	687	0	687	3068059
73	$e^+e^- \rightarrow \pi^0\pi^-\rho^+\textcolor{blue}{D}^0\bar{D}^{*0}\gamma^I$	435	685	0	685	3068744
74	$e^+e^- \rightarrow \pi^0\rho^+D^{*-}\textcolor{blue}{D}^0$	345	683	0	683	3069427
75	$e^- \rightarrow e^+\pi^+\rho^-\textcolor{blue}{D}^0\bar{D}^{*0}\gamma^I$	323	0	681	681	3070108
76	$e^+e^- \rightarrow \pi^+\rho^-\textcolor{blue}{D}^0\bar{D}^{*0}\gamma^I$	552	680	0	680	3070788
77	$e^- \rightarrow e^+\pi^0\pi^-\textcolor{blue}{D}^0\bar{D}^{*0}\gamma^I\gamma^I$	817	0	678	678	3071466
78	$e^+e^- \rightarrow \pi^0\pi^+\pi^-\textcolor{blue}{D}^0\bar{D}^{*0}\gamma^I\gamma^I$	414	667	0	667	3072133
79	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\bar{D}^{*0}\textcolor{blue}{D}^0$	891	655	0	655	3072788
80	$e^- \rightarrow e^+\pi^+\rho^-\textcolor{blue}{D}^0\bar{D}^{*0}$	695	0	635	635	3073423
81	$e^- \rightarrow e^+\pi^0\pi^0\textcolor{blue}{D}^0\bar{D}^{*0}\gamma^I$	82	0	633	633	3074056
82	$e^+e^- \rightarrow \rho^0\pi^+D^{*-}\textcolor{blue}{D}^0\gamma^I$	292	631	0	631	3074687
83	$e^+e^- \rightarrow \pi^0\pi^+\pi^+\pi^-D^{*-}\textcolor{blue}{D}^0$	87	629	0	629	3075316
84	$e^- \rightarrow e^+\pi^0\textcolor{blue}{D}^0\bar{D}^{*0}$	2522	0	625	625	3075941
85	$e^- \rightarrow e^+\rho^0\pi^+D^{*-}\textcolor{blue}{D}^0$	847	0	621	621	3076562
86	$e^- \rightarrow e^+\pi^0\textcolor{blue}{D}^0\bar{D}^{*0}\gamma^I\gamma^I$	65	0	619	619	3077181
87	$e^- \rightarrow e^+\pi^-\rho^+\textcolor{blue}{D}^0\bar{D}^{*0}\gamma^I$	1473	0	617	617	3077798
88	$e^+e^- \rightarrow \pi^0\pi^0\textcolor{blue}{D}^0\bar{D}^{*0}\gamma^I$	66	610	0	610	3078408
89	$e^+e^- \rightarrow \pi^0\rho^0\pi^+\bar{D}^{*0}\textcolor{blue}{D}^0\gamma^I$	645	606	0	606	3079014
90	$e^- \rightarrow e^+\pi^0\pi^+\pi^+\pi^-D^{*-}\textcolor{blue}{D}^0$	1294	0	606	606	3079620
91	$e^- \rightarrow e^+\rho^0\pi^+D^{*-}\textcolor{blue}{D}^0\gamma^I$	243	0	590	590	3080210
92	$e^+e^- \rightarrow \pi^-\rho^+\textcolor{blue}{D}^0\bar{D}^{*0}\gamma^I$	405	588	0	588	3080798
93	$e^+e^- \rightarrow \pi^+\rho^-\textcolor{blue}{D}^0\bar{D}^{*0}$	939	586	0	586	3081384
94	$e^+e^- \rightarrow \pi^0\pi^0\pi^-\textcolor{blue}{D}^0\bar{D}^{*0}\gamma^I$	1600	584	0	584	3081968
95	$e^- \rightarrow e^+\bar{K}^0K^+\bar{D}^{*0}\textcolor{blue}{D}^0\gamma^I$	150	0	579	579	3082547
96	$e^- \rightarrow e^+\rho^0\pi^-\textcolor{blue}{D}^0\bar{D}^{*0}$	392	0	576	576	3083123
97	$e^- \rightarrow e^+\pi^0\pi^+\pi^-\pi^-D^{*-}\textcolor{blue}{D}^0\gamma^I$	1350	0	574	574	3083697
98	$e^+e^- \rightarrow \rho^0\pi^+D^{*-}\textcolor{blue}{D}^0$	46	572	0	572	3084269
99	$e^+e^- \rightarrow \pi^0\pi^0\pi^-\textcolor{blue}{D}^0\bar{D}^{*0}$	258	570	0	570	3084839
100	$e^- \rightarrow e^+\pi^0\pi^+\pi^-\textcolor{blue}{D}^0\bar{D}^{*0}$	1145	0	570	570	3085409

rowNo	production branch of $D^0$	iProdBrP	nCase	nCcCase	nAllCase	nCCase
rest	others (53621 in total)	—	219887	216579	436466	3521875

Table 21: Production branches of  $\pi^0$ .

rowNo	production branch of $\pi^0$	iProdBrP	nCase	nCcCase	nAllCase	nCCase
1	$D^{*0} \rightarrow \pi^0 D^0$	2	532467	0	532467	532467
2	$\bar{D}^{*0} \rightarrow \pi^0 \bar{D}^0$	5	532175	0	532175	1064642
3	$K_S^0 \rightarrow \pi^0 \pi^0$	23	521486	—	521486	1586128
4	$\eta \rightarrow \pi^0 \pi^0 \pi^0$	9	499746	—	499746	2085874
5	$\omega \rightarrow \pi^0 \pi^+ \pi^-$	4	469630	—	469630	2555504
6	$\rho^- \rightarrow \pi^0 \pi^-$	7	435171	0	435171	2990675
7	$\rho^+ \rightarrow \pi^0 \pi^+$	6	422051	0	422051	3412726
8	$\bar{D}^0 \rightarrow \pi^0 \pi^- K^+$	46	116907	153	117060	3529786
9	$\eta \rightarrow \pi^0 \pi^+ \pi^-$	0	112601	—	112601	3642387
10	$D^{*-} \rightarrow \pi^0 D^-$	1	111588	0	111588	3753975
11	$D^0 \rightarrow \pi^0 \pi^+ K^-$	43	108230	140	108370	3862345
12	$D^{*+} \rightarrow \pi^0 D^+$	58	99906	0	99906	3962251
13	$K^* \rightarrow \pi^0 K^0$	19	77403	0	77403	4039654
14	$\bar{K}^* \rightarrow \pi^0 \bar{K}^0$	69	70596	0	70596	4110250
15	$K^{*+} \rightarrow \pi^0 K^+$	15	70268	0	70268	4180518
16	$K^{*-} \rightarrow \pi^0 K^-$	28	68481	0	68481	4248999
17	$\eta' \rightarrow \pi^0 \pi^0 \eta$	121	58796	—	58796	4307795
18	$\bar{D}^0 \rightarrow \pi^0 \pi^0 \pi^- K^+$	131	39356	532	39888	4347683
19	$\omega \rightarrow \pi^0 \gamma$	119	37975	—	37975	4385658
20	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ K^-$	10	35954	492	36446	4422104
21	$K_L^0 \rightarrow \pi^0 \pi^0 \pi^0$	54	34965	—	34965	4457069
22	$\bar{D}^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^- K_S^0$	98	24204	—	24204	4481273
23	$a_1^- \rightarrow \pi^0 \rho^-$	102	24145	0	24145	4505418
24	$\bar{D}^0 \rightarrow \pi^0 \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	319	22563	—	22563	4527981
25	$a_1^+ \rightarrow \pi^0 \rho^+$	135	21749	0	21749	4549730
26	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^- K_S^0$	351	21276	—	21276	4571006
27	$\bar{D}^0 \rightarrow \pi^0 \pi^0 \pi^0 K_S^0$	159	20928	—	20928	4591934
28	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	32	19998	—	19998	4611932
29	$D^- \rightarrow \pi^0 \pi^- K_S^0$	165	19835	0	19835	4631767
30	$\bar{D}^0 \rightarrow \pi^0 \pi^0 \pi^0 K_L^0$	125	19749	—	19749	4651516
31	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 K_S^0$	362	19221	—	19221	4670737
32	$D^- \rightarrow \pi^0 K_L^0 \pi^-$	63	18452	0	18452	4689189
33	$\bar{\Lambda} \rightarrow \pi^0 \bar{n}$	53	17995	0	17995	4707184

rowNo	production branch of $\pi^0$	iProdBrP	nCase	nCcCase	nAllCase	nCCase
34	$\Lambda \rightarrow \pi^0 n$	185	17887	0	17887	4725071
35	$D^+ \rightarrow \pi^0 \pi^+ K_S^0$	167	17626	0	17626	4742697
36	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 K_L^0$	177	17457	—	17457	4760154
37	$\bar{D}^0 \rightarrow \pi^0 \pi^0 K^*$	41	16670	0	16670	4776824
38	$D^+ \rightarrow \pi^0 K_L^0 \pi^+$	220	16493	0	16493	4793317
39	$f_0(600) \rightarrow \pi^0 \pi^0$	289	16184	—	16184	4809501
40	$\bar{D}^0 \rightarrow \pi^0 \pi^+ \pi^- K^*$	37	15262	0	15262	4824763
41	$D^0 \rightarrow \pi^0 \pi^0 \bar{K}^*$	126	15142	0	15142	4839905
42	$\bar{D}^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^-$	196	15064	—	15064	4854969
43	$\bar{D}^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^- K_S^0$	176	14338	—	14338	4869307
44	$\bar{D}^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^-$	853	14199	—	14199	4883506
45	$\bar{D}^0 \rightarrow \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	448	13864	—	13864	4897370
46	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^-$	604	13470	—	13470	4910840
47	$D^0 \rightarrow \pi^0 \pi^+ \pi^- \bar{K}^*$	150	13161	0	13161	4924001
48	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^-$	458	12981	—	12981	4936982
49	$D^- \rightarrow \pi^0 \pi^- K^*$	33	12610	0	12610	4949592
50	$\bar{D}^0 \rightarrow \pi^0 \pi^0 K_S^0$	323	12582	—	12582	4962174
51	$D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^- K_S^0$	117	12456	—	12456	4974630
52	$D^0 \rightarrow \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	213	12300	—	12300	4986930
53	$\bar{D}_0^{*0} \rightarrow \pi^0 \bar{D}^0$	112	12204	0	12204	4999134
54	$\bar{D}^0 \rightarrow \pi^0 \pi^+ \pi^-$	96	12133	—	12133	5011267
55	$D_1^{*0} \rightarrow \pi^0 D^{*0}$	133	12069	0	12069	5023336
56	$D_0^{*0} \rightarrow \pi^0 D^0$	148	12012	0	12012	5035348
57	$\bar{D}_1^{*0} \rightarrow \pi^0 \bar{D}^{*0}$	100	11960	0	11960	5047308
58	$D_1^{'+} \rightarrow \pi^0 D^{*+}$	157	11590	0	11590	5058898
59	$\bar{D}^0 \rightarrow \pi^0 \pi^0 K_L^0$	390	11546	—	11546	5070444
60	$D^+ \rightarrow \pi^0 \pi^+ \bar{K}^*$	206	11463	0	11463	5081907
61	$D^0 \rightarrow \pi^0 \pi^0 K_S^0$	217	11010	—	11010	5092917
62	$D^0 \rightarrow \pi^0 \pi^+ \pi^-$	123	10892	—	10892	5103809
63	$D_1'^- \rightarrow \pi^0 D^{*-}$	88	10885	0	10885	5114694
64	$D^0 \rightarrow \pi^0 \pi^0 K_L^0$	109	10376	—	10376	5125070
65	$D^- \rightarrow \pi^0 \pi^0 \pi^0 \pi^- \eta$	79	10074	0	10074	5135144
66	$\bar{\Delta}^- \rightarrow \pi^0 \bar{p}$	36	9864	0	9864	5145008
67	$\Delta^+ \rightarrow \pi^0 p$	35	9527	0	9527	5154535
68	$D^+ \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \eta$	527	9474	0	9474	5164009

rowNo	production branch of $\pi^0$	iProdBrP	nCase	nCcCase	nAllCase	nCCase
69	$\bar{\Sigma}^- \rightarrow \pi^0 \bar{p}$	282	9190	0	9190	5173199
70	$\bar{D}^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^- K^+$	179	9021	0	9021	5182220
71	$\bar{D}^0 \rightarrow \pi^0 K_S^0$	166	8734	—	8734	5190954
72	$\Sigma^+ \rightarrow \pi^0 p$	107	8446	0	8446	5199400
73	$\bar{D}^0 \rightarrow \pi^0 \eta K_S^0$	49	8397	—	8397	5207797
74	$\Delta^0 \rightarrow \pi^0 n$	228	8062	0	8062	5215859
75	$D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ K^-$	329	8016	0	8016	5223875
76	$\bar{D}^0 \rightarrow \pi^0 K_L^0 \eta$	258	7879	—	7879	5231754
77	$K_L^0 \rightarrow \pi^0 \pi^+ \pi^-$	304	7678	—	7678	5239432
78	$D^0 \rightarrow \pi^0 K_S^0$	113	7634	—	7634	5247066
79	$D^0 \rightarrow \pi^0 \eta K_S^0$	438	7478	—	7478	5254544
80	$\bar{D}_2^{*0} \rightarrow \pi^0 \bar{D}^0$	419	7429	0	7429	5261973
81	$\bar{\Delta}^0 \rightarrow \pi^0 \bar{n}$	252	7351	0	7351	5269324
82	$D_2^{*0} \rightarrow \pi^0 D^0$	302	7347	0	7347	5276671
83	$D_s^- \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \pi^- \pi^-$	139	7310	0	7310	5283981
84	$D^0 \rightarrow \pi^0 K_L^0 \eta$	207	7057	—	7057	5291038
85	$\bar{D}^0 \rightarrow \pi^0 \pi^- K^{*+}$	539	7043	0	7043	5298081
86	$e^+ e^- \rightarrow \pi^0 \pi^- D^{*+} \bar{D}^{*0} \gamma^I$	475	6816	0	6816	5304897
87	$D^- \rightarrow \pi^0 \pi^+ \pi^- \pi^- \eta$	21	6702	0	6702	5311599
88	$e^+ e^- \rightarrow \pi^0 \pi^+ D^{*-} D^{*0} \gamma^I$	269	6666	0	6666	5318265
89	$D^- \rightarrow \pi^0 \pi^0 \pi^- \eta$	344	6516	0	6516	5324781
90	$\bar{D}^0 \rightarrow \pi^0 K_L^0$	380	6498	—	6498	5331279
91	$D_s^{*-} \rightarrow \pi^0 D_s^-$	766	6439	0	6439	5337718
92	$e^+ e^- \rightarrow \pi^0 \pi^- D^{*+} \bar{D}^{*0}$	429	6432	0	6432	5344150
93	$\bar{\Sigma}_c^{*-} \rightarrow \pi^0 \bar{\Lambda}_c^-$	528	6153	0	6153	5350303
94	$D^0 \rightarrow \pi^0 \pi^+ K^{*-}$	387	6145	0	6145	5356448
95	$e^+ e^- \rightarrow \pi^0 \pi^+ D^{*-} D^{*0}$	234	6091	0	6091	5362539
96	$D_s^+ \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \pi^-$	316	6012	0	6012	5368551
97	$D_{s0}^{*-} \rightarrow \pi^0 D_s^-$	56	5966	0	5966	5374517
98	$e^+ e^- \rightarrow \pi^0 \pi^0 \pi^- D^{*+} \bar{D}^{*0}$	588	5908	0	5908	5380425
99	$D^+ \rightarrow \pi^0 \pi^+ \pi^- \eta$	307	5741	0	5741	5386166
100	$D^+ \rightarrow \pi^0 \pi^0 \pi^+ \eta$	637	5730	0	5730	5391896
rest	others (75269 in total)	—	—	—	1629309	7021205

Table 22: Production branches of  $e^+$ .

rowNo	production branch of $e^+$	iProdBrP	nCase	nCcCase	nAllCase	nCCase
1	$\pi^0 \rightarrow e^+ e^-$	0	288155	288155	576310	576310
2	$D^0 \rightarrow e^+ \nu_e K^-$	1	39378	40327	79705	656015
3	$D^+ \rightarrow e^+ \nu_e \bar{K}^0$	11	18013	20822	38835	694850
4	$D^0 \rightarrow e^+ \nu_e K^{*-}$	5	14827	16590	31417	726267
5	$D^+ \rightarrow e^+ \nu_e \bar{K}^*$	2	13466	14981	28447	754714
6	$\eta \rightarrow e^+ e^-$	8	9594	9594	19188	773902
7	$K_L^0 \rightarrow e^+ \bar{\nu}_e \pi^-$	13	0	12772	12772	786674
8	$K_L^0 \rightarrow e^+ \nu_e \pi^-$	16	12771	0	12771	799445
9	$D_s^+ \rightarrow e^+ \nu_e \eta$	3	2874	3313	6187	805632
10	$D_s^+ \rightarrow e^+ \nu_e \phi$	12	2726	3024	5750	811382
11	$\pi^0 \rightarrow e^+ e^+ e^- e^-$	6	2604	2604	5208	816590
12	$D^+ \rightarrow e^+ \nu_e \pi^+ K^-$	4	1945	2150	4095	820685
13	$D^0 \rightarrow e^+ \nu_e \pi^-$	20	1820	2165	3985	824670
14	$\omega \rightarrow e^+ e^- \pi^0$	23	1361	1361	2722	827392
15	$D^0 \rightarrow e^+ \nu_e \rho^-$	14	1228	1347	2575	829967
16	$\Lambda_c^+ \rightarrow e^+ \nu_e \Lambda$	24	1234	1251	2485	832452
17	$D_s^+ \rightarrow e^+ \nu_e \eta'$	9	1118	1174	2292	834744
18	$D^0 \rightarrow e^+ \nu_e \pi^- \bar{K}^0$	17	1000	1183	2183	836927
19	$\tau^+ \rightarrow e^+ \nu_e \bar{\nu}_\tau$	32	1006	1157	2163	839090
20	$\eta' \rightarrow e^+ e^- \pi^+ \pi^-$	26	886	886	1772	840862
21	$D^+ \rightarrow e^+ \nu_e \pi^0 \bar{K}^0$	18	845	862	1707	842569
22	$D^+ \rightarrow e^+ \nu_e \pi^0$	15	788	917	1705	844274
23	$D^0 \rightarrow e^+ \nu_e \pi^0 K^-$	31	667	737	1404	845678
24	$D^0 \rightarrow e^+ \nu_e K_1^-$	7	549	636	1185	846863
25	$D^+ \rightarrow e^+ \nu_e \rho^0$	37	575	590	1165	848028
26	$\Xi_c^+ \rightarrow e^+ \nu_e \Xi^0$	22	524	594	1118	849146
27	$D_s^+ \rightarrow e^+ \nu_e K^0$	43	427	506	933	850079
28	$D^+ \rightarrow e^+ \nu_e \omega$	29	463	462	925	851004
29	$\Lambda_c^+ \rightarrow e^+ \nu_e \pi^- p$	25	352	434	786	851790
30	$\Lambda_c^+ \rightarrow e^+ \nu_e \pi^0 n$	21	345	377	722	852512
31	$\eta \rightarrow e^+ e^- \pi^+ \pi^-$	42	356	356	712	853224
32	$\Lambda_c^+ \rightarrow e^+ \nu_e \Sigma^{*0}$	27	356	349	705	853929
33	$\Lambda_c^+ \rightarrow e^+ \nu_e \Sigma^0$	28	309	315	624	854553

rowNo	production branch of $e^+$	iProdBrP	nCase	nCcCase	nAllCase	nCCase
34	$D^+ \rightarrow e^+ \nu_e \eta$	45	263	271	534	855087
35	$\Sigma^0 \rightarrow e^+ e^- \Lambda$	35	271	247	518	855605
36	$\bar{\Sigma}^0 \rightarrow e^+ e^- \bar{\Lambda}$	36	247	271	518	856123
37	$K_S^0 \rightarrow e^+ \nu_e \pi^-$	34	500	0	500	856623
38	$D_s^+ \rightarrow e^+ \nu_e K^*$	40	207	267	474	857097
39	$K_S^0 \rightarrow e^+ \bar{\nu}_e \pi^-$	10	0	422	422	857519
40	$D_s^+ \rightarrow e^+ \nu_e \omega$	38	182	222	404	857923
41	$\Lambda_c^+ \rightarrow e^+ \nu_e n$	33	158	196	354	858277
42	$\Lambda_c^+ \rightarrow e^+ \nu_e \Delta^0$	30	114	126	240	858517
43	$K_S^0 \rightarrow e^+ e^- \pi^+ \pi^-$	44	93	93	186	858703
44	$\omega \rightarrow e^+ e^-$	39	82	82	164	858867
45	$\bar{\Lambda} \rightarrow e^+ \nu_e \bar{p}$	47	64	83	147	859014
46	$\rho^0 \rightarrow e^+ e^-$	41	67	67	134	859148
47	$\Xi_c^0 \rightarrow e^+ \nu_e \Xi^-$	50	38	74	112	859260
48	$D^+ \rightarrow e^+ \nu_e \eta'$	19	52	51	103	859363
49	$\phi \rightarrow e^+ e^- \eta$	48	36	36	72	859435
50	$\phi \rightarrow e^+ e^-$	46	32	32	64	859499
51	$\Xi_c^0 \rightarrow e^+ \nu_e \Xi^{*-}$	52	19	22	41	859540
52	$\bar{\Sigma}^+ \rightarrow e^+ \nu_e \bar{n}$	49	8	18	26	859566
53	$J/\psi \rightarrow e^+ e^-$	55	6	6	12	859578
54	$\Xi_c^+ \rightarrow e^+ \nu_e \Xi^{*0}$	51	5	4	9	859587
55	$\bar{\Xi}^+ \rightarrow e^+ \nu_e \bar{\Lambda}$	54	4	3	7	859594
56	$K_L^0 \rightarrow e^+ \nu_e \pi^0 \pi^-$	56	2	0	2	859596
57	$\bar{\Xi}^0 \rightarrow e^+ \nu_e \bar{\Sigma}^-$	57	0	2	2	859598
58	$K_L^0 \rightarrow e^+ \bar{\nu}_e \pi^0 \pi^-$	53	0	1	1	859599
59	$\bar{\Xi}^+ \rightarrow e^+ \nu_e \bar{\Sigma}^0$	58	0	1	1	859600
60	$\Omega_c^0 \rightarrow e^+ \nu_e \Omega^-$	59	0	1	1	859601

Table 23: Mothers of  $D_s^+$ .

rowNo	mother of $D_s^+$	PDGMoth	nCase	nCcCase	nAllCase	nCCase
1	$D_s^{*+}$	433	92300	104301	196601	196601
2	$e^+e^-$	99999999	32488	37423	69911	266512
3	$D_{s0}^{*+}$	10431	5322	5966	11288	277800
4	$D_{s1}'^+$	20433	928	1112	2040	279840

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

rowNo	mother of $D^{*+}$	PDGMoth	nCase	nCcCase	nAllCase	nCCase
1	$e^+ e^-$	99999999	712761	672073	1384834	1384834
2	$D_1^0$	20423	21475	20732	42207	1427041
3	$D_1^{'+}$	20413	11590	10885	22475	1449516
4	$D_2^{*0}$	425	9165	8818	17983	1467499
5	$D_2^{*+}$	415	5020	4871	9891	1477390
6	$D_1^0$	10423	4647	4494	9141	1486531
7	$D_1^+$	10413	2493	2450	4943	1491474
8	$D_{s1}^+$	10433	1586	1357	2943	1494417
9	$D_{s2}(2573)^+$	435	398	439	837	1495254

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

rowNo	mother of $D^{*0}$	PDGMoth	nCase	nCcCase	nAllCase	nCCase
1	$e^+e^-$	99999999	740562	741777	1482339	1482339
2	$D_1'^+$	20413	23989	23320	47309	1529648
3	$D_1^0$	20423	12069	11960	24029	1553677
4	$D_2^{*+}$	415	10548	10294	20842	1574519
5	$D_2^{*0}$	425	5304	5468	10772	1585291
6	$D_1^+$	10413	5433	5158	10591	1595882
7	$D_1^0$	10423	2727	2632	5359	1601241
8	$D_{s1}^+$	10433	1779	1861	3640	1604881
9	$D_{s2}(2573)^+$	435	497	509	1006	1605887

Table 26: Mothers of  $D^0$ .

rowNo	mother of $D^0$	PDGMoth	nCase	nCcCase	nAllCase	nCCase
1	$D^{*0}$	423	802908	802979	1605887	1605887
2	$D^{*+}$	413	664474	609007	1273481	2879368
3	$e^+ e^-$	99999999	257591	256788	514379	3393747
4	$D_0^{*+}$	10411	23053	22386	45439	3439186
5	$D_2^{*+}$	415	11933	12341	24274	3463460
6	$D_0^{*0}$	10421	12012	12204	24216	3487676
7	$D_2^{*0}$	425	7347	7429	14776	3502452
8	$D_{s2}^*(2573)^+$	435	4054	4261	8315	3510767
9	$D_1^0$	10423	3901	3939	7840	3518607
10	$D_1^+$	10413	1657	1611	3268	3521875

Table 27: Mothers of  $\pi^0$ .

rowNo	mother of $\pi^0$	PDGMoth	nCase	nCcCase	nAllCase	nCCase
1	$e^+e^-$	99999999	1274366	—	1274366	1274366
2	$D^{*0}$	423	532467	532175	1064642	2339008
3	$D^0$	421	412850	458742	871592	3210600
4	$\rho^+$	213	422051	435171	857222	4067822
5	$\eta$	221	612478	—	612478	4680300
6	$K_S^0$	310	521486	—	521486	5201786
7	$\omega$	223	509117	—	509117	5710903
8	$D^{*-}$	-413	111588	99906	211494	5922397
9	$D^-$	-411	105224	94613	199837	6122234
10	$K^*$	313	77403	70596	147999	6270233
11	$K^{*+}$	323	70268	68481	138749	6408982
12	$\eta'$	331	59813	—	59813	6468795
13	$D_s^+$	431	27628	31853	59481	6528276
14	$a_1^+$	20213	24328	27108	51436	6579712
15	$K_L^0$	130	42646	—	42646	6622358
16	$\bar{\Lambda}_c^-$	-4122	22223	20390	42613	6664971
17	$\bar{\Lambda}$	-3122	17995	17887	35882	6700853
18	$D_2^{*0}$	425	12651	12897	25548	6726401
19	$\bar{D}_0^{*0}$	-10421	12204	12012	24216	6750617
20	$\bar{D}_1^{*0}$	-20423	11960	12069	24029	6774646
21	$D_1'^-$	-20413	10885	11590	22475	6797121
22	$\Delta^+$	2214	9527	9864	19391	6816512
23	$\Sigma^+$	3222	8446	9190	17636	6834148
24	$D_2^{*+}$	415	8040	8516	16556	6850704
25	$f_0(600)$	9000221	16184	—	16184	6866888
26	$\Delta^0$	2114	8062	7351	15413	6882301
27	$\bar{D}_1^0$	-10423	6538	6562	13100	6895401
28	$D_s^{*-}$	-433	6439	5725	12164	6907565
29	$\Sigma_c^{*+}$	4214	5415	6153	11568	6919133
30	$D_{s0}^{*+}$	10431	5322	5966	11288	6930421
31	$D_1^+$	10413	5404	5469	10873	6941294
32	$D_0^{*+}$	10411	5130	5694	10824	6952118
33	$D_{s1}^+$	20433	4315	4730	9045	6961163

rowNo	mother of $\pi^0$	PDGMoth	nCase	nCcCase	nAllCase	nCCase
34	$\Sigma^{*0}$	3214	4298	4422	8720	6969883
35	$\tau^+$	-15	3652	4099	7751	6977634
36	$\bar{\Xi}^0$	-3322	3949	3682	7631	6985265
37	$K_1^+$	10323	3501	3074	6575	6991840
38	$\Sigma_c^+$	4212	3039	3131	6170	6998010
39	$\phi$	333	5742	—	5742	7003752
40	$\bar{K}_1'^0$	-20313	2070	2351	4421	7008173
41	$\rho^+(1450)$	100213	1474	1535	3009	7011182
42	$K_1^0$	10313	1310	1151	2461	7013643
43	$\rho^0(1450)$	100113	1528	—	1528	7015171
44	$\bar{\Xi}_c^-$	-4232	689	708	1397	7016568
45	$\bar{\Xi}_c^0$	-4132	579	561	1140	7017708
46	$\Sigma^{*+}$	3224	344	380	724	7018432
47	$\bar{\Xi}_c^{*-}$	-4324	290	266	556	7018988
48	$\bar{\Xi}_c^{*0}$	-4314	244	267	511	7019499
49	$\Xi^{*0}$	3324	238	246	484	7019983
50	$f_2(1270)$	225	306	—	306	7020289
51	$\rho^0$	113	279	—	279	7020568
52	$f_0(980)$	9010221	234	—	234	7020802
53	$\bar{\Xi}^{*+}$	-3314	95	87	182	7020984
54	$\bar{\Sigma}^{*+}$	-3114	62	73	135	7021119
55	$J/\psi$	443	21	—	21	7021140
56	$\eta_c$	441	19	—	19	7021159
57	$K_1'^+$	20323	7	6	13	7021172
58	$\Omega_c^0$	4332	8	5	13	7021185
59	$\bar{\Omega}^+$	-3334	4	5	9	7021194
60	$K^*(1410)^+$	100323	3	2	5	7021199
61	$f_1(1285)$	20223	4	—	4	7021203
62	$a_2^-$	-215	1	0	1	7021204
63	$\chi_{c2}$	445	1	—	1	7021205

Table 28: Mothers of  $e^+$ .

rowNo	mother of $e^+$	PDGMoth	nCase	nCcCase	nAllCase	nCCCase
1	$\pi^0$	111	290759	290759	581518	581518
2	$D^0$	421	59469	62985	122454	703972
3	$D^+$	411	36410	41106	77516	781488
4	$K_L^0$	130	12773	12773	25546	807034
5	$\eta$	221	9950	9950	19900	826934
6	$D_s^+$	431	7534	8506	16040	842974
7	$\Lambda_c^+$	4122	2868	3048	5916	848890
8	$\omega$	223	1443	1443	2886	851776
9	$\tau^+$	-15	1006	1157	2163	853939
10	$\eta'$	331	886	886	1772	855711
11	$\Xi_c^+$	4232	529	598	1127	856838
12	$K_S^0$	310	593	515	1108	857946
13	$\Sigma^0$	3212	271	247	518	858464
14	$\bar{\Sigma}^0$	-3212	247	271	518	858982
15	$\Xi_c^0$	4132	57	96	153	859135
16	$\bar{\Lambda}$	-3122	64	83	147	859282
17	$\phi$	333	68	68	136	859418
18	$\rho^0$	113	67	67	134	859552
19	$\bar{\Sigma}^+$	-3112	8	18	26	859578
20	$J/\psi$	443	6	6	12	859590
21	$\bar{\Xi}^+$	-3312	4	4	8	859598
22	$\bar{\Xi}^0$	-3322	0	2	2	859600
23	$\Omega_c^0$	4332	0	1	1	859601