Topology Analysis [*][†][‡][§]

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[*]Xingyu Zhou, Liaoning Normal University, zhouxy@lnnu.edu.cn

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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	$\Upsilon(4S) \to B^+B^-, B^+ \to \mu^+\nu_\mu \bar{D}^0, B^- \to \rho^- D^{*0}, \bar{D}^0 \to e^-\bar{\nu}_e K^+, \rho^- \to \pi^0\pi^-,$ $D^{*0} \to D^0\gamma, D^0 \to \pi^0\pi^+K^-$ $(\Upsilon(4S) \dashrightarrow e^-\bar{\nu}_e\mu^+\nu_\mu\pi^0\pi^0\pi^+\pi^-K^+K^-\gamma)$	69	68	4	0	4	4
2	$\Upsilon(4S) \to B^+B^-, B^+ \to \rho^+\bar{D}^0, B^- \to \mu^-\bar{\nu}_\mu D^{*0}, \rho^+ \to \pi^0\pi^+, \bar{D}^0 \to \pi^0\pi^-K^+,$ $D^{*0} \to \pi^0 D^0, D^0 \to e^+\nu_e K^-$ $(\Upsilon(4S) \dashrightarrow e^+\nu_e\mu^-\bar{\nu}_\mu\pi^0\pi^0\pi^0\pi^+\pi^-K^+K^-)$	707	637	3	1	4	8
3	$\Upsilon(4S) \to B^+B^-, B^+ \to \pi^+\bar{D}^{*0}, B^- \to e^-\bar{\nu}_e D^{*0}, \bar{D}^{*0} \to \bar{D}^0\gamma, D^{*0} \to \pi^0 D^0,$ $\bar{D}^0 \to \pi^0\pi^-K^+, D^0 \to \pi^0\pi^+K^-$ $(\Upsilon(4S) \dashrightarrow e^-\bar{\nu}_e\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-K^+K^-\gamma)$	3473	36	2	2	4	12
4	$\Upsilon(4S) \to B^+B^-, B^+ \to \rho^+\bar{D}^0, B^- \to \pi^0\pi^-\pi^-D^{*+}, \rho^+ \to \pi^0\pi^+, \bar{D}^0 \to \pi^0\pi^-K^+,$ $D^{*+} \to \pi^+ D^0, D^0 \to \pi^0\pi^+K^-$ $(\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-)$	14088	231	4	0	4	16
5	$\Upsilon(4S) \to B^+B^-, B^+ \to \mu^+\nu_\mu \bar{D}^0, B^- \to \pi^- D^{*0}, \bar{D}^0 \to \pi^0\pi^-K^+, D^{*0} \to \pi^0 D^0,$ $D^0 \to \pi^0\pi^+K^-$ $(\Upsilon(4S) \dashrightarrow \mu^+\nu_\mu\pi^0\pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-)$	695	627	3	0	3	19
6	$\Upsilon(4S) \to B^+B^-, B^+ \to e^+\nu_e \bar{D}^{*0}, B^- \to \pi^- D^0, \bar{D}^{*0} \to \pi^0\bar{D}^0, D^0 \to \pi^0\pi^+K^-,$ $\bar{D}^0 \to e^-\bar{\nu}_e K^+$ $(\Upsilon(4S) \dashrightarrow e^+e^-\nu_e\bar{\nu}_e\pi^0\pi^0\pi^+\pi^-K^+K^-)$	834	737	2	1	3	22
7	$\Upsilon(4S) \to B^+B^-, B^+ \to \pi^+\bar{D}^0, B^- \to \mu^-\bar{\nu}_\mu D^0, \bar{D}^0 \to \pi^0\pi^-K^+, D^0 \to \pi^0\pi^+K^-$ $(\Upsilon(4S) \dashrightarrow \mu^-\bar{\nu}_\mu\pi^0\pi^0\pi^+\pi^+\pi^-K^+K^-)$	3049	2304	3	0	3	25
8	$\Upsilon(4S) \to B^+B^-, B^+ \to \rho^+\bar{D}^0, B^- \to \mu^-\bar{\nu}_\mu D^{*0}, \rho^+ \to \pi^0\pi^+, \bar{D}^0 \to e^-\bar{\nu}_e K^+,$ $D^{*0} \to D^0\gamma, D^0 \to e^+\nu_e K^-$ $(\Upsilon(4S) \dashrightarrow e^+e^-\nu_e\bar{\nu}_e\mu^-\bar{\nu}_\mu\pi^0\pi^+K^+K^-\gamma)$	3383	2519	1	2	3	28
9	$\Upsilon(4S) \to B^+B^-, B^+ \to \mu^+\nu_\mu \bar{D}^0, B^- \to e^-\bar{\nu}_e D^0, \bar{D}^0 \to e^-\bar{\nu}_e K^+, D^0 \to \pi^0\pi^+K^-$ $(\Upsilon(4S) \dashrightarrow e^-e^-\bar{\nu}_e\bar{\nu}_e\mu^+\nu_\mu\pi^0\pi^+K^+K^-)$	3748	2719	1	2	3	31
10	$\Upsilon(4S) \to B^+B^-, B^+ \to \pi^+\bar{D}^0, B^- \to \mu^-\bar{\nu}_\mu D^{*0}, \bar{D}^0 \to \pi^0\pi^-K^+, D^{*0} \to \pi^0 D^0,$ $D^0 \to \pi^+\omega K^-, \omega \to \pi^0\pi^+\pi^-$ $(\Upsilon(4S) \dashrightarrow \mu^-\bar{\nu}_\mu\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^+K^-)$	3752	324	1	2	3	34
11	$\Upsilon(4S) \to B^+B^-, B^+ \to \pi^+\bar{D}^0, B^- \to \mu^-\bar{\nu}_\mu D^{*0}, \bar{D}^0 \to \pi^0\pi^-K^+, D^{*0} \to \pi^0 D^0,$ $D^0 \to e^+\nu_e K^-$ $(\Upsilon(4S) \dashrightarrow e^+\nu_e\mu^-\bar{\nu}_\mu\pi^0\pi^0\pi^+\pi^-K^+K^-)$	7888	134	2	1	3	37
12	$\Upsilon(4S) \to B^+B^-, B^+ \to \rho^+\bar{D}^0, B^- \to \pi^- D^0, \rho^+ \to \pi^0\pi^+, \bar{D}^0 \to e^-\bar{\nu}_e K^+,$ $D^0 \to \omega\bar{K}^*, \omega \to \pi^0\pi^+\pi^-, \bar{K}^* \to \pi^+K^-$ $(\Upsilon(4S) \dashrightarrow e^-\bar{\nu}_e\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^+K^-)$	10321	122	1	2	3	40

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rowNo	decay tree (decay initial-final states)	iDcyTr	iDcyIFSts	nEtr	nCcEtr	nAllEtr	nCEtr
13	$\Upsilon(4S) \to B^+B^-, B^+ \to \rho^+\bar{D}^0, B^- \to e^-\bar{\nu}_e D^0, \rho^+ \to \pi^0\pi^+, \bar{D}^0 \to \pi^0\pi^-K^+,$ $D^0 \to e^+\nu_e K^-$ $(\Upsilon(4S) \dashrightarrow e^+e^-\nu_e\bar{\nu}_e\pi^0\pi^0\pi^+\pi^-K^+K^-)$	25235	737	2	1	3	43
14	$\Upsilon(4S) \to B^+B^-, B^+ \to \mu^+\nu_\mu\bar{D}^0, B^- \to \rho^-D^{*0}, \bar{D}^0 \to \pi^0\pi^-K^+, \rho^- \to \pi^0\pi^-,$ $D^{*0} \to \pi^0 D^0, D^0 \to \pi^0\pi^0\pi^+K^-$ $(\Upsilon(4S) \dashrightarrow \mu^+\nu_\mu\pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-)$	60	59	2	0	2	45
15	$\Upsilon(4S) \to B^+B^-, B^+ \to \pi^+\bar{D}^{*0}, B^- \to \mu^-\bar{\nu}_\mu D^{*0}, \bar{D}^{*0} \to \pi^0\bar{D}^0, D^{*0} \to \pi^0 D^0,$ $\bar{D}^0 \to \pi^0\pi^0\pi^-K^+, D^0 \to e^+\nu_e K^-$ $(\Upsilon(4S) \dashrightarrow e^+\nu_e\mu^-\bar{\nu}_\mu\pi^0\pi^0\pi^0\pi^+\pi^-K^+K^-)$	73	72	1	1	2	47
16	$\Upsilon(4S) \to B^+B^-, B^+ \to \pi^0\pi^+\omega\bar{D}^0, B^- \to \pi^-D^{*0}, \omega \to \pi^0\pi^+\pi^-, \bar{D}^0 \to \pi^0\pi^-K^+,$ $D^{*0} \to D^0\gamma, D^0 \to \pi^0\pi^+K^-$ $(\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma)$	78	77	1	1	2	49
17	$\Upsilon(4S) \to B^+B^-, B^+ \to e^+\nu_e\bar{D}^0, B^- \to \rho^0\pi^-D^0, \bar{D}^0 \to e^-\bar{\nu}_e K^+, \rho^0 \to \pi^+\pi^-,$ $D^0 \to \pi^0\pi^+K^-$ $(\Upsilon(4S) \dashrightarrow e^+e^-\nu_e\bar{\nu}_e\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	193	184	2	0	2	51
18	$\Upsilon(4S) \to B^+B^-, B^+ \to \rho^+\bar{D}^0, B^- \to e^-\bar{\nu}_e D^0, \rho^+ \to \pi^0\pi^+, \bar{D}^0 \to \pi^0\pi^-K^+,$ $D^0 \to \pi^0\pi^+K^-$ $(\Upsilon(4S) \dashrightarrow e^-\bar{\nu}_e\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-K^+K^-)$	275	260	1	1	2	53
19	$\Upsilon(4S) \to B^+B^-, B^+ \to \pi^0\pi^+\pi^-\rho^+\bar{D}^{*0}, B^- \to \pi^-D^0, \rho^+ \to \pi^0\pi^+, \bar{D}^{*0} \to \pi^0\bar{D}^0,$ $D^0 \to \pi^0\pi^+K^-, \bar{D}^0 \to \pi^0\pi^-K^+$ $(\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-)$	479	449	2	0	2	55
20	$\Upsilon(4S) \to B^+B^-, B^+ \to \rho^+\bar{D}^0, B^- \to \pi^0\pi^-\pi^-D^{*+}, \rho^+ \to \pi^0\pi^+, \bar{D}^0 \to \pi^-\eta K^+,$ $D^{*+} \to \pi^+D^0, \eta \to \pi^0\pi^+\pi^-, D^0 \to \pi^0\pi^+K^-$ $(\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^-)$	645	592	2	0	2	57
21	$\Upsilon(4S) \to B^+B^-, B^+ \to \pi^0\pi^+\pi^+D^{*-}, B^- \to \rho^-D^{*0}, D^{*-} \to \pi^-\bar{D}^0, \rho^- \to \pi^0\pi^-,$ $D^{*0} \to \pi^0 D^0, \bar{D}^0 \to \pi^0\pi^-K^+, D^0 \to \pi^0\pi^+K^-$ $(\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-)$	718	449	1	1	2	59
22	$\Upsilon(4S) \to B^+B^-, B^+ \to \pi^+\bar{D}^0, B^- \to D^{*0}D_s^{*-}, \bar{D}^0 \to \pi^0\pi^-K^+, D^{*0} \to \pi^0 D^0,$ $D_s^{*-} \to D_s^-\gamma, D^0 \to \pi^0\pi^+K^-, D_s^- \to \rho^-\phi, \rho^- \to \pi^0\pi^-, \phi \to K^+K^-$ $(\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^+K^-K^-\gamma)$	896	786	1	1	2	61
23	$\Upsilon(4S) \to B^+B^-, B^+ \to \rho^+\bar{D}^{*0}, B^- \to \pi^-D^0, \rho^+ \to \pi^0\pi^+, \bar{D}^{*0} \to \pi^0\bar{D}^0,$ $D^0 \to e^+\nu_e K^-, \bar{D}^0 \to e^-\bar{\nu}_e K^+$ $(\Upsilon(4S) \dashrightarrow e^+e^-\nu_e\bar{\nu}_e\pi^0\pi^0\pi^+\pi^-K^+K^-)$	1010	737	1	1	2	63
24	$\Upsilon(4S) \to B^+B^-, B^+ \to \mu^+\nu_\mu\bar{D}^{*0}, B^- \to \rho^-D^0, \bar{D}^{*0} \to \bar{D}^0\gamma, \rho^- \to \pi^0\pi^-,$ $D^0 \to \pi^0\pi^+K^-, \bar{D}^0 \to K^+a_1^-, a_1^- \to \pi^0\rho^-, \rho^- \to \pi^0\pi^-$ $(\Upsilon(4S) \dashrightarrow \mu^+\nu_\mu\pi^0\pi^0\pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-\gamma)$	1085	935	1	1	2	65

rowNo	decay tree (decay initial-final states)	iDcyTr	iDcyIFSts	nEtr	nCcEtr	nAllEtr	nCEtr
25	$\Upsilon(4S) \to B^+B^-, B^+ \to \pi^+\bar{D}^{*0}, B^- \to \mu^-\bar{\nu}_\mu D^{*0}, \bar{D}^{*0} \to \pi^0\bar{D}^0, D^{*0} \to \pi^0 D^0,$ $\bar{D}^0 \to \pi^0\pi^0 K_L^0\pi^+\pi^-, D^0 \to \pi^0\pi^+ K^-$ $(\Upsilon(4S) \dashrightarrow \mu^-\bar{\nu}_\mu\pi^0\pi^0\pi^0\pi^0\pi^0 K_L^0\pi^+\pi^+\pi^+\pi^- K^-)$	1161	1002	2	0	2	67
26	$\Upsilon(4S) \to B^+B^-, B^+ \to e^+\nu_e\bar{D}^{*0}, B^- \to \pi^- D^0, \bar{D}^{*0} \to \pi^0\bar{D}^0, D^0 \to \rho^+ K^{*-},$ $\bar{D}^0 \to e^-\bar{\nu}_e K^+, \rho^+ \to \pi^0\pi^+, K^{*-} \to \pi^-\bar{K}^0, \bar{K}^0 \to K_L^0$ $(\Upsilon(4S) \dashrightarrow e^+e^-\nu_e\bar{\nu}_e\pi^0\pi^0 K_L^0\pi^+\pi^-\pi^- K^+)$	1221	1048	2	0	2	69
27	$\Upsilon(4S) \to B^+B^-, B^+ \to e^+\nu_e\bar{D}^0, B^- \to \pi^- D^0, \bar{D}^0 \to \pi^0\pi^- K^+, D^0 \to K_L^0\pi^+\pi^-$ $(\Upsilon(4S) \dashrightarrow e^+\nu_e\pi^0 K_L^0\pi^+\pi^-\pi^-\pi^- K^+)$	1258	1072	1	1	2	71
28	$\Upsilon(4S) \to B^+B^-, B^+ \to \pi^+\bar{D}^0, B^- \to \mu^-\bar{\nu}_\mu D^{*0}, \bar{D}^0 \to \pi^+\pi^-\pi^- K^+, D^{*0} \to D^0\gamma,$ $D^0 \to \pi^0\pi^0\pi^+ K^-$ $(\Upsilon(4S) \dashrightarrow \mu^-\bar{\nu}_\mu\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^- K^+ K^-\gamma)$	1355	630	2	0	2	73
29	$\Upsilon(4S) \to B^+B^-, B^+ \to \rho^+\bar{D}^{*0}, B^- \to \pi^0\pi^-\pi^- D^{*+}, \rho^+ \to \pi^0\pi^+, \bar{D}^{*0} \to \pi^0\bar{D}^0,$ $D^{*+} \to \pi^0 D^+, \bar{D}^0 \to \pi^0\pi^- K^+, D^+ \to e^+\nu_e\pi^+ K^-$ $(\Upsilon(4S) \dashrightarrow e^+\nu_e\pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^- K^+ K^-)$	1372	471	2	0	2	75
30	$\Upsilon(4S) \to B^+B^-, B^+ \to e^+\nu_e\bar{D}^{*0}, B^- \to \pi^- D^0, \bar{D}^{*0} \to \pi^0\bar{D}^0, D^0 \to \pi^0\pi^0\pi^+ K^-,$ $\bar{D}^0 \to \pi^0\pi^- K^+$ $(\Upsilon(4S) \dashrightarrow e^+\nu_e\pi^0\pi^0\pi^0\pi^0\pi^+\pi^-\pi^- K^+ K^-)$	3093	423	1	1	2	77
31	$\Upsilon(4S) \to B^+B^-, B^+ \to e^+\nu_e\bar{D}^0, B^- \to \pi^0\pi^-\pi^- D^{*+}, \bar{D}^0 \to e^-\bar{\nu}_e K^+, D^{*+} \to \pi^0 D^+,$ $D^+ \to e^+\nu_e\bar{K}^0, \bar{K}^0 \to K_L^0$ $(\Upsilon(4S) \dashrightarrow e^+e^+e^-\nu_e\nu_e\bar{\nu}_e\pi^0\pi^0 K_L^0\pi^-\pi^- K^+)$	3314	2473	2	0	2	79
32	$\Upsilon(4S) \to B^+B^-, B^+ \to \pi^+\omega\bar{D}^0, B^- \to e^-\bar{\nu}_e D^0, \omega \to \pi^0\pi^+\pi^-, \bar{D}^0 \to \pi^0\pi^- K^+,$ $D^0 \to e^+\nu_e K^-$ $(\Upsilon(4S) \dashrightarrow e^+e^-\nu_e\bar{\nu}_e\pi^0\pi^0\pi^+\pi^+\pi^-\pi^- K^+ K^-)$	3319	641	2	0	2	81
33	$\Upsilon(4S) \to B^+B^-, B^+ \to \mu^+\nu_\mu\bar{D}^{*0}, B^- \to \pi^- D^{*0}, \bar{D}^{*0} \to \pi^0\bar{D}^0, D^{*0} \to \pi^0 D^0,$ $\bar{D}^0 \to e^-\bar{\nu}_e K^+, D^0 \to \pi^+ K^-$ $(\Upsilon(4S) \dashrightarrow e^-\bar{\nu}_e\mu^+\nu_\mu\pi^0\pi^0\pi^+\pi^- K^+ K^-)$	3674	134	1	1	2	83
34	$\Upsilon(4S) \to B^+B^-, B^+ \to e^+\nu_e\bar{D}^{*0}, B^- \to \pi^- D^0, \bar{D}^{*0} \to \bar{D}^0\gamma, D^0 \to \pi^0\pi^+ K^-,$ $\bar{D}^0 \to e^-\bar{\nu}_e K^+$ $(\Upsilon(4S) \dashrightarrow e^+e^-\nu_e\bar{\nu}_e\pi^0\pi^+\pi^- K^+ K^-\gamma)$	3779	2736	2	0	2	85
35	$\Upsilon(4S) \to B^+B^-, B^+ \to e^+\nu_e\bar{D}^{*0}, B^- \to \pi^+\pi^-\pi^- D^0, \bar{D}^{*0} \to \pi^0\bar{D}^0, D^0 \to K_L^0\pi^+\pi^-,$ $\bar{D}^0 \to e^-\bar{\nu}_e K^+$ $(\Upsilon(4S) \dashrightarrow e^+e^-\nu_e\bar{\nu}_e\pi^0 K_L^0\pi^+\pi^+\pi^-\pi^-\pi^- K^+)$	3864	1243	2	0	2	87
36	$\Upsilon(4S) \to B^+B^-, B^+ \to \pi^+\bar{D}^{*0}, B^- \to \pi^0\pi^+\pi^-\pi^- D^{*0}, \bar{D}^{*0} \to \pi^0\bar{D}^0, D^{*0} \to \pi^0 D^0,$ $\bar{D}^0 \to \mu^-\bar{\nu}_\mu K^+, D^0 \to \pi^0\pi^+ K^-$ $(\Upsilon(4S) \dashrightarrow \mu^-\bar{\nu}_\mu\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^- K^+ K^-)$	3904	1338	1	1	2	89

rowNo	decay tree (decay initial-final states)	iDcyTr	iDcyIFSts	nEtr	nCcEtr	nAllEtr	nCEtr
37	$\Upsilon(4S) \to B^+B^-, B^+ \to \pi^+\bar{D}^0, B^- \to \pi^0\pi^+\pi^-\pi^-D^{*0}, \bar{D}^0 \to e^-\bar{\nu}_e K^+, D^{*0} \to \pi^0 D^0,$ $D^0 \to \pi^+ K^-$ $(\Upsilon(4S) \dashrightarrow e^-\bar{\nu}_e \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^+K^-)$	3919	122	2	0	2	91
38	$\Upsilon(4S) \to B^+B^-, B^+ \to \pi^+\bar{D}^{*0}, B^- \to e^-\bar{\nu}_e D^{*0}, \bar{D}^{*0} \to \pi^0\bar{D}^0, D^{*0} \to \pi^0 D^0,$ $\bar{D}^0 \to \pi^+\pi^- K_S^0, D^0 \to \pi^0\pi^+ K^-, K_S^0 \to \pi^+\pi^-$ $(\Upsilon(4S) \dashrightarrow e^-\bar{\nu}_e \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^-)$	4107	142	1	1	2	93
39	$\Upsilon(4S) \to B^+B^-, B^+ \to \pi^0\pi^+\pi^+D^{*-}, B^- \to \pi^-D^0, D^{*-} \to \pi^-\bar{D}^0, D^0 \to \pi^0\pi^+ K^-,$ $\bar{D}^0 \to e^-\bar{\nu}_e K^+$ $(\Upsilon(4S) \dashrightarrow e^-\bar{\nu}_e \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^+K^-)$	4201	122	2	0	2	95
40	$\Upsilon(4S) \to B^+B^-, B^+ \to e^+\nu_e\bar{D}^{*0}, B^- \to \rho^-D^0, \bar{D}^{*0} \to \pi^0\bar{D}^0, \rho^- \to \pi^0\pi^-,$ $D^0 \to \pi^+ K^-, \bar{D}^0 \to K^+ a_1^-, a_1^- \to \pi^0\rho^-, \rho^- \to \pi^0\pi^-$ $(\Upsilon(4S) \dashrightarrow e^+\nu_e \pi^0\pi^0\pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-)$	4679	423	1	1	2	97
41	$\Upsilon(4S) \to B^+B^-, B^+ \to e^+\nu_e\bar{D}^0, B^- \to \pi^-D^0, \bar{D}^0 \to \pi^0\pi^- K^+, D^0 \to \pi^+ K^-$ $(\Upsilon(4S) \dashrightarrow e^+\nu_e \pi^0\pi^+\pi^-\pi^-K^+K^-)$	5406	3569	2	0	2	99
42	$\Upsilon(4S) \to B^+B^-, B^+ \to \rho^+\bar{D}^0, B^- \to e^-\bar{\nu}_e D^{*0}, \rho^+ \to \pi^0\pi^+, \bar{D}^0 \to K^+ a_1^-,$ $D^{*0} \to \pi^0 D^0, a_1^- \to \pi^0\rho^-, D^0 \to \pi^0\pi^+ K^-, \rho^- \to \pi^0\pi^-$ $(\Upsilon(4S) \dashrightarrow e^-\bar{\nu}_e \pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-K^+K^-)$	5547	2402	1	1	2	101
43	$\Upsilon(4S) \to B^0\bar{B}^0, B^0 \to \rho^+D^-, \bar{B}^0 \to e^-\bar{\nu}_e D^{*+}, \rho^+ \to \pi^0\pi^+, D^- \to \pi^0\pi^- K_S^0,$ $D^{*+} \to \pi^+ D^0, K_S^0 \to \pi^+\pi^-, D^0 \to \pi^0\pi^+ K^-$ $(\Upsilon(4S) \dashrightarrow e^-\bar{\nu}_e \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-K^-)$	5926	142	1	1	2	103
44	$\Upsilon(4S) \to B^0\bar{B}^0, B^0 \to D^{*-}a_1^+, \bar{B}^0 \to \rho^0\pi^-D^{*+}, D^{*-} \to \pi^-\bar{D}^0, a_1^+ \to \pi^+\pi^+\pi^-,$ $\rho^0 \to \pi^+\pi^-, D^{*+} \to \pi^+ D^0, \bar{D}^0 \to \pi^0\pi^- K^+, D^0 \to \mu^+\nu_\mu K^-$ $(\Upsilon(4S) \dashrightarrow \mu^+\nu_\mu \pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^+K^-)$	5984	1787	2	0	2	105
45	$\Upsilon(4S) \to B^+B^-, B^+ \to \pi^0\pi^+\omega\bar{D}^0, B^- \to \pi^-D^0, \omega \to \pi^0\pi^+\pi^-, \bar{D}^0 \to \pi^0\pi^- K^+,$ $D^0 \to \pi^0\pi^+ K^-$ $(\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-)$	6183	231	1	1	2	107
46	$\Upsilon(4S) \to B^+B^-, B^+ \to \pi^+\eta\bar{D}^0, B^- \to \mu^-\bar{\nu}_\mu D^{*0}, \eta \to \pi^0\pi^0\pi^0, \bar{D}^0 \to \pi^0\pi^- K^+,$ $D^{*0} \to \pi^0 D^0, D^0 \to \pi^+ K^-$ $(\Upsilon(4S) \dashrightarrow \mu^-\bar{\nu}_\mu \pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-K^+K^-)$	6273	59	2	0	2	109
47	$\Upsilon(4S) \to B^+B^-, B^+ \to \rho^+\bar{D}^0, B^- \to \rho^-D^0, \rho^+ \to \pi^0\pi^+, \bar{D}^0 \to \pi^0\pi^- K^+,$ $\rho^- \to \pi^0\pi^-, D^0 \to \pi^+ K^-$ $(\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	6837	2945	1	1	2	111
48	$\Upsilon(4S) \to B^+B^-, B^+ \to \mu^+\nu_\mu\bar{D}^0, B^- \to \pi^-D_1^0, \bar{D}^0 \to e^-\bar{\nu}_e K^+, D_1^0 \to \pi^0\pi^0 D^0,$ $D^0 \to e^+\nu_e K^-$ $(\Upsilon(4S) \dashrightarrow e^+e^-\nu_e\bar{\nu}_e\mu^+\nu_\mu \pi^0\pi^0\pi^- K^+K^-)$	6923	80	1	1	2	113

rowNo	decay tree (decay initial-final states)	iDcyTr	iDcyIFSts	nEtr	nCcEtr	nAllEtr	nCEtr
49	$\Upsilon(4S) \to B^+ B^-, B^+ \to \pi^+ \bar{D}^0, B^- \to \rho^- D^0, \bar{D}^0 \to \pi^- K^+, \rho^- \to \pi^0 \pi^-,$ $D^0 \to \rho^+ K^{*-}, \rho^+ \to \pi^0 \pi^+, K^{*-} \to \pi^0 K^-$ $(\Upsilon(4S) \dashrightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^- K^+ K^-)$	6996	2945	1	1	2	115
50	$\Upsilon(4S) \to B^+ B^-, B^+ \to \pi^0 \rho^0 \rho^0 K^+, B^- \to e^- \bar{\nu}_e D^{*0}, \rho^0 \to \pi^+ \pi^-, \rho^0 \to \pi^+ \pi^-,$ $D^{*0} \to \pi^0 D^0, D^0 \to \pi^0 \pi^+ K^-$ $(\Upsilon(4S) \dashrightarrow e^- \bar{\nu}_e \pi^0 \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^- K^+ K^-)$	7054	188	1	1	2	117
51	$\Upsilon(4S) \to B^+ B^-, B^+ \to \pi^0 \pi^+ \pi^+ \pi^- \bar{D}^{*0}, B^- \to \rho^- D^0, \bar{D}^{*0} \to \pi^0 \bar{D}^0, \rho^- \to \pi^0 \pi^-,$ $D^0 \to \pi^0 \pi^+ K^-, \bar{D}^0 \to \pi^0 \pi^- K^+$ $(\Upsilon(4S) \dashrightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- K^+ K^-)$	7397	449	1	1	2	119
52	$\Upsilon(4S) \to B^+ B^-, B^+ \to \rho^+ \bar{D}^0, B^- \to e^- \bar{\nu}_e D^{*0}, \rho^+ \to \pi^0 \pi^+, \bar{D}^0 \to \pi^0 \pi^- K^+,$ $D^{*0} \to \pi^0 D^0, D^0 \to e^+ \nu_e K^-$ $(\Upsilon(4S) \dashrightarrow e^+ e^- \nu_e \bar{\nu}_e \pi^0 \pi^0 \pi^0 \pi^+ \pi^- K^+ K^-)$	7537	4	1	1	2	121
53	$\Upsilon(4S) \to B^+ B^-, B^+ \to \rho^+ \bar{D}^{*0}, B^- \to \pi^0 \pi^- \pi^- D^{*+}, \rho^+ \to \pi^0 \pi^+, \bar{D}^{*0} \to \pi^0 \bar{D}^0,$ $D^{*+} \to \pi^+ D^0, \bar{D}^0 \to \pi^0 \pi^- K^+, D^0 \to \rho^+ K^{*-}, \rho^+ \to \pi^0 \pi^+, K^{*-} \to \pi^0 K^-$ $(\Upsilon(4S) \dashrightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- K^+ K^-)$	7601	635	2	0	2	123
54	$\Upsilon(4S) \to B^+ B^-, B^+ \to e^+ \nu_e \bar{D}^{*0}, B^- \to \rho^- D^0, \bar{D}^{*0} \to \bar{D}^0 \gamma, \rho^- \to \pi^0 \pi^-,$ $D^0 \to \pi^0 \pi^+ K^{*-}, \bar{D}^0 \to \pi^0 \pi^- K^+, K^{*-} \to \pi^- \bar{K}^0, \bar{K}^0 \to K_L^0$ $(\Upsilon(4S) \dashrightarrow e^+ \nu_e \pi^0 \pi^0 \pi^0 K_L^0 \pi^+ \pi^- \pi^- \pi^- K^+ \gamma)$	7705	243	2	0	2	125
55	$\Upsilon(4S) \to B^+ B^-, B^+ \to \pi^+ \bar{D}^0, B^- \to \pi^0 \pi^+ \pi^- \pi^- D^{*0}, \bar{D}^0 \to \pi^+ \pi^- \pi^- K^+, D^{*0} \to \pi^0 D^0,$ $D^0 \to \rho^+ K^{*-}, \rho^+ \to \pi^0 \pi^+, K^{*-} \to \pi^0 K^-$ $(\Upsilon(4S) \dashrightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ K^-)$	7815	592	1	1	2	127
56	$\Upsilon(4S) \to B^+ B^-, B^+ \to \mu^+ \nu_\mu \bar{D}^{*0}, B^- \to \mu^- \bar{\nu}_\mu D^{*0}, \bar{D}^{*0} \to \pi^0 \bar{D}^0, D^{*0} \to \pi^0 D^0,$ $\bar{D}^0 \to \pi^0 \pi^- K^+, D^0 \to e^+ \nu_e K^-$ $(\Upsilon(4S) \dashrightarrow e^+ \nu_e \mu^+ \mu^- \nu_\mu \bar{\nu}_\mu \pi^0 \pi^0 \pi^0 \pi^- K^+ K^-)$	7820	4599	1	1	2	129
57	$\Upsilon(4S) \to B^+ B^-, B^+ \to \mu^+ \nu_\mu \bar{D}^{*0}, B^- \to e^- \bar{\nu}_e D^0, \bar{D}^{*0} \to \bar{D}^0 \gamma, D^0 \to e^+ \nu_e K^-,$ $\bar{D}^0 \to \pi^0 \pi^0 K_S^0, K_S^0 \to \pi^+ \pi^-$ $(\Upsilon(4S) \dashrightarrow e^+ e^- \nu_e \bar{\nu}_e \mu^+ \nu_\mu \pi^0 \pi^0 \pi^+ \pi^- K^- \gamma)$	7840	4738	2	0	2	131
58	$\Upsilon(4S) \to B^+ B^-, B^+ \to \pi^0 \pi^+ \pi^+ D^{*-}, B^- \to e^- \bar{\nu}_e D^{*0}, D^{*-} \to \pi^- \bar{D}^0, D^{*0} \to D^0 \gamma,$ $\bar{D}^0 \to \pi^- K^+, D^0 \to e^+ \nu_e K^-$ $(\Upsilon(4S) \dashrightarrow e^+ e^- \nu_e \bar{\nu}_e \pi^0 \pi^+ \pi^+ \pi^- \pi^- K^+ K^- \gamma)$	8047	141	1	1	2	133
59	$\Upsilon(4S) \to B^+ B^-, B^+ \to \pi^+ \bar{D}^0, B^- \to \mu^- \bar{\nu}_\mu D^{*0}, \bar{D}^0 \to \pi^0 \pi^- K^+, D^{*0} \to \pi^0 D^0,$ $D^0 \to \pi^0 \pi^+ K^-$ $(\Upsilon(4S) \dashrightarrow \mu^- \bar{\nu}_\mu \pi^0 \pi^0 \pi^0 \pi^+ \pi^+ \pi^- K^+ K^-)$	8073	627	2	0	2	135
60	$\Upsilon(4S) \to B^+ B^-, B^+ \to \pi^+ \bar{D}^{*0}, B^- \to D^{*0} a_1^-, \bar{D}^{*0} \to \bar{D}^0 \gamma, D^{*0} \to D^0 \gamma,$ $a_1^- \to \pi^0 \rho^-, \bar{D}^0 \to \pi^0 \pi^- K^+, D^0 \to K^- a_1^+, \rho^- \to \pi^0 \pi^-, a_1^+ \to \rho^0 \pi^+,$ $\rho^0 \to \pi^+ \pi^-$ $(\Upsilon(4S) \dashrightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- K^+ K^- \gamma \gamma)$	8663	2497	2	0	2	137

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rowNo	decay tree (decay initial-final states)	iDcyTr	iDcyIFSts	nEtr	nCcEtr	nAllEtr	nCEtr
61	$\Upsilon(4S) \to B^0\bar{B}^0, B^0 \to \pi^+D^-, \bar{B}^0 \to e^-\bar{\nu}_e D^{*+}, D^- \to \pi^0\pi^-K^*, D^{*+} \to \pi^+D^0,$ $K^* \to \pi^-K^+, D^0 \to \pi^0\pi^+K^-$ $(\Upsilon(4S) \dashrightarrow e^-\bar{\nu}_e\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	9026	122	2	0	2	139
62	$\Upsilon(4S) \to B^+B^-, B^+ \to \pi^+\pi^+D^{*-}, B^- \to \mu^-\bar{\nu}_\mu D^{*0}, D^{*-} \to \pi^-\bar{D}^0, D^{*0} \to \pi^0D^0,$ $\bar{D}^0 \to \pi^0\pi^-K^+, D^0 \to \pi^0\pi^+K^-$ $(\Upsilon(4S) \dashrightarrow \mu^-\bar{\nu}_\mu\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	9300	324	2	0	2	141
63	$\Upsilon(4S) \to B^+B^-, B^+ \to e^+\nu_e\bar{D}^{*0}, B^- \to \rho^-D^0, \bar{D}^{*0} \to \bar{D}^0\gamma, \rho^- \to \pi^0\pi^-,$ $D^0 \to \pi^0\pi^0\pi^+\pi^-K^0_S, \bar{D}^0 \to e^-\bar{\nu}_e K^+, K^0_S \to \pi^+\pi^-$ $(\Upsilon(4S) \dashrightarrow e^+e^-\nu_e\bar{\nu}_e\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+\gamma)$	9445	2847	1	1	2	143
64	$\Upsilon(4S) \to B^+B^-, B^+ \to \pi^0\pi^+\pi^+D^{*-}, B^- \to \pi^-D^{*0}, D^{*-} \to \pi^0D^-, D^{*0} \to \pi^0D^0,$ $D^- \to \pi^-\pi^-K^+, D^0 \to \pi^0\pi^+K^-$ $(\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-)$	9462	231	1	1	2	145
65	$\Upsilon(4S) \to B^+B^-, B^+ \to \rho^+\bar{D}^0, B^- \to \pi^+\pi^-\pi^-D^0, \rho^+ \to \pi^0\pi^+, \bar{D}^0 \to K^0_L\pi^+\pi^-,$ $D^0 \to e^+\nu_e K^-$ $(\Upsilon(4S) \dashrightarrow e^+\nu_e\pi^0K^0_L\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^-)$	9519	227	1	1	2	147
66	$\Upsilon(4S) \to B^+B^-, B^+ \to e^+\nu_e\bar{D}^0, B^- \to \mu^-\bar{\nu}_\mu D^0, \bar{D}^0 \to e^-\bar{\nu}_e K^+, D^0 \to \pi^+\pi^-\bar{K}^*,$ $\bar{K}^* \to \pi^+K^-$ $(\Upsilon(4S) \dashrightarrow e^+e^-\nu_e\bar{\nu}_e\mu^-\bar{\nu}_\mu\pi^+\pi^+\pi^-K^+K^-)$	9705	4912	2	0	2	149
67	$\Upsilon(4S) \to B^+B^-, B^+ \to \pi^0\pi^+\pi^+\pi^-\bar{D}^{*0}, B^- \to e^-\bar{\nu}_e D^{*0}, \bar{D}^{*0} \to \bar{D}^0\gamma, D^{*0} \to \pi^0D^0,$ $\bar{D}^0 \to \pi^0\pi^-K^+, D^0 \to e^+\nu_e K^-$ $(\Upsilon(4S) \dashrightarrow e^+e^-\nu_e\bar{\nu}_e\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma)$	10013	1186	2	0	2	151
68	$\Upsilon(4S) \to B^0\bar{B}^0, B^0 \to \pi^+D^-, \bar{B}^0 \to \mu^-\bar{\nu}_\mu D^{*+}, D^- \to \pi^0K^0_L\pi^-, D^{*+} \to \pi^+D^0,$ $D^0 \to \pi^+K^-$ $(\Upsilon(4S) \dashrightarrow \mu^-\bar{\nu}_\mu\pi^0K^0_L\pi^+\pi^+\pi^+\pi^-K^-)$	10448	5830	2	0	2	153
69	$\Upsilon(4S) \to B^+B^-, B^+ \to \mu^+\nu_\mu\bar{D}^0, B^- \to e^-\bar{\nu}_e D^{*0}, \bar{D}^0 \to \pi^0\pi^-K^+, D^{*0} \to \pi^0D^0,$ $D^0 \to \pi^0\pi^+K^-$ $(\Upsilon(4S) \dashrightarrow e^-\bar{\nu}_e\mu^+\nu_\mu\pi^0\pi^0\pi^0\pi^+\pi^-K^+K^-)$	12241	637	1	1	2	155
70	$\Upsilon(4S) \to B^0\bar{B}^0, B^0 \to e^+\nu_e D^{*-}, \bar{B}^0 \to \pi^0\pi^+\pi^-\pi^-D^{*+}, D^{*-} \to \pi^-\bar{D}^0, D^{*+} \to \pi^+D^0,$ $\bar{D}^0 \to \pi^-K^+, D^0 \to \pi^0\pi^+K^-$ $(\Upsilon(4S) \dashrightarrow e^+\nu_e\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^-)$	12723	269	1	1	2	157
71	$\Upsilon(4S) \to B^+B^-, B^+ \to e^+\nu_e\bar{D}^{*0}, B^- \to \pi^-D^0_1, \bar{D}^{*0} \to \pi^0\bar{D}^0, D^0_1 \to \pi^-D^{*+},$ $\bar{D}^0 \to e^-\bar{\nu}_e K^+, D^{*+} \to \pi^+D^0, D^0 \to K^0_L\pi^+\pi^-$ $(\Upsilon(4S) \dashrightarrow e^+e^-\nu_e\bar{\nu}_e\pi^0K^0_L\pi^+\pi^+\pi^-\pi^-\pi^-K^+)$	14108	1243	1	1	2	159
72	$\Upsilon(4S) \to B^+B^-, B^+ \to \pi^+\bar{D}^0, B^- \to \pi^0\pi^-\pi^-D^{*+}, \bar{D}^0 \to e^-\bar{\nu}_e K^+, D^{*+} \to \pi^+D^0,$ $D^0 \to \pi^0\pi^+K^-$ $(\Upsilon(4S) \dashrightarrow e^-\bar{\nu}_e\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^+K^-)$	14332	122	2	0	2	161

rowNo	decay tree (decay initial-final states)	iDcyTr	iDcyIFSts	nEtr	nCcEtr	nAllEtr	nCEtr
73	$\Upsilon(4S) \to B^+B^-, B^+ \to \rho^+\bar{D}_1'^0, B^- \to \rho^-D^0, \rho^+ \to \pi^0\pi^+, \bar{D}_1'^0 \to \pi^0\bar{D}^{*0},$ $\rho^- \to \pi^0\pi^-, D^0 \to e^+\nu_e K^-, \bar{D}^{*0} \to \pi^0\bar{D}^0, \bar{D}^0 \to K^+a_1^-, a_1^- \to \rho^0\pi^-,$ $\rho^0 \to \pi^+\pi^-$ $(\Upsilon(4S) \dashrightarrow e^+\nu_e\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-)$	14573	703	2	0	2	163
74	$\Upsilon(4S) \to B^+B^-, B^+ \to e^+\nu_e\bar{D}^0, B^- \to \mu^-\bar{\nu}_\mu D^0, \bar{D}^0 \to \pi^-K^+, D^0 \to \pi^0\pi^+K^-$ $(\Upsilon(4S) \dashrightarrow e^+\nu_e\mu^-\bar{\nu}_\mu\pi^0\pi^+\pi^-K^+K^-)$	14738	158	2	0	2	165
75	$\Upsilon(4S) \to B^+B^-, B^+ \to e^+\nu_e\bar{D}^0, B^- \to \pi^-D^{*0}, \bar{D}^0 \to K^+a_1^-, D^{*0} \to D^0\gamma,$ $a_1^- \to \rho^0\pi^-, D^0 \to \pi^+\pi^-K_S^0, \rho^0 \to \pi^+\pi^-, K_S^0 \to \pi^+\pi^-$ $(\Upsilon(4S) \dashrightarrow e^+\nu_e\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+\gamma)$	14874	7621	1	1	2	167
76	$\Upsilon(4S) \to B^+B^-, B^+ \to e^+\nu_e\bar{D}^{*0}, B^- \to \pi^-D^0, \bar{D}^{*0} \to \pi^0\bar{D}^0, D^0 \to \rho^+K^{*-},$ $\bar{D}^0 \to \pi^0\pi^-K^+, \rho^+ \to \pi^0\pi^+, K^{*-} \to \pi^-\bar{K}^0, \bar{K}^0 \to K_S^0, K_S^0 \to \pi^+\pi^-$ $(\Upsilon(4S) \dashrightarrow e^+\nu_e\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+)$	15241	142	1	1	2	169
77	$\Upsilon(4S) \to B^+B^-, B^+ \to \pi^+\bar{D}^0, B^- \to \mu^-\bar{\nu}_\mu D^0, \bar{D}^0 \to \pi^0\pi^-K^+, D^0 \to e^+\nu_e K^-$ $(\Upsilon(4S) \dashrightarrow e^+\nu_e\mu^-\bar{\nu}_\mu\pi^0\pi^+\pi^-K^+K^-)$	15285	158	1	1	2	171
78	$\Upsilon(4S) \to B^+B^-, B^+ \to \mu^+\nu_\mu\bar{D}^0, B^- \to \pi^-\omega D^{*0}, \bar{D}^0 \to \pi^0\pi^-K^+, \omega \to \pi^0\pi^+\pi^-,$ $D^{*0} \to D^0\gamma, D^0 \to \pi^0\pi^+K^-$ $(\Upsilon(4S) \dashrightarrow \mu^+\nu_\mu\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma)$	15501	951	1	1	2	173
79	$\Upsilon(4S) \to B^+B^-, B^+ \to \pi^+\bar{D}^0, B^- \to \pi^0\pi^-\pi^-D^{*+}, \bar{D}^0 \to K_S^0\eta', D^{*+} \to \pi^+D^0,$ $K_S^0 \to \pi^+\pi^-, \eta' \to \rho^0\gamma, D^0 \to K^-a_1^+, \rho^0 \to \pi^+\pi^-, a_1^+ \to \pi^0\rho^+,$ $\rho^+ \to \pi^0\pi^+$ $(\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^-\gamma)$	15593	1419	2	0	2	175
80	$\Upsilon(4S) \to B^+B^-, B^+ \to \mu^+\nu_\mu\bar{D}^0, B^- \to \rho^-D^{*0}, \bar{D}^0 \to e^-\bar{\nu}_e K^+, \rho^- \to \pi^0\pi^-,$ $D^{*0} \to \pi^0D^0, D^0 \to \pi^0\pi^+K^-$ $(\Upsilon(4S) \dashrightarrow e^-\bar{\nu}_e\mu^+\nu_\mu\pi^0\pi^0\pi^0\pi^+\pi^-K^+K^-)$	15942	637	1	1	2	177
81	$\Upsilon(4S) \to B^0\bar{B}^0, B^0 \to \rho^+D^-, \bar{B}^0 \to \rho^-D^+, \rho^+ \to \pi^0\pi^+, D^- \to e^-\bar{\nu}_e K^*,$ $\rho^- \to \pi^0\pi^-, D^+ \to \pi^0K_L^0\pi^+, K^* \to \pi^-K^+$ $(\Upsilon(4S) \dashrightarrow e^-\bar{\nu}_e\pi^0\pi^0\pi^0K_L^0\pi^+\pi^+\pi^-\pi^-K^+)$	16554	1039	1	1	2	179
82	$\Upsilon(4S) \to B^0\bar{B}^0, B^0 \to \mu^+\nu_\mu D_1'^-, \bar{B}^0 \to \pi^-D^{*+}, D_1'^- \to \pi^-\bar{D}^{*0}, D^{*+} \to \pi^+D^0,$ $\bar{D}^{*0} \to \pi^0\bar{D}^0, D^0 \to e^+\nu_e K^{*-}, \bar{D}^0 \to \pi^0\pi^-K^+, K^{*-} \to \pi^-\bar{K}^0, \bar{K}^0 \to K_L^0$ $(\Upsilon(4S) \dashrightarrow e^+\nu_e\mu^+\nu_\mu\pi^0\pi^0K_L^0\pi^+\pi^-\pi^-\pi^-\pi^-K^+)$	17252	2001	1	1	2	181
83	$\Upsilon(4S) \to B^+B^-, B^+ \to \pi^+\pi^+\rho^-\bar{D}^{*0}, B^- \to \pi^-D^0, \rho^- \to \pi^0\pi^-, \bar{D}^{*0} \to \bar{D}^0\gamma,$ $D^0 \to \pi^0\pi^+K^-, \bar{D}^0 \to e^-\bar{\nu}_e K^+$ $(\Upsilon(4S) \dashrightarrow e^-\bar{\nu}_e\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma)$	20367	591	1	1	2	183
84	$\Upsilon(4S) \to B^+B^-, B^+ \to e^+\nu_e\bar{D}^0, B^- \to \rho^-D^0, \bar{D}^0 \to \pi^0\pi^0K^*, \rho^- \to \pi^0\pi^-,$ $D^0 \to \pi^+K^-, K^* \to \pi^-K^+$ $(\Upsilon(4S) \dashrightarrow e^+\nu_e\pi^0\pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-)$	21023	260	1	1	2	185

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rowNo	decay tree (decay initial-final states)	iDcyTr	iDcyIFSts	nEtr	nCcEtr	nAllEtr	nCEtr
85	$\Upsilon(4S) \to B^+B^-, B^+ \to \pi^+\bar{D}^0, B^- \to \mu^-\bar{\nu}_\mu D^{*0}, \bar{D}^0 \to \pi^0\pi^-K^+, D^{*0} \to D^0\gamma,$ $D^0 \to \rho^+K^{*-}, \rho^+ \to \pi^0\pi^+, K^{*-} \to \pi^0K^-$ $(\Upsilon(4S) \dashrightarrow \mu^-\bar{\nu}_\mu\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-K^+K^-\gamma)$	21471	939	2	0	2	187
86	$\Upsilon(4S) \to B^+B^-, B^+ \to \pi^+\bar{D}^0, B^- \to D^{*0}a_1^-, \bar{D}^0 \to \pi^0\pi^-K^+, D^{*0} \to \pi^0 D^0,$ $a_1^- \to \rho^0\pi^-, D^0 \to \mu^+\nu_\mu K^-, \rho^0 \to \pi^+\pi^-$ $(\Upsilon(4S) \dashrightarrow \mu^+\nu_\mu\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-)$	21718	701	1	1	2	189
87	$\Upsilon(4S) \to B^+B^-, B^+ \to \pi^+\bar{D}^0, B^- \to \pi^+\pi^-\rho^-D^0, \bar{D}^0 \to K^+a_1^-, \rho^- \to \pi^0\pi^-,$ $D^0 \to \pi^0\pi^+K^-, a_1^- \to \pi^0\rho^-, \rho^- \to \pi^0\pi^-$ $(\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-)$	22121	231	1	1	2	191
88	$\Upsilon(4S) \to B^+B^-, B^+ \to e^+\nu_e\bar{D}^0, B^- \to \pi^-D^0, \bar{D}^0 \to \pi^0\pi^-K^+, D^0 \to \pi^0\pi^0\pi^+K^-$ $(\Upsilon(4S) \dashrightarrow e^+\nu_e\pi^0\pi^0\pi^0\pi^+\pi^-\pi^-K^+K^-)$	22268	260	1	1	2	193
89	$\Upsilon(4S) \to B^+B^-, B^+ \to \rho^+\bar{D}^0, B^- \to \pi^-D^0, \rho^+ \to \pi^0\pi^+, \bar{D}^0 \to e^-\bar{\nu}_e K^+,$ $D^0 \to \pi^0\pi^0\pi^+K^-$ $(\Upsilon(4S) \dashrightarrow e^-\bar{\nu}_e\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-K^+K^-)$	22812	260	2	0	2	195
90	$\Upsilon(4S) \to B^+B^-, B^+ \to \pi^0\pi^+\pi^+\pi^-\bar{D}^{*0}, B^- \to \rho^-D^0, \bar{D}^{*0} \to \pi^0\bar{D}^0, \rho^- \to \pi^0\pi^-,$ $D^0 \to e^+\nu_e K^-, \bar{D}^0 \to \mu^-\bar{\nu}_\mu K^+$ $(\Upsilon(4S) \dashrightarrow e^+\nu_e\mu^-\bar{\nu}_\mu\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-K^+K^-)$	23071	1046	2	0	2	197
91	$\Upsilon(4S) \to B^+B^-, B^+ \to e^+\nu_e\bar{D}^0, B^- \to \pi^-D^{*0}, \bar{D}^0 \to e^-\bar{\nu}_e K^{*+}, D^{*0} \to \pi^0 D^0,$ $K^{*+} \to \pi^0 K^+, D^0 \to e^+\nu_e K^-$ $(\Upsilon(4S) \dashrightarrow e^+e^+e^-\nu_e\nu_e\bar{\nu}_e\pi^0\pi^0\pi^-K^+K^-)$	23110	7722	1	1	2	199
92	$\Upsilon(4S) \to B^+B^-, B^+ \to e^+\nu_e\bar{D}^{*0}, B^- \to \rho^-D^0, \bar{D}^{*0} \to \bar{D}^0\gamma, \rho^- \to \pi^0\pi^-,$ $D^0 \to \pi^+\omega K^-, \bar{D}^0 \to e^-\bar{\nu}_e K^+, \omega \to \pi^0\pi^+\pi^-$ $(\Upsilon(4S) \dashrightarrow e^+e^-\nu_e\bar{\nu}_e\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma)$	23812	1627	2	0	2	201
93	$\Upsilon(4S) \to B^+B^-, B^+ \to \pi^+\bar{D}_1'^0, B^- \to \mu^-\bar{\nu}_\mu D^{*0}, \bar{D}_1'^0 \to \pi^+D^{*-}, D^{*0} \to \pi^0 D^0,$ $D^{*-} \to \pi^-\bar{D}^0, D^0 \to \pi^0\pi^+K^-, \bar{D}^0 \to \pi^0\pi^-K^+$ $(\Upsilon(4S) \dashrightarrow \mu^-\bar{\nu}_\mu\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^+K^-)$	24147	324	1	1	2	203
94	$\Upsilon(4S) \to B^+B^-, B^+ \to \pi^+\bar{D}^0, B^- \to e^-\bar{\nu}_e D^0, \bar{D}^0 \to \pi^0\pi^-K^+, D^0 \to \pi^0\pi^+K^-$ $(\Upsilon(4S) \dashrightarrow e^-\bar{\nu}_e\pi^0\pi^0\pi^+\pi^+\pi^-K^+K^-)$	24161	795	2	0	2	205
95	$\Upsilon(4S) \to B^+B^-, B^+ \to \rho^+\bar{D}^0, B^- \to \mu^-\bar{\nu}_\mu D^{*0}, \rho^+ \to \pi^0\pi^+, \bar{D}^0 \to \pi^+\pi^-,$ $D^{*0} \to \pi^0 D^0, D^0 \to \pi^0\pi^+K^-$ $(\Upsilon(4S) \dashrightarrow \mu^-\bar{\nu}_\mu\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-K^-)$	24290	3333	2	0	2	207
96	$\Upsilon(4S) \to B^+B^-, B^+ \to \pi^+\bar{D}^{*0}, B^- \to \rho^-D^0, \bar{D}^{*0} \to \pi^0\bar{D}^0, \rho^- \to \pi^0\pi^-,$ $D^0 \to \pi^0\pi^+K^-, \bar{D}^0 \to \pi^0\pi^-K^+$ $(\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-)$	24337	505	1	1	2	209
97	$\Upsilon(4S) \to B^+B^-, B^+ \to \pi^0\pi^+\pi^+\pi^-\bar{D}^{*0}, B^- \to \rho^-D^0, \bar{D}^{*0} \to \pi^0\bar{D}^0, \rho^- \to \pi^0\pi^-,$ $D^0 \to \pi^0\pi^+K^-, \bar{D}^0 \to e^-\bar{\nu}_e K^+$ $(\Upsilon(4S) \dashrightarrow e^-\bar{\nu}_e\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^+K^-)$	24667	703	1	1	2	211

rowNo	decay tree (decay initial-final states)	iDcyTr	iDcyIFSts	nEtr	nCcEtr	nAllEtr	nCEtr
98	$\Upsilon(4S) \to B^+B^-, B^+ \to \mu^+\nu_\mu \bar{D}^{*0}, B^- \to e^-\bar{\nu}_e D^0, \bar{D}^{*0} \to \pi^0\bar{D}^0, D^0 \to \pi^0\pi^+K^-,$ $\bar{D}^0 \to \pi^0\pi^-K^+$ $(\Upsilon(4S) \dashrightarrow e^-\bar{\nu}_e\mu^+\nu_\mu\pi^0\pi^0\pi^0\pi^+\pi^-K^+K^-)$	24743	637	1	1	2	213
99	$\Upsilon(4S) \to B^+B^-, B^+ \to \rho^+\bar{D}^{*0}, B^- \to e^-\bar{\nu}_e D^{*0}, \rho^+ \to \pi^0\pi^+, \bar{D}^{*0} \to \pi^0\bar{D}^0,$ $D^{*0} \to D^0\gamma, \bar{D}^0 \to \pi^-K^+, D^0 \to \pi^0\pi^+K^-$ $(\Upsilon(4S) \dashrightarrow e^-\bar{\nu}_e\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-K^+K^-\gamma)$	24876	36	1	1	2	215
100	$\Upsilon(4S) \to B^+B^-, B^+ \to \mu^+\nu_\mu \bar{D}^{*0}, B^- \to \pi^- D^0, \bar{D}^{*0} \to \pi^0\bar{D}^0, D^0 \to \pi^0\pi^+K^-,$ $\bar{D}^0 \to e^-\bar{\nu}_e K^{*+}, K^{*+} \to \pi^0K^+$ $(\Upsilon(4S) \dashrightarrow e^-\bar{\nu}_e\mu^+\nu_\mu\pi^0\pi^0\pi^0\pi^+\pi^-K^+K^-)$	26261	637	1	1	2	217
rest	$\Upsilon(4S) \to$ others (30731 in total) $(\Upsilon(4S) \dashrightarrow$ corresponding to others)	—	—	—	—	30734	30951

Table 2: Decay initial-final states.

rowNo	decay initial-final states	iDcyIFSts	nEtr	nCcEtr	nAllEtr	nCEtr
1	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^-$	592	112	—	112	112
2	$\Upsilon(4S) \dashrightarrow e^-\bar{\nu}_e\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^+K^-$	188	45	36	81	193
3	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^-$	53	79	—	79	272
4	$\Upsilon(4S) \dashrightarrow e^+\nu_e\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	122	34	41	75	347
5	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	231	74	—	74	421
6	$\Upsilon(4S) \dashrightarrow e^+\nu_e\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^-$	448	24	50	74	495
7	$\Upsilon(4S) \dashrightarrow e^+\nu_e\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	703	42	31	73	568
8	$\Upsilon(4S) \dashrightarrow \mu^+\nu_\mu\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	324	36	35	71	639
9	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^-$	176	69	—	69	708
10	$\Upsilon(4S) \dashrightarrow \mu^+\nu_\mu\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	1338	31	38	69	777
11	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^-$	99	68	—	68	845
12	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^+K^-$	140	68	—	68	913
13	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+$	318	29	37	66	979
14	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^-$	404	37	29	66	1045
15	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^-$	308	36	28	64	1109
16	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	449	64	—	64	1173
17	$\Upsilon(4S) \dashrightarrow e^-\bar{\nu}_e\pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^+K^-$	471	29	32	61	1234
18	$\Upsilon(4S) \dashrightarrow e^-\bar{\nu}_e\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	269	29	29	58	1292
19	$\Upsilon(4S) \dashrightarrow e^+\nu_e\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^-$	559	29	28	57	1349
20	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	635	56	—	56	1405
21	$\Upsilon(4S) \dashrightarrow e^+\nu_e\pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^-$	294	25	30	55	1460
22	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^+$	152	21	32	53	1513
23	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^+K^-$	1259	52	—	52	1565
24	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-K^+$	1388	25	27	52	1617
25	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0 K_L^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+$	50	22	29	51	1668
26	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^+K^-$	668	51	—	51	1719
27	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^-$	69	50	—	50	1769
28	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^+K^+K^-$	170	21	28	49	1818
29	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^-$	967	31	18	49	1867
30	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^0 K_L^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+$	85	28	19	47	1914
31	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-K^+$	145	25	22	47	1961
32	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0 K_L^0\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^-$	169	28	19	47	2008
33	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^+K^-$	708	24	23	47	2055

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rowNo	decay initial-final states	iDcyIFSts	nEtr	nCcEtr	nAllEtr	nCEtr
34	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^-$	10	23	23	46	2101
35	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^+K^-$	9	46	—	46	2147
36	$\Upsilon(4S) \dashrightarrow \mu^-\bar\nu_\mu\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	128	30	16	46	2193
37	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^-$	889	26	20	46	2239
38	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^0K_L^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^-$	150	23	20	43	2282
39	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	2737	43	—	43	2325
40	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	38	42	—	42	2367
41	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^0K_L^0\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^-$	45	22	18	40	2407
42	$\Upsilon(4S) \dashrightarrow \mu^-\bar\nu_\mu\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	301	21	19	40	2447
43	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0K_L^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^+$	699	19	21	40	2487
44	$\Upsilon(4S) \dashrightarrow e^-\bar\nu_e\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	183	19	20	39	2526
45	$\Upsilon(4S) \dashrightarrow \mu^+\nu_\mu\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^-$	101	16	22	38	2564
46	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^+K^-$	1045	14	24	38	2602
47	$\Upsilon(4S) \dashrightarrow \mu^+\nu_\mu\pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	137	22	15	37	2639
48	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^-\gamma$	541	37	—	37	2676
49	$\Upsilon(4S) \dashrightarrow e^-\bar\nu_e\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-K^-$	888	18	19	37	2713
50	$\Upsilon(4S) \dashrightarrow e^-\bar\nu_e\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^-$	859	20	16	36	2749
51	$\Upsilon(4S) \dashrightarrow e^-\bar\nu_e\mu^+\nu_\mu\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-$	1046	11	25	36	2785
52	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0K_L^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-K^-$	482	19	16	35	2820
53	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^-$	555	35	—	35	2855
54	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma$	917	35	—	35	2890
55	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^-\gamma$	2806	35	—	35	2925
56	$\Upsilon(4S) \dashrightarrow \mu^+\nu_\mu\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	701	17	17	34	2959
57	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0K_L^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+$	1023	19	15	34	2993
58	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^+K^-$	18	33	—	33	3026
59	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^-$	248	19	14	33	3059
60	$\Upsilon(4S) \dashrightarrow e^+\nu_e\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^-$	387	15	18	33	3092
61	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^-$	455	22	11	33	3125
62	$\Upsilon(4S) \dashrightarrow e^-\bar\nu_e\mu^+\nu_\mu\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-$	1800	16	17	33	3158
63	$\Upsilon(4S) \dashrightarrow e^+\nu_e\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+$	142	12	20	32	3190
64	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^+K^-$	249	15	17	32	3222
65	$\Upsilon(4S) \dashrightarrow e^-\bar\nu_e\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-K^+K^-$	260	22	10	32	3254
66	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^-$	496	20	12	32	3286
67	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^+K^+K^-$	1400	16	16	32	3318
68	$\Upsilon(4S) \dashrightarrow e^-\bar\nu_e\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma$	2543	24	8	32	3350

rowNo	decay initial-final states	iDcyIFSts	nEtr	nCcEtr	nAllEtr	nCEtr
69	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^-\gamma$	454	31	—	31	3381
70	$\Upsilon(4S) \dashrightarrow e^+\nu_e\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma$	591	16	15	31	3412
71	$\Upsilon(4S) \dashrightarrow e^+e^-\nu_e\bar{\nu}_e\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-$	641	31	—	31	3443
72	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^-K^-$	1727	16	15	31	3474
73	$\Upsilon(4S) \dashrightarrow e^+e^-\nu_e\bar{\nu}_e\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-$	320	30	—	30	3504
74	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^+K^-\gamma$	547	30	—	30	3534
75	$\Upsilon(4S) \dashrightarrow e^-\bar{\nu}_e\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma$	30	11	18	29	3563
76	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma$	77	29	—	29	3592
77	$\Upsilon(4S) \dashrightarrow e^+\nu_e\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^+$	175	14	15	29	3621
78	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+$	395	14	15	29	3650
79	$\Upsilon(4S) \dashrightarrow e^-\bar{\nu}_e\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-K^+K^-$	423	18	11	29	3679
80	$\Upsilon(4S) \dashrightarrow e^-\bar{\nu}_e\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma$	531	14	15	29	3708
81	$\Upsilon(4S) \dashrightarrow e^+\nu_e\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^-\gamma$	684	13	16	29	3737
82	$\Upsilon(4S) \dashrightarrow \mu^-\bar{\nu}_\mu\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	945	12	17	29	3766
83	$\Upsilon(4S) \dashrightarrow e^+\nu_e\pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-$	1337	16	13	29	3795
84	$\Upsilon(4S) \dashrightarrow e^+\nu_e\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^+K^-$	2034	12	17	29	3824
85	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-K^-$	457	17	11	28	3852
86	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-K^+$	578	15	13	28	3880
87	$\Upsilon(4S) \dashrightarrow \mu^-\bar{\nu}_\mu\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-K^-$	90	12	15	27	3907
88	$\Upsilon(4S) \dashrightarrow e^+e^-\nu_e\bar{\nu}_e\pi^0\pi^+\pi^+\pi^-\pi^-K^+K^-$	184	27	—	27	3934
89	$\Upsilon(4S) \dashrightarrow e^+\nu_e\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^-$	2698	18	9	27	3961
90	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^+\gamma$	2709	9	18	27	3988
91	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^-\gamma$	87	26	—	26	4014
92	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma$	687	26	—	26	4040
93	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^+\gamma$	721	13	13	26	4066
94	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-K^-\gamma$	1541	17	9	26	4092
95	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-K^+K^-$	1639	26	—	26	4118
96	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-K^+K^-$	2045	26	—	26	4144
97	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^0 K_L^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^-$	2197	12	14	26	4170
98	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-K^-\gamma$	2671	13	13	26	4196
99	$\Upsilon(4S) \dashrightarrow e^-\bar{\nu}_e\pi^0\pi^0 K_L^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^-$	3914	12	14	26	4222
100	$\Upsilon(4S) \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^0 K_L^0\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^-$	1421	17	8	25	4247
rest	$\Upsilon(4S) \dashrightarrow$ others (12336 in total)	—	—	—	26704	30951

Table 3: Decay branches of D_s^+.

rowNo	decay branch of D_s^+	iDcyBrP	nCase	nCcCase	nAllCase	nCCase
1	$D_s^+ \to \rho^+\eta$	11	277	279	556	556
2	$D_s^+ \to \pi^+K^+K^-$	9	265	281	546	1102
3	$D_s^+ \to \rho^+\phi$	6	210	224	434	1536
4	$D_s^+ \to \bar{K}^*K^{*+}$	21	190	213	403	1939
5	$D_s^+ \to \rho^+\eta'$	4	164	173	337	2276
6	$D_s^+ \to \bar{K}^0K^{*+}$	5	154	162	316	2592
7	$D_s^+ \to \pi^+\eta'$	14	134	170	304	2896
8	$D_s^+ \to \tau^+\nu_\tau$	8	133	140	273	3169
9	$D_s^+ \to \pi^0\pi^+\pi^+\pi^+\pi^-\pi^-$	23	112	131	243	3412
10	$D_s^+ \to K_L^0K^+$	7	105	125	230	3642
11	$D_s^+ \to K_S^0K^+$	3	111	118	229	3871
12	$D_s^+ \to \pi^+\eta$	22	94	91	185	4056
13	$D_s^+ \to e^+\nu_e\phi$	36	84	78	162	4218
14	$D_s^+ \to \pi^0\pi^+\omega$	16	74	81	155	4373
15	$D_s^+ \to \pi^+\phi$	44	60	78	138	4511
16	$D_s^+ \to e^+\nu_e\eta$	17	63	73	136	4647
17	$D_s^+ \to K^*K^+$	19	62	58	120	4767
18	$D_s^+ \to \pi^+\eta\omega$	2	59	55	114	4881
19	$D_s^+ \to \mu^+\nu_\mu\eta$	26	39	58	97	4978
20	$D_s^+ \to \pi^+\pi^+\pi^-$	30	51	42	93	5071
21	$D_s^+ \to \pi^+\pi^+\pi^-\omega$	1	41	50	91	5162
22	$D_s^+ \to \mu^+\nu_\mu\phi$	18	43	47	90	5252
23	$D_s^+ \to \pi^+\pi^-K^+$	15	30	44	74	5326
24	$D_s^+ \to \pi^+\pi^-K_S^0K^+$	42	26	41	67	5393
25	$D_s^+ \to \pi^0\pi^0\pi^+\omega$	39	27	29	56	5449
26	$D_s^+ \to \pi^+\pi^+\pi^+\pi^-\pi^-\eta$	20	21	34	55	5504
27	$D_s^+ \to \pi^+\pi^+\pi^-\eta$	13	24	30	54	5558
28	$D_s^+ \to \pi^+\pi^+\pi^-\phi$	53	20	33	53	5611
29	$D_s^+ \to \pi^0\pi^+\pi^+\pi^-\eta$	27	23	28	51	5662
30	$D_s^+ \to K_L^0\pi^+\pi^-K^+$	12	17	32	49	5711
31	$D_s^+ \to \pi^+\pi^+\pi^+\pi^-\pi^-$	35	28	18	46	5757
32	$D_s^+ \to \mu^+\nu_\mu\eta'$	28	26	20	46	5803
33	$D_s^+ \to \pi^0\pi^+\phi$	10	18	21	39	5842

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rowNo	decay branch of D_s^+	iDcyBrP	nCase	nCcCase	nAllCase	nCCase
34	$D_s^+ \to e^+ \nu_e \eta'$	38	21	18	39	5881
35	$D_s^+ \to \eta K^+$	29	19	17	36	5917
36	$D_s^+ \to \pi^0 K_L^0 \pi^+$	58	12	22	34	5951
37	$D_s^+ \to \pi^0 \pi^0 \pi^+$	45	16	17	33	5984
38	$D_s^+ \to \pi^0 \pi^+ K_S^0$	37	18	12	30	6014
39	$D_s^+ \to \pi^0 \bar{K}^0 K^+$	25	15	14	29	6043
40	$D_s^+ \to \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \eta$	0	9	20	29	6072
41	$D_s^+ \to \rho^+ K^*$	33	13	15	28	6100
42	$D_s^+ \to \pi^0 \pi^0 \pi^0 \pi^+ \eta$	47	14	14	28	6128
43	$D_s^+ \to \pi^0 \pi^+ K^*$	48	10	17	27	6155
44	$D_s^+ \to \pi^0 \pi^0 \pi^+ \eta$	61	15	10	25	6180
45	$D_s^+ \to \pi^+ \omega$	49	9	12	21	6201
46	$D_s^+ \to K^+ \eta'$	60	8	13	21	6222
47	$D_s^+ \to \mu^+ \nu_\mu$	32	13	8	21	6243
48	$D_s^+ \to e^+ \nu_e K^0$	34	8	10	18	6261
49	$D_s^+ \to \pi^+ \pi^+ \pi^- K_S^0$	51	5	13	18	6279
50	$D_s^+ \to \pi^0 \pi^0 \pi^+ \phi$	59	5	12	17	6296
51	$D_s^+ \to \pi^0 \bar{K}^* K^{*+}$	64	6	9	15	6311
52	$D_s^+ \to \pi^+ K_S^0$	52	8	6	14	6325
53	$D_s^+ \to e^+ \nu_e K^*$	46	3	9	12	6337
54	$D_s^+ \to e^+ \nu_e \omega$	31	6	5	11	6348
55	$D_s^+ \to K_L^0 \pi^+ \pi^+ \pi^-$	40	6	4	10	6358
56	$D_s^+ \to \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \eta$	72	7	3	10	6368
57	$D_s^+ \to \pi^0 K^+$	43	7	2	9	6377
58	$D_s^+ \to \mu^+ \nu_\mu K^*$	55	3	5	8	6385
59	$D_s^+ \to K_L^0 K_L^0 \pi^+ \pi^+ \pi^-$	63	3	5	8	6393
60	$D_s^+ \to \pi^+ K^*$	67	4	3	7	6400
61	$D_s^+ \to K_L^0 \pi^+$	50	3	4	7	6407
62	$D_s^+ \to \mu^+ \nu_\mu K^0$	65	2	4	6	6413
63	$D_s^+ \to \mu^+ \nu_\mu \omega$	41	3	3	6	6419
64	$D_s^+ \to \pi^0 \pi^0 \bar{K}^0 K^+$	24	1	5	6	6425
65	$D_s^+ \to \pi^0 \pi^+$	69	3	2	5	6430
66	$D_s^+ \to \pi^+ \pi^+ \pi^- K_S^0 K_S^0$	66	4	1	5	6435
67	$D_s^+ \to K_S^0 a_1^+$	57	4	0	4	6439
68	$D_s^+ \to K^+ K^+ K^-$	62	2	2	4	6443

rowNo	decay branch of D_s^+	iDcyBrP	nCase	nCcCase	nAllCase	nCCase
69	$D_s^+ \to \bar{n}p$	56	4	0	4	6447
70	$D_s^+ \to \pi^0 \bar{K}^0 K^{*+}$	73	2	2	4	6451
71	$D_s^+ \to K^+ \phi$	68	2	0	2	6453
72	$D_s^+ \to \pi^+ \pi^- \eta K^+$	71	1	1	2	6455
73	$D_s^+ \to K_L^0 a_1^+$	74	1	1	2	6457
74	$D_s^+ \to \pi^+ f_2(1270)$	75	0	2	2	6459
75	$D_s^+ \to \pi^0 \eta K^+$	76	1	1	2	6461
76	$D_s^+ \to \pi^- K^+ K^+$	77	0	2	2	6463
77	$D_s^+ \to \pi^+ \pi^- K^+ \eta'$	70	0	1	1	6464
78	$D_s^+ \to \pi^0 K^+ \eta'$	54	1	0	1	6465
79	$D_s^+ \to \pi^0 \bar{K}^* K^+$	78	1	0	1	6466

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

rowNo	decay branch of D^{*+}	iDcyBrP	nCase	nCcCase	nAllCase	nCCase
1	$D^{*+} \to \pi^+ D^0$	0	4900	4421	9321	9321
2	$D^{*+} \to \pi^0 D^+$	1	1552	1662	3214	12535
3	$D^{*+} \to D^+ \gamma$	2	92	81	173	12708

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

rowNo	decay branch of D^{*0}	iDcyBrP	nCase	nCcCase	nAllCase	nCCase
1	$D^{*0} \to \pi^0 D^0$	0	6621	6572	13193	13193
2	$D^{*0} \to D^0 \gamma$	1	3492	3517	7009	20202

Table 6: Decay branches of D^0.

rowNo	decay branch of D^0	iDcyBrP	nCase	nCcCase	nAllCase	nCCase
1	$D^0 \to \pi^0\pi^+K^-$	1	4795	4441	9236	9236
2	$D^0 \to e^+\nu_e K^-$	7	2354	2163	4517	13753
3	$D^0 \to \pi^+K^-$	3	2028	1887	3915	17668
4	$D^0 \to K^-a_1^+$	0	1842	1747	3589	21257
5	$D^0 \to \rho^+K^{*-}$	11	1154	1158	2312	23569
6	$D^0 \to \mu^+\nu_\mu K^-$	14	1049	979	2028	25597
7	$D^0 \to e^+\nu_e K^{*-}$	4	654	627	1281	26878
8	$D^0 \to \pi^0\pi^0\pi^+K^-$	19	635	612	1247	28125
9	$D^0 \to \pi^+\pi^-\bar{K}^*$	2	495	477	972	29097
10	$D^0 \to \pi^+\omega K^-$	12	437	461	898	29995
11	$D^0 \to \pi^+\pi^-K_S^0$	15	429	468	897	30892
12	$D^0 \to K_L^0\pi^+\pi^-$	31	420	456	876	31768
13	$D^0 \to \pi^0\pi^+\pi^-\bar{K}^*$	9	400	368	768	32536
14	$D^0 \to \pi^0\pi^+\pi^-$	39	328	361	689	33225
15	$D^0 \to \mu^+\nu_\mu K^{*-}$	20	347	339	686	33911
16	$D^0 \to \rho^0\bar{K}^*$	13	284	305	589	34500
17	$D^0 \to \pi^+K_1^-$	8	284	292	576	35076
18	$D^0 \to \pi^+\eta K^-$	28	269	231	500	35576
19	$D^0 \to \pi^0\pi^0\bar{K}^*$	5	251	236	487	36063
20	$D^0 \to \omega\bar{K}^*$	60	233	220	453	36516
21	$D^0 \to \pi^+\pi^+\pi^-K^-$	29	195	215	410	36926
22	$D^0 \to K^+K^-$	73	188	181	369	37295
23	$D^0 \to \pi^0\pi^0\pi^+\pi^-$	27	164	186	350	37645
24	$D^0 \to K_S^0\eta'$	50	161	176	337	37982
25	$D^0 \to \omega K_S^0$	61	154	182	336	38318
26	$D^0 \to \pi^0\eta K_S^0$	10	165	171	336	38654
27	$D^0 \to \pi^0\pi^0\pi^+\pi^-K_S^0$	59	156	177	333	38987
28	$D^0 \to \pi^0K_S^0$	45	157	175	332	39319
29	$D^0 \to \pi^+K^-\eta'$	43	160	168	328	39647
30	$D^0 \to \pi^0\pi^+K^{*-}$	52	138	183	321	39968
31	$D^0 \to K_L^0\omega$	51	140	172	312	40280
32	$D^0 \to \pi^0K_L^0\eta$	65	150	157	307	40587
33	$D^0 \to \pi^0\pi^0\pi^0K_L^0\pi^+\pi^-$	26	143	153	296	40883

rowNo	decay branch of D^0	iDcyBrP	nCase	nCcCase	nAllCase	nCCase
34	$D^0 \to \pi^0\pi^0\pi^0\pi^+\pi^- K_S^0$	64	139	153	292	41175
35	$D^0 \to K_L^0 \eta'$	41	124	164	288	41463
36	$D^0 \to \pi^0\pi^0\pi^0 K_S^0$	44	148	136	284	41747
37	$D^0 \to \pi^0 \rho^+ K^-$	33	138	143	281	42028
38	$D^0 \to \pi^0\pi^0 K_L^0 \pi^+\pi^-$	30	138	134	272	42300
39	$D^0 \to K^- K^{*+}$	22	134	122	256	42556
40	$D^0 \to \pi^0\pi^0\pi^0 K_L^0$	55	126	124	250	42806
41	$D^0 \to \pi^0\pi^0 K_L^0$	53	128	120	248	43054
42	$D^0 \to \pi^0\pi^0 K_S^0$	79	118	130	248	43302
43	$D^0 \to \rho^0 \pi^+ K^-$	48	114	130	244	43546
44	$D^0 \to \pi^0 \bar{K}_1^0$	37	102	140	242	43788
45	$D^0 \to \pi^+\pi^+\pi^-\pi^-$	34	120	114	234	44022
46	$D^0 \to \pi^0 K_L^0$	18	99	131	230	44252
47	$D^0 \to \pi^0\pi^0\pi^0\pi^+\pi^-$	36	103	104	207	44459
48	$D^0 \to \pi^0\pi^+\pi^- K_S^0$	71	95	103	198	44657
49	$D^0 \to \pi^0 K_L^0 \pi^+\pi^-$	67	79	98	177	44834
50	$D^0 \to \pi^0 \bar{K}^*$	17	74	98	172	45006
51	$D^0 \to \eta K_S^0$	23	95	71	166	45172
52	$D^0 \to K_S^0 K^+ K^-$	38	82	83	165	45337
53	$D^0 \to \pi^0\pi^0\pi^0\pi^+ K^-$	69	66	89	155	45492
54	$D^0 \to K_L^0 K^+ K^-$	42	70	66	136	45628
55	$D^0 \to \pi^0\pi^+\pi^- K^+ K^-$	68	61	69	130	45758
56	$D^0 \to e^+ \nu_e \pi^-$	62	69	59	128	45886
57	$D^0 \to K_L^0 \eta$	58	55	71	126	46012
58	$D^0 \to \pi^+\pi^-$	16	59	63	122	46134
59	$D^0 \to \pi^0\pi^0 K^+ K^-$	49	61	60	121	46255
60	$D^0 \to \pi^+\pi^+\pi^-\pi^- K_S^0$	91	58	57	115	46370
61	$D^0 \to \pi^+ K_S^0 K^-$	35	51	52	103	46473
62	$D^0 \to \mu^+ \nu_\mu \pi^-$	46	38	60	98	46571
63	$D^0 \to \mu^+ \nu_\mu \pi^- \bar{K}^0$	74	51	42	93	46664
64	$D^0 \to e^+ \nu_e \pi^0 K^-$	32	45	43	88	46752
65	$D^0 \to e^+ \nu_e \rho^-$	85	46	41	87	46839
66	$D^0 \to \eta \bar{K}^*$	84	28	51	79	46918
67	$D^0 \to \pi^+\pi^- \omega$	80	45	31	76	46994
68	$D^0 \to e^+ \nu_e \pi^- \bar{K}^0$	82	35	36	71	47065

rowNo	decay branch of D^0	iDcyBrP	nCase	nCcCase	nAllCase	nCCase
69	$D^0 \to K_L^0 \pi^+ \pi^+ \pi^- \pi^-$	94	35	33	68	47133
70	$D^0 \to K_L^0 \pi^+ K^-$	76	34	33	67	47200
71	$D^0 \to \mu^+ \nu_\mu \rho^-$	90	29	38	67	47267
72	$D^0 \to \pi^+ \pi^- K^+ K^-$	75	34	32	66	47333
73	$D^0 \to \rho^0 \rho^0$	66	24	41	65	47398
74	$D^0 \to \eta\eta$	24	30	34	64	47462
75	$D^0 \to \mu^+ \nu_\mu \pi^0 K^-$	105	34	30	64	47526
76	$D^0 \to K_S^0 \phi$	6	29	30	59	47585
77	$D^0 \to K_L^0 \phi$	47	30	27	57	47642
78	$D^0 \to \pi^- K_S^0 K^+$	92	25	29	54	47696
79	$D^0 \to K^+ K^{*-}$	103	31	23	54	47750
80	$D^0 \to \pi^0 \pi^+ \pi^+ \pi^- \pi^-$	87	28	24	52	47802
81	$D^0 \to e^+ \nu_e K_1^-$	40	31	19	50	47852
82	$D^0 \to \pi^0 \phi$	56	20	24	44	47896
83	$D^0 \to \pi^0 K^+ K^-$	57	18	26	44	47940
84	$D^0 \to \pi^0 \eta'$	54	22	21	43	47983
85	$D^0 \to K_L^0 \pi^- K^+$	102	23	20	43	48026
86	$D^0 \to \pi^+ \pi^- \eta$	110	25	18	43	48069
87	$D^0 \to K^* \bar{K}^*$	63	19	23	42	48111
88	$D^0 \to \pi^+ \pi^- K_S^0 K_S^0$	21	16	24	40	48151
89	$D^0 \to \bar{K}^* \eta'$	93	15	22	37	48188
90	$D^0 \to \eta\eta'$	72	18	17	35	48223
91	$D^0 \to \pi^+ \pi^- \phi$	77	18	14	32	48255
92	$D^0 \to \mu^+ \nu_\mu K_1^-$	100	16	15	31	48286
93	$D^0 \to \pi^0 \eta\eta$	25	11	18	29	48315
94	$D^0 \to \pi^0 \pi^0$	98	11	17	28	48343
95	$D^0 \to K_L^0 K_L^0 \pi^+ \pi^-$	112	12	11	23	48366
96	$D^0 \to \pi^0 \eta$	97	8	13	21	48387
97	$D^0 \to \pi^+ \pi^- \eta'$	96	8	11	19	48406
98	$D^0 \to K_S^0 K_S^0 K_S^0$	81	10	8	18	48424
99	$D^0 \to \pi^0 \pi^0 K_L^0 K_L^0$	88	10	8	18	48442
100	$D^0 \to \pi^0 \pi^0 K_S^0 K_S^0$	83	9	8	17	48459
rest	$D^0 \to$ others (24 in total)	—	81	99	180	48639

Table 7: Decay branches of π^0.

rowNo	decay branch of π^0	iDcyBrP	nCase	nCcCase	nAllCase	nCCase
1	$\pi^0 \to e^+ e^-$	0	4197	—	4197	4197
2	$\pi^0 \to e^+ e^+ e^- e^-$	1	16	—	16	4213

Table 8: Cascade decay branches of D_s^+.

rowNo	cascade decay branch of D_s^+	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
1	$D_s^+ \to \pi^+ K^+ K^-$	9	265	281	546	546
2	$D_s^+ \to \pi^0 \pi^+ \pi^+ \pi^+ \pi^- \pi^-$	32	110	130	240	786
3	$D_s^+ \to \rho^+ \phi, \rho^+ \to \pi^0 \pi^+, \phi \to K^+ K^-$	6	116	114	230	1016
4	$D_s^+ \to K_L^0 K^+$	7	100	116	216	1232
5	$D_s^+ \to \rho^+ \eta, \rho^+ \to \pi^0 \pi^+, \eta \to \gamma\gamma$	33	101	92	193	1425
6	$D_s^+ \to K_S^0 K^+, K_S^0 \to \pi^+ \pi^-$	3	79	84	163	1588
7	$D_s^+ \to \rho^+ \eta, \rho^+ \to \pi^0 \pi^+, \eta \to \pi^0 \pi^0 \pi^0$	62	72	76	148	1736
8	$D_s^+ \to \pi^0 \pi^+ \omega, \omega \to \pi^0 \pi^+ \pi^-$	19	60	68	128	1864
9	$D_s^+ \to \rho^+ \eta, \rho^+ \to \pi^0 \pi^+, \eta \to \pi^0 \pi^+ \pi^-$	78	64	61	125	1989
10	$D_s^+ \to \bar{K}^* K^{*+}, \bar{K}^* \to \pi^+ K^-, K^{*+} \to \pi^0 K^+$	86	61	61	122	2111
11	$D_s^+ \to \pi^+ \pi^+ \pi^-$	53	51	42	93	2204
12	$D_s^+ \to e^+ \nu_e \phi, \phi \to K^+ K^-$	70	51	41	92	2296
13	$D_s^+ \to \rho^+ \eta', \rho^+ \to \pi^0 \pi^+, \eta' \to \rho^0 \gamma, \rho^0 \to \pi^+ \pi^-$	71	50	34	84	2380
14	$D_s^+ \to \pi^+ \pi^+ \pi^- \omega, \omega \to \pi^0 \pi^+ \pi^-$	1	37	41	78	2458
15	$D_s^+ \to \pi^+ \eta', \eta' \to \rho^0 \gamma, \rho^0 \to \pi^+ \pi^-$	48	37	41	78	2536
16	$D_s^+ \to \pi^+ \pi^- K^+$	18	30	44	74	2610
17	$D_s^+ \to \tau^+ \nu_\tau, \tau^+ \to \bar{\nu}_\tau \pi^0 \pi^+$	90	37	33	70	2680
18	$D_s^+ \to \rho^+ \phi, \rho^+ \to \pi^0 \pi^+, \phi \to K_L^0 K_S^0, K_S^0 \to \pi^+ \pi^-$	14	25	44	69	2749
19	$D_s^+ \to \pi^+ \eta, \eta \to \gamma\gamma$	29	37	27	64	2813
20	$D_s^+ \to \bar{K}^* K^{*+}, \bar{K}^* \to \pi^+ K^-, K^{*+} \to \pi^+ K^0, K^0 \to K_S^0, K_S^0 \to \pi^+ \pi^-$	138	36	27	63	2876
21	$D_s^+ \to K_S^0 K^+, K_S^0 \to \pi^0 \pi^0$	82	32	30	62	2938
22	$D_s^+ \to \bar{K}^0 K^{*+}, \bar{K}^0 \to K_S^0, K^{*+} \to \pi^0 K^+, K_S^0 \to \pi^+ \pi^-$	140	28	32	60	2998
23	$D_s^+ \to \pi^+ \eta', \eta' \to \pi^+ \pi^- \eta, \eta \to \gamma\gamma$	17	21	36	57	3055
24	$D_s^+ \to \bar{K}^* K^{*+}, \bar{K}^* \to \pi^+ K^-, K^{*+} \to \pi^+ K^0, K^0 \to K_L^0$	75	21	36	57	3112
25	$D_s^+ \to \bar{K}^0 K^{*+}, \bar{K}^0 \to K_L^0, K^{*+} \to \pi^0 K^+$	30	29	27	56	3168
26	$D_s^+ \to e^+ \nu_e \eta, \eta \to \gamma\gamma$	128	24	31	55	3223
27	$D_s^+ \to \pi^+ \eta, \eta \to \pi^0 \pi^0 \pi^0$	59	24	29	53	3276
28	$D_s^+ \to K^* K^+, K^* \to \pi^0 K^0, K^0 \to K_L^0$	113	25	27	52	3328
29	$D_s^+ \to \tau^+ \nu_\tau, \tau^+ \to e^+ \nu_e \bar{\nu}_\tau$	35	21	30	51	3379
30	$D_s^+ \to \mu^+ \nu_\mu \phi, \phi \to K^+ K^-$	23	28	22	50	3429
31	$D_s^+ \to \pi^+ \pi^- K_S^0 K^+, K_S^0 \to \pi^+ \pi^-$	137	20	29	49	3478
32	$D_s^+ \to \rho^+ \eta', \rho^+ \to \pi^0 \pi^+, \eta' \to \pi^+ \pi^- \eta, \eta \to \pi^0 \pi^+ \pi^-$	52	19	28	47	3525

rowNo	cascade decay branch of D_s^+	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
33	$D_s^+ \to \pi^+\eta', \eta' \to \pi^+\pi^-\eta, \eta \to \pi^0\pi^0\pi^0$	26	21	26	47	3572
34	$D_s^+ \to \tau^+\nu_\tau, \tau^+ \to \bar{\nu}_\tau\pi^+$	55	20	27	47	3619
35	$D_s^+ \to \rho^+\eta', \rho^+ \to \pi^0\pi^+, \eta' \to \pi^+\pi^-\eta, \eta \to \pi^0\pi^0\pi^0$	118	24	23	47	3666
36	$D_s^+ \to \pi^+\pi^+\pi^+\pi^-\pi^-$	67	28	18	46	3712
37	$D_s^+ \to \pi^+\eta, \eta \to \pi^0\pi^+\pi^-$	51	23	23	46	3758
38	$D_s^+ \to K_L^0\pi^+\pi^-K^+$	12	17	28	45	3803
39	$D_s^+ \to \pi^0\pi^0\pi^+\omega, \omega \to \pi^0\pi^+\pi^-$	84	21	23	44	3847
40	$D_s^+ \to \mu^+\nu_\mu\eta, \eta \to \pi^0\pi^0\pi^0$	100	18	25	43	3890
41	$D_s^+ \to \pi^+\eta\omega, \eta \to \gamma\gamma, \omega \to \pi^0\pi^+\pi^-$	36	23	18	41	3931
42	$D_s^+ \to \rho^+\eta', \rho^+ \to \pi^0\pi^+, \eta' \to \pi^+\pi^-\eta, \eta \to \gamma\gamma$	47	13	28	41	3972
43	$D_s^+ \to K^*K^+, K^* \to \pi^0K^0, K^0 \to K_S^0, K_S^0 \to \pi^+\pi^-$	24	21	20	41	4013
44	$D_s^+ \to \pi^+\phi, \phi \to K_L^0K_S^0, K_S^0 \to \pi^+\pi^-$	95	17	22	39	4052
45	$D_s^+ \to e^+\nu_e\eta, \eta \to \pi^0\pi^0\pi^0$	122	15	21	36	4088
46	$D_s^+ \to e^+\nu_e\eta, \eta \to \pi^0\pi^+\pi^-$	21	18	14	32	4120
47	$D_s^+ \to \rho^+\eta, \rho^+ \to \pi^0\pi^+, \eta \to \pi^+\pi^-$	41	12	19	31	4151
48	$D_s^+ \to \pi^+\eta\omega, \eta \to \pi^0\pi^0\pi^0, \omega \to \pi^0\pi^+\pi^-$	99	12	19	31	4182
49	$D_s^+ \to \rho^+\phi, \rho^+ \to \pi^0\pi^+, \phi \to K_L^0K_S^0, K_S^0 \to \pi^0\pi^0$	108	17	14	31	4213
50	$D_s^+ \to \pi^0\pi^0\pi^+$	97	15	15	30	4243
51	$D_s^+ \to \mu^+\nu_\mu\eta, \eta \to \gamma\gamma$	40	13	17	30	4273
52	$D_s^+ \to \pi^+\eta', \eta' \to \pi^+\pi^-\eta, \eta \to \pi^0\pi^+\pi^-$	126	18	12	30	4303
53	$D_s^+ \to \pi^+\phi, \phi \to K_L^0K_S^0, K_S^0 \to \pi^0\pi^0$	96	16	13	29	4332
54	$D_s^+ \to \pi^0K_L^0\pi^+$	195	10	19	29	4361
55	$D_s^+ \to \rho^+\eta', \rho^+ \to \pi^0\pi^+, \eta' \to \pi^0\pi^0\eta, \eta \to \pi^0\pi^0\pi^0$	77	13	15	28	4389
56	$D_s^+ \to \bar{K}^0K^{*+}, \bar{K}^0 \to K_S^0, K^{*+} \to \pi^+K^0, K_S^0 \to \pi^+\pi^-, K^0 \to K_L^0$	49	11	17	28	4417
57	$D_s^+ \to e^+\nu_e\phi, \phi \to K_L^0K_S^0, K_S^0 \to \pi^+\pi^-$	196	17	10	27	4444
58	$D_s^+ \to \bar{K}^0K^{*+}, \bar{K}^0 \to K_S^0, K^{*+} \to \pi^0K^+, K_S^0 \to \pi^0\pi^0$	89	13	13	26	4470
59	$D_s^+ \to \pi^+\eta\omega, \eta \to \pi^0\pi^+\pi^-, \omega \to \pi^0\pi^+\pi^-$	2	15	11	26	4496
60	$D_s^+ \to \bar{K}^*K^{*+}, \bar{K}^* \to \pi^0\bar{K}^0, K^{*+} \to \pi^0K^+, \bar{K}^0 \to K_S^0, K_S^0 \to \pi^+\pi^-$	88	11	15	26	4522
61	$D_s^+ \to \rho^+\eta, \rho^+ \to \pi^0\pi^+, \eta \to \pi^0\pi^0\pi^0, \pi^0 \to e^+e^-$	20	10	15	25	4547
62	$D_s^+ \to \tau^+\nu_\tau, \tau^+ \to \bar{\nu}_\tau\pi^+\pi^+\pi^-$	50	10	15	25	4572
63	$D_s^+ \to \pi^+\pi^+\pi^-\phi, \phi \to K^+K^-$	166	9	15	24	4596
64	$D_s^+ \to \bar{K}^0K^{*+}, \bar{K}^0 \to K_S^0, K^{*+} \to \pi^+K^0, K_S^0 \to \pi^+\pi^-, K^0 \to K_S^0, K_S^0 \to \pi^+\pi^-$	285	15	9	24	4620

rowNo	cascade decay branch of D_s^+	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
65	$D_s^+ \to \pi^0\pi^+K_S^0, K_S^0 \to \pi^+\pi^-$	73	16	7	23	4643
66	$D_s^+ \to \bar{K}^0K^{*+}, \bar{K}^0 \to K_L^0, K^{*+} \to \pi^+K^0, K^0 \to K_L^0$	39	14	9	23	4666
67	$D_s^+ \to \mu^+\nu_\mu$	64	13	8	21	4687
68	$D_s^+ \to \pi^+\pi^+\pi^+\pi^-\pi^-\eta, \eta \to \gamma\gamma$	25	11	10	21	4708
69	$D_s^+ \to \pi^+\pi^+\pi^-\eta, \eta \to \pi^0\pi^0\pi^0$	31	9	11	20	4728
70	$D_s^+ \to \bar{K}^*K^{*+}, \bar{K}^* \to \pi^+K^-, K^{*+} \to \pi^+K^0, K^0 \to K_S^0, K_S^0 \to \pi^0\pi^0$	109	7	13	20	4748
71	$D_s^+ \to \pi^+\omega, \omega \to \pi^0\pi^+\pi^-$	136	8	12	20	4768
72	$D_s^+ \to \pi^+\phi, \phi \to \pi^-\rho^+, \rho^+ \to \pi^0\pi^+$	170	6	14	20	4788
73	$D_s^+ \to \pi^+\eta', \eta' \to \pi^0\pi^0\eta, \eta \to \pi^0\pi^0\pi^0$	272	9	11	20	4808
74	$D_s^+ \to \pi^0\pi^+\pi^+\pi^-\eta, \eta \to \gamma\gamma$	61	10	9	19	4827
75	$D_s^+ \to \rho^+\phi, \rho^+ \to \pi^0\pi^+, \phi \to \pi^+\rho^-, \rho^- \to \pi^0\pi^-$	210	9	10	19	4846
76	$D_s^+ \to \rho^+\phi, \rho^+ \to \pi^0\pi^+, \phi \to \pi^-\rho^+, \rho^+ \to \pi^0\pi^+$	42	10	8	18	4864
77	$D_s^+ \to \rho^+\eta', \rho^+ \to \pi^0\pi^+, \eta' \to \pi^0\pi^0\eta, \eta \to \gamma\gamma$	16	7	11	18	4882
78	$D_s^+ \to \pi^+\eta', \eta' \to \pi^0\pi^0\eta, \eta \to \gamma\gamma$	104	9	9	18	4900
79	$D_s^+ \to \pi^0\pi^+K^*, K^* \to \pi^-K^+$	144	6	12	18	4918
80	$D_s^+ \to \bar{K}^0K^{*+}, \bar{K}^0 \to K_L^0, K^{*+} \to \pi^+K^0, K^0 \to K_S^0, K_S^0 \to \pi^+\pi^-$	188	8	10	18	4936
81	$D_s^+ \to \pi^+\pi^+\pi^+\pi^-\pi^-\eta, \eta \to \pi^0\pi^0\pi^0$	198	5	13	18	4954
82	$D_s^+ \to \rho^+K^*, \rho^+ \to \pi^0\pi^+, K^* \to \pi^-K^+$	279	8	10	18	4972
83	$D_s^+ \to \pi^0\bar{K}^0K^+, \bar{K}^0 \to K_L^0$	37	8	9	17	4989
84	$D_s^+ \to \pi^0\pi^+\omega, \omega \to \pi^0\gamma$	28	7	10	17	5006
85	$D_s^+ \to \pi^+\pi^+\pi^-\eta, \eta \to \gamma\gamma$	15	5	12	17	5023
86	$D_s^+ \to \pi^+\pi^-K_S^0K^+, K_S^0 \to \pi^0\pi^0$	93	6	11	17	5040
87	$D_s^+ \to \tau^+\nu_\tau, \tau^+ \to \bar{\nu}_\tau\pi^0\pi^0\pi^+$	111	9	8	17	5057
88	$D_s^+ \to \tau^+\nu_\tau, \tau^+ \to \mu^+\nu_\mu\bar{\nu}_\tau$	145	9	8	17	5074
89	$D_s^+ \to K^*K^+, K^* \to \pi^0K^0, K^0 \to K_S^0, K_S^0 \to \pi^0\pi^0$	129	11	5	16	5090
90	$D_s^+ \to \rho^+\phi, \rho^+ \to \pi^0\pi^+, \phi \to \pi^0\rho^0, \rho^0 \to \pi^+\pi^-$	160	8	8	16	5106
91	$D_s^+ \to \pi^+\phi, \phi \to \pi^0\rho^0, \rho^0 \to \pi^+\pi^-$	181	7	9	16	5122
92	$D_s^+ \to \eta K^+, \eta \to \gamma\gamma$	46	5	10	15	5137
93	$D_s^+ \to \pi^+\pi^+\pi^-K_S^0, K_S^0 \to \pi^+\pi^-$	156	3	12	15	5152
94	$D_s^+ \to \rho^+\phi, \rho^+ \to \pi^0\pi^+, \phi \to K^+K^-, \pi^0 \to e^+e^-$	81	5	9	14	5166
95	$D_s^+ \to \mu^+\nu_\mu\eta, \eta \to \pi^0\pi^+\pi^-$	56	5	9	14	5180
96	$D_s^+ \to \pi^0\pi^+\pi^+\pi^-\eta, \eta \to \pi^0\pi^0\pi^0$	43	4	10	14	5194
97	$D_s^+ \to e^+\nu_e\phi, \phi \to K_L^0K_S^0, K_S^0 \to \pi^0\pi^0$	130	3	11	14	5208

rowNo	cascade decay branch of D_s^+	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
98	$D_s^+ \to \mu^+ \nu_\mu \phi, \phi \to K_L^0 K_S^0, K_S^0 \to \pi^0 \pi^0$	58	7	6	13	5221
99	$D_s^+ \to \pi^+ \eta', \eta' \to \pi^0 \pi^0 \eta, \eta \to \pi^0 \pi^+ \pi^-$	125	3	10	13	5234
100	$D_s^+ \to \bar{K}^0 K^{*+}, \bar{K}^0 \to K_L^0, K^{*+} \to \pi^+ K^0, K^0 \to K_S^0,$ $K_S^0 \to \pi^0 \pi^0$	135	6	7	13	5247
rest	$D_s^+ \to$ others (418 in total)	—	580	639	1219	6466

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

rowNo	cascade decay branch of D^{*+}	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
1	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^0 \pi^+ K^-$	16	988	766	1754	1754
2	$D^{*+} \to \pi^+ D^0, D^0 \to e^+ \nu_e K^-$	23	438	382	820	2574
3	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^+ K^-$	22	437	332	769	3343
4	$D^{*+} \to \pi^+ D^0, D^0 \to \mu^+ \nu_\mu K^-$	6	236	164	400	3743
5	$D^{*+} \to \pi^0 D^+, D^+ \to \pi^+ \pi^+ K^-$	33	189	177	366	4109
6	$D^{*+} \to \pi^0 D^+, D^+ \to e^+ \nu_e \bar{K}^*, \bar{K}^* \to \pi^+ K^-$	51	121	145	266	4375
7	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^0 \pi^0 \pi^+ K^-$	60	118	112	230	4605
8	$D^{*+} \to \pi^+ D^0, D^0 \to K^- a_1^+, a_1^+ \to \pi^0 \rho^+, \rho^+ \to \pi^0 \pi^+$	26	120	101	221	4826
9	$D^{*+} \to \pi^+ D^0, D^0 \to K^- a_1^+, a_1^+ \to \rho^0 \pi^+, \rho^0 \to \pi^+ \pi^-$	45	102	100	202	5028
10	$D^{*+} \to \pi^+ D^0, D^0 \to K_L^0 \pi^+ \pi^-$	50	75	85	160	5188
11	$D^{*+} \to \pi^+ D^0, D^0 \to \rho^+ K^{*-}, \rho^+ \to \pi^0 \pi^+, K^{*-} \to \pi^0 K^-$	14	83	70	153	5341
12	$D^{*+} \to \pi^0 D^+, D^+ \to \pi^0 K_L^0 \pi^+$	10	72	78	150	5491
13	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^+ \omega K^-, \omega \to \pi^0 \pi^+ \pi^-$	20	70	74	144	5635
14	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^+ \pi^- \bar{K}^*, \bar{K}^* \to \pi^+ K^-$	105	81	60	141	5776
15	$D^{*+} \to \pi^0 D^+, D^+ \to \pi^0 \pi^+ K_S^0, K_S^0 \to \pi^+ \pi^-$	17	56	80	136	5912
16	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^0 \pi^+ \pi^-$	154	61	67	128	6040
17	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^+ \pi^- K_S^0, K_S^0 \to \pi^+ \pi^-$	129	70	48	118	6158
18	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^0 \pi^+ \pi^- \bar{K}^*, \bar{K}^* \to \pi^+ K^-$	213	51	65	116	6274
19	$D^{*+} \to \pi^0 D^+, D^+ \to \pi^0 \pi^+ \bar{K}^*, \bar{K}^* \to \pi^+ K^-$	30	63	52	115	6389
20	$D^{*+} \to \pi^+ D^0, D^0 \to e^+ \nu_e K^{*-}, K^{*-} \to \pi^0 K^-$	40	65	50	115	6504
21	$D^{*+} \to \pi^0 D^+, D^+ \to \mu^+ \nu_\mu \bar{K}^*, \bar{K}^* \to \pi^+ K^-$	88	50	53	103	6607
22	$D^{*+} \to \pi^+ D^0, D^0 \to K^- a_1^+, a_1^+ \to \pi^+ \pi^+ \pi^-$	1	55	47	102	6709
23	$D^{*+} \to \pi^0 D^+, D^+ \to e^+ \nu_e \bar{K}^0, \bar{K}^0 \to K_L^0$	21	47	51	98	6807
24	$D^{*+} \to \pi^+ D^0, D^0 \to K^- a_1^+, a_1^+ \to \pi^+ f_0(600), f_0(600) \to \pi^+ \pi^-$	24	51	37	88	6895
25	$D^{*+} \to \pi^+ D^0, D^0 \to \rho^+ K^{*-}, \rho^+ \to \pi^0 \pi^+, K^{*-} \to \pi^- \bar{K}^0,$ $\bar{K}^0 \to K_L^0$	79	48	38	86	6981
26	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^+ \pi^+ \pi^- K^-$	165	41	37	78	7059
27	$D^{*+} \to \pi^0 D^+, D^+ \to e^+ \nu_e \bar{K}^0, \bar{K}^0 \to K_S^0, K_S^0 \to \pi^+ \pi^-$	8	40	37	77	7136
28	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^0 \pi^0 \bar{K}^*, \bar{K}^* \to \pi^+ K^-$	95	42	33	75	7211
29	$D^{*+} \to \pi^+ D^0, D^0 \to \rho^+ K^{*-}, \rho^+ \to \pi^0 \pi^+, K^{*-} \to \pi^- \bar{K}^0,$ $\bar{K}^0 \to K_S^0, K_S^0 \to \pi^+ \pi^-$	96	42	33	75	7286
30	$D^{*+} \to \pi^0 D^+, D^+ \to \mu^+ \nu_\mu \bar{K}^0, \bar{K}^0 \to K_L^0$	83	38	34	72	7358
31	$D^{*+} \to \pi^+ D^0, D^0 \to K^+ K^-$	73	39	33	72	7430

rowNo	cascade decay branch of D^{*+}	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
32	$D^{*+} \to \pi^0 D^+, D^+ \to \mu^+ \nu_\mu \bar{K}^0, \bar{K}^0 \to K_S^0, K_S^0 \to \pi^+\pi^-$	35	39	30	69	7499
33	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^0\pi^+ K^-, \pi^0 \to e^+ e^-$	117	30	38	68	7567
34	$D^{*+} \to \pi^0 D^+, D^+ \to e^+ \nu_e \pi^+ K^-$	69	36	30	66	7633
35	$D^{*+} \to \pi^+ D^0, D^0 \to \rho^0 \bar{K}^*, \rho^0 \to \pi^+\pi^-, \bar{K}^* \to \pi^+ K^-$	0	34	29	63	7696
36	$D^{*+} \to \pi^+ D^0, D^0 \to \rho^0 \pi^+ K^-, \rho^0 \to \pi^+\pi^-$	19	28	26	54	7750
37	$D^{*+} \to \pi^+ D^0, D^0 \to \omega \bar{K}^*, \omega \to \pi^0\pi^+\pi^-, \bar{K}^* \to \pi^+ K^-$	134	26	27	53	7803
38	$D^{*+} \to \pi^0 D^+, D^+ \to \pi^0\pi^+ K_S^0, K_S^0 \to \pi^0\pi^0$	145	26	27	53	7856
39	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^+\pi^- K_S^0, K_S^0 \to \pi^0\pi^0$	200	19	34	53	7909
40	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^0\pi^0\pi^+\pi^-$	9	22	29	51	7960
41	$D^{*+} \to \pi^+ D^0, D^0 \to e^+ \nu_e K^{*-}, K^{*-} \to \pi^- \bar{K}^0, \bar{K}^0 \to K_L^0$	59	24	26	50	8010
42	$D^{*+} \to \pi^0 D^+, D^+ \to \pi^+ K_S^0, K_S^0 \to \pi^+\pi^-$	184	17	32	49	8059
43	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^0\pi^0\pi^0 K_L^0 \pi^+\pi^-$	126	24	24	48	8107
44	$D^{*+} \to \pi^+ D^0, D^0 \to \mu^+ \nu_\mu K^{*-}, K^{*-} \to \pi^0 K^-$	205	24	24	48	8155
45	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^0 K_S^0, K_S^0 \to \pi^+\pi^-$	85	20	27	47	8202
46	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^0\pi^0\pi^0 K_L^0$	218	26	21	47	8249
47	$D^{*+} \to \pi^+ D^0, D^0 \to \omega K_S^0, \omega \to \pi^0\pi^+\pi^-, K_S^0 \to \pi^+\pi^-$	32	21	25	46	8295
48	$D^{*+} \to \pi^+ D^0, D^0 \to K^- a_1^+, a_1^+ \to \pi^+ f_0(600), f_0(600) \to \pi^0\pi^0$	146	24	21	45	8340
49	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^0\pi^0\pi^+\pi^- K_S^0, K_S^0 \to \pi^+\pi^-$	158	18	27	45	8385
50	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^+\pi^+\pi^-\pi^-$	11	22	22	44	8429
51	$D^{*+} \to \pi^+ D^0, D^0 \to K_L^0 \omega, \omega \to \pi^0\pi^+\pi^-$	110	21	23	44	8473
52	$D^{*+} \to \pi^0 D^+, D^+ \to \rho^+ \bar{K}^*, \rho^+ \to \pi^0\pi^+, \bar{K}^* \to \pi^+ K^-$	86	19	23	42	8515
53	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^0\pi^0 K_L^0$	47	18	24	42	8557
54	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^0\pi^0 K_L^0 \pi^+\pi^-$	113	26	16	42	8599
55	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^0 K_L^0$	178	18	24	42	8641
56	$D^{*+} \to \pi^+ D^0, D^0 \to \rho^+ K^{*-}, \rho^+ \to \pi^0\pi^+, K^{*-} \to \pi^- \bar{K}^0, \bar{K}^0 \to K_S^0, K_S^0 \to \pi^0\pi^0$	139	19	22	41	8682
57	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^0 \rho^+ K^-, \rho^+ \to \pi^0\pi^+$	174	25	16	41	8723
58	$D^{*+} \to \pi^0 D^+, D^+ \to \pi^0\pi^+\pi^+\pi^-$	214	24	16	40	8763
59	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^0\pi^0\pi^0\pi^+\pi^- K_S^0, K_S^0 \to \pi^+\pi^-$	55	16	19	35	8798
60	$D^{*+} \to \pi^0 D^+, D^+ \to K_L^0 \pi^+$	90	17	18	35	8833
61	$D^{*+} \to \pi^0 D^+, D^+ \to \pi^+ K^+ K^-$	135	13	21	34	8867
62	$D^{*+} \to \pi^+ D^0, D^0 \to e^+ \nu_e K^{*-}, K^{*-} \to \pi^- \bar{K}^0, \bar{K}^0 \to K_S^0, K_S^0 \to \pi^+\pi^-$	265	15	18	33	8900
63	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^+\pi^-$	2	12	20	32	8932

rowNo	cascade decay branch of D^{*+}	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
64	$D^{*+} \to \pi^+ D^0, D^0 \to \mu^+ \nu_\mu K^{*-}, K^{*-} \to \pi^- \bar{K}^0, \bar{K}^0 \to K_S^0,$ $K_S^0 \to \pi^+ \pi^-$	65	16	16	32	8964
65	$D^{*+} \to \pi^0 D^+, D^+ \to e^+ \nu_e \bar{K}^0, \bar{K}^0 \to K_S^0, K_S^0 \to \pi^0 \pi^0$	78	17	14	31	8995
66	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^0 \pi^0 K_S^0, K_S^0 \to \pi^+ \pi^-$	101	14	17	31	9026
67	$D^{*+} \to \pi^+ D^0, D^0 \to \mu^+ \nu_\mu K^{*-}, K^{*-} \to \pi^- \bar{K}^0, \bar{K}^0 \to K_L^0$	219	12	19	31	9057
68	$D^{*+} \to \pi^0 D^+, D^+ \to \pi^+ \rho^+ K^-, \rho^+ \to \pi^0 \pi^+$	38	14	16	30	9087
69	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^0 \pi^0 K^+ K^-$	243	15	15	30	9117
70	$D^{*+} \to \pi^0 D^+, D^+ \to \mu^+ \nu_\mu \bar{K}^0, \bar{K}^0 \to K_S^0, K_S^0 \to \pi^0 \pi^0$	256	13	15	28	9145
71	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^0 \pi^0 \pi^0 \pi^+ \pi^-$	29	13	14	27	9172
72	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^0 \pi^0 \pi^0 K_S^0, K_S^0 \to \pi^+ \pi^-$	147	10	17	27	9199
73	$D^{*+} \to \pi^0 D^+, D^+ \to \pi^+ \pi^+ \pi^- \eta, \eta \to \gamma\gamma$	162	10	17	27	9226
74	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^+ \eta K^-, \eta \to \gamma\gamma$	293	17	10	27	9253
75	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^+ \pi^- \bar{K}^*, \bar{K}^* \to \pi^0 \bar{K}^0, \bar{K}^0 \to K_L^0$	28	13	12	25	9278
76	$D^{*+} \to \pi^+ D^0, D^0 \to K_L^0 K^+ K^-$	46	16	9	25	9303
77	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^0 \pi^+ \pi^- K^+ K^-$	37	13	11	24	9327
78	$D^{*+} \to \pi^+ D^0, D^0 \to K_S^0 K^+ K^-, K_S^0 \to \pi^+ \pi^-$	175	14	10	24	9351
79	$D^{*+} \to \pi^0 D^+, D^+ \to \pi^+ \bar{K}_1'^0, \bar{K}_1'^0 \to \pi^0 \bar{K}^*, \bar{K}^* \to \pi^+ K^-$	442	13	11	24	9375
80	$D^{*+} \to \pi^0 D^+, D^+ \to e^+ \nu_e \bar{K}^*, \bar{K}^* \to \pi^0 \bar{K}^0, \bar{K}^0 \to K_L^0$	115	13	10	23	9398
81	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^0 K_L^0 \pi^+ \pi^-$	140	12	10	22	9420
82	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^0 \pi^+ \pi^- \bar{K}^*, \bar{K}^* \to \pi^0 \bar{K}^0, \bar{K}^0 \to K_L^0$	208	11	11	22	9442
83	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^0 \pi^0 \pi^0 \pi^+ K^-$	226	6	16	22	9464
84	$D^{*+} \to \pi^+ D^0, D^0 \to K^- K^{*+}, K^{*+} \to \pi^0 K^+$	94	13	8	21	9485
85	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^+ \eta K^-, \eta \to \pi^0 \pi^+ \pi^-$	386	14	7	21	9506
86	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^0 \pi^+ \pi^- K_S^0, K_S^0 \to \pi^+ \pi^-$	390	9	12	21	9527
87	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^+ \eta K^-, \eta \to \pi^0 \pi^0 \pi^0$	99	9	11	20	9547
88	$D^{*+} \to \pi^0 D^+, D^+ \to \pi^0 \pi^+ K^+ K^-$	237	9	11	20	9567
89	$D^{*+} \to \pi^0 D^+, D^+ \to K_L^0 a_1^+, a_1^+ \to \rho^0 \pi^+, \rho^0 \to \pi^+ \pi^-$	270	8	12	20	9587
90	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^+ K_1^-, K_1^- \to \pi^+ \pi^- K^-$	187	10	9	19	9606
91	$D^{*+} \to D^+ \gamma, D^+ \to e^+ \nu_e \bar{K}^*, \bar{K}^* \to \pi^+ K^-$	215	10	9	19	9625
92	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^+ \pi^- K^+ K^-$	295	10	9	19	9644
93	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^0 \pi^+ K^{*-}, K^{*-} \to \pi^0 K^-$	310	9	10	19	9663
94	$D^{*+} \to \pi^0 D^+, D^+ \to \pi^0 \pi^+ \pi^+ \pi^- \eta, \eta \to \pi^0 \pi^0 \pi^0$	128	7	11	18	9681
95	$D^{*+} \to D^+ \gamma, D^+ \to \pi^+ \pi^+ K^-$	185	11	7	18	9699
96	$D^{*+} \to \pi^0 D^+, D^+ \to \mu^+ \nu_\mu \bar{K}^*, \bar{K}^* \to \pi^0 \bar{K}^0, \bar{K}^0 \to K_S^0,$ $K_S^0 \to \pi^+ \pi^-$	257	7	11	18	9717

rowNo	cascade decay branch of D^{*+}	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
97	$D^{*+} \to \pi^+ D^0, D^0 \to e^+ \nu_e K^{*-}, K^{*-} \to \pi^- \bar{K}^0, \bar{K}^0 \to K_S^0,$ $K_S^0 \to \pi^0 \pi^0$	317	11	7	18	9735
98	$D^{*+} \to \pi^+ D^0, D^0 \to \omega K_S^0, \omega \to \pi^0 \pi^+ \pi^-, K_S^0 \to \pi^0 \pi^0$	74	9	8	17	9752
99	$D^{*+} \to \pi^+ D^0, D^0 \to \rho^0 \rho^0, \rho^0 \to \pi^+ \pi^-, \rho^0 \to \pi^+ \pi^-$	53	3	14	17	9769
100	$D^{*+} \to \pi^+ D^0, D^0 \to \pi^0 K_S^0, K_S^0 \to \pi^0 \pi^0$	27	7	10	17	9786
rest	$D^{*+} \to$ others (950 in total)	—	1414	1508	2922	12708

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

rowNo	cascade decay branch of D^{*0}	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
1	$D^{*0} \to \pi^0 D^0, D^0 \to \pi^0 \pi^+ K^-$	1	1206	1174	2380	2380
2	$D^{*0} \to D^0 \gamma, D^0 \to \pi^0 \pi^+ K^-$	12	626	624	1250	3630
3	$D^{*0} \to \pi^0 D^0, D^0 \to e^+ \nu_e K^-$	5	626	563	1189	4819
4	$D^{*0} \to \pi^0 D^0, D^0 \to \pi^+ K^-$	2	473	438	911	5730
5	$D^{*0} \to D^0 \gamma, D^0 \to e^+ \nu_e K^-$	20	319	306	625	6355
6	$D^{*0} \to D^0 \gamma, D^0 \to \pi^+ K^-$	41	274	259	533	6888
7	$D^{*0} \to \pi^0 D^0, D^0 \to \mu^+ \nu_\mu K^-$	7	265	251	516	7404
8	$D^{*0} \to \pi^0 D^0, D^0 \to \pi^0 \pi^0 \pi^+ K^-$	34	146	153	299	7703
9	$D^{*0} \to \pi^0 D^0, D^0 \to K^- a_1^+, a_1^+ \to \rho^0 \pi^+, \rho^0 \to \pi^+ \pi^-$	6	152	141	293	7996
10	$D^{*0} \to D^0 \gamma, D^0 \to \mu^+ \nu_\mu K^-$	21	136	142	278	8274
11	$D^{*0} \to \pi^0 D^0, D^0 \to K^- a_1^+, a_1^+ \to \pi^0 \rho^+, \rho^+ \to \pi^0 \pi^+$	31	141	133	274	8548
12	$D^{*0} \to \pi^0 D^0, D^0 \to \rho^+ K^{*-}, \rho^+ \to \pi^0 \pi^+, K^{*-} \to \pi^0 K^-$	16	137	115	252	8800
13	$D^{*0} \to \pi^0 D^0, D^0 \to K_L^0 \pi^+ \pi^-$	56	107	110	217	9017
14	$D^{*0} \to \pi^0 D^0, D^0 \to \pi^+ \omega K^-, \omega \to \pi^0 \pi^+ \pi^-$	17	95	112	207	9224
15	$D^{*0} \to \pi^0 D^0, D^0 \to \pi^+ \pi^- \bar{K}^*, \bar{K}^* \to \pi^+ K^-$	53	101	102	203	9427
16	$D^{*0} \to \pi^0 D^0, D^0 \to e^+ \nu_e K^{*-}, K^{*-} \to \pi^0 K^-$	3	110	76	186	9613
17	$D^{*0} \to D^0 \gamma, D^0 \to K^- a_1^+, a_1^+ \to \rho^0 \pi^+, \rho^0 \to \pi^+ \pi^-$	118	96	88	184	9797
18	$D^{*0} \to \pi^0 D^0, D^0 \to \pi^0 \pi^+ \pi^-$	51	78	99	177	9974
19	$D^{*0} \to \pi^0 D^0, D^0 \to \pi^+ \pi^- K_S^0, K_S^0 \to \pi^+ \pi^-$	69	76	82	158	10132
20	$D^{*0} \to D^0 \gamma, D^0 \to \pi^0 \pi^0 \pi^+ K^-$	60	89	64	153	10285
21	$D^{*0} \to D^0 \gamma, D^0 \to K^- a_1^+, a_1^+ \to \pi^0 \rho^+, \rho^+ \to \pi^0 \pi^+$	32	78	70	148	10433
22	$D^{*0} \to \pi^0 D^0, D^0 \to \rho^+ K^{*-}, \rho^+ \to \pi^0 \pi^+, K^{*-} \to \pi^- \bar{K}^0, \bar{K}^0 \to K_L^0$	33	68	71	139	10572
23	$D^{*0} \to \pi^0 D^0, D^0 \to \rho^0 \bar{K}^*, \rho^0 \to \pi^+ \pi^-, \bar{K}^* \to \pi^+ K^-$	43	65	72	137	10709
24	$D^{*0} \to \pi^0 D^0, D^0 \to \pi^0 \pi^+ \pi^- \bar{K}^*, \bar{K}^* \to \pi^+ K^-$	120	72	59	131	10840
25	$D^{*0} \to D^0 \gamma, D^0 \to \rho^+ K^{*-}, \rho^+ \to \pi^0 \pi^+, K^{*-} \to \pi^0 K^-$	25	57	70	127	10967
26	$D^{*0} \to \pi^0 D^0, D^0 \to \rho^+ K^{*-}, \rho^+ \to \pi^0 \pi^+, K^{*-} \to \pi^- \bar{K}^0, \bar{K}^0 \to K_S^0, K_S^0 \to \pi^+ \pi^-$	9	60	65	125	11092
27	$D^{*0} \to \pi^0 D^0, D^0 \to K^- a_1^+, a_1^+ \to \pi^+ \pi^+ \pi^-$	30	57	66	123	11215
28	$D^{*0} \to D^0 \gamma, D^0 \to K_L^0 \pi^+ \pi^-$	23	57	64	121	11336
29	$D^{*0} \to D^0 \gamma, D^0 \to e^+ \nu_e K^{*-}, K^{*-} \to \pi^0 K^-$	36	59	48	107	11443
30	$D^{*0} \to \pi^0 D^0, D^0 \to \pi^+ \pi^+ \pi^- K^-$	193	46	60	106	11549
31	$D^{*0} \to D^0 \gamma, D^0 \to \pi^+ \pi^- K_S^0, K_S^0 \to \pi^+ \pi^-$	145	52	53	105	11654

rowNo	cascade decay branch of D^{*0}	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
32	$D^{*0} \to \pi^0 D^0, D^0 \to \pi^0 \pi^+ K^-, \pi^0 \to e^+ e^-$	40	58	46	104	11758
33	$D^{*0} \to D^0 \gamma, D^0 \to \pi^0 \pi^+ \pi^-$	42	58	45	103	11861
34	$D^{*0} \to D^0 \gamma, D^0 \to \pi^+ \omega K^-, \omega \to \pi^0 \pi^+ \pi^-$	123	51	51	102	11963
35	$D^{*0} \to \pi^0 D^0, D^0 \to K^- a_1^+, a_1^+ \to \pi^+ f_0(600), f_0(600) \to \pi^+ \pi^-$	0	53	44	97	12060
36	$D^{*0} \to \pi^0 D^0, \pi^0 \to e^+ e^-, D^0 \to \pi^0 \pi^+ K^-$	119	48	47	95	12155
37	$D^{*0} \to D^0 \gamma, D^0 \to \pi^+ \pi^- \bar{K}^*, \bar{K}^* \to \pi^+ K^-$	100	48	46	94	12249
38	$D^{*0} \to D^0 \gamma, D^0 \to \pi^0 \pi^+ \pi^- \bar{K}^*, \bar{K}^* \to \pi^+ K^-$	97	40	52	92	12341
39	$D^{*0} \to \pi^0 D^0, D^0 \to \pi^0 \pi^0 \pi^+ \pi^-$	126	44	48	92	12433
40	$D^{*0} \to \pi^0 D^0, D^0 \to K^+ K^-$	138	45	43	88	12521
41	$D^{*0} \to \pi^0 D^0, D^0 \to \mu^+ \nu_\mu K^{*-}, K^{*-} \to \pi^0 K^-$	26	47	40	87	12608
42	$D^{*0} \to D^0 \gamma, D^0 \to \rho^+ K^{*-}, \rho^+ \to \pi^0 \pi^+, K^{*-} \to \pi^- \bar{K}^0, \bar{K}^0 \to K_L^0$	114	46	37	83	12691
43	$D^{*0} \to \pi^0 D^0, D^0 \to \pi^0 \rho^+ K^-, \rho^+ \to \pi^0 \pi^+$	92	36	46	82	12773
44	$D^{*0} \to \pi^0 D^0, D^0 \to \omega \bar{K}^*, \omega \to \pi^0 \pi^+ \pi^-, \bar{K}^* \to \pi^+ K^-$	344	47	34	81	12854
45	$D^{*0} \to \pi^0 D^0, D^0 \to \pi^0 \pi^0 \bar{K}^*, \bar{K}^* \to \pi^+ K^-$	38	41	39	80	12934
46	$D^{*0} \to \pi^0 D^0, D^0 \to \pi^+ \pi^- K_S^0, K_S^0 \to \pi^0 \pi^0$	107	30	49	79	13013
47	$D^{*0} \to D^0 \gamma, D^0 \to K^- a_1^+, a_1^+ \to \pi^+ f_0(600), f_0(600) \to \pi^+ \pi^-$	134	32	40	72	13085
48	$D^{*0} \to \pi^0 D^0, D^0 \to e^+ \nu_e K^{*-}, K^{*-} \to \pi^- \bar{K}^0, \bar{K}^0 \to K_L^0$	13	37	34	71	13156
49	$D^{*0} \to \pi^0 D^0, D^0 \to \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	159	36	35	71	13227
50	$D^{*0} \to D^0 \gamma, D^0 \to \pi^+ \pi^+ \pi^- K^-$	54	33	32	65	13292
51	$D^{*0} \to D^0 \gamma, D^0 \to \rho^0 \bar{K}^*, \rho^0 \to \pi^+ \pi^-, \bar{K}^* \to \pi^+ K^-$	18	33	30	63	13355
52	$D^{*0} \to D^0 \gamma, D^0 \to \rho^+ K^{*-}, \rho^+ \to \pi^0 \pi^+, K^{*-} \to \pi^- \bar{K}^0, \bar{K}^0 \to K_S^0, K_S^0 \to \pi^+ \pi^-$	158	31	32	63	13418
53	$D^{*0} \to \pi^0 D^0, D^0 \to \rho^0 \pi^+ K^-, \rho^0 \to \pi^+ \pi^-$	201	23	40	63	13481
54	$D^{*0} \to \pi^0 D^0, D^0 \to \pi^0 \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	15	25	36	61	13542
55	$D^{*0} \to \pi^0 D^0, D^0 \to K_L^0 \omega, \omega \to \pi^0 \pi^+ \pi^-$	146	28	33	61	13603
56	$D^{*0} \to \pi^0 D^0, D^0 \to \rho^+ K^{*-}, \rho^+ \to \pi^0 \pi^+, K^{*-} \to \pi^- \bar{K}^0, \bar{K}^0 \to K_S^0, K_S^0 \to \pi^0 \pi^0$	157	29	32	61	13664
57	$D^{*0} \to \pi^0 D^0, D^0 \to \pi^0 K_L^0$	331	23	38	61	13725
58	$D^{*0} \to D^0 \gamma, D^0 \to K^- a_1^+, a_1^+ \to \pi^+ \pi^+ \pi^-$	75	29	31	60	13785
59	$D^{*0} \to D^0 \gamma, D^0 \to \pi^0 \pi^+ K^-, \pi^0 \to e^+ e^-$	174	32	28	60	13845
60	$D^{*0} \to \pi^0 D^0, D^0 \to e^+ \nu_e K^{*-}, K^{*-} \to \pi^- \bar{K}^0, \bar{K}^0 \to K_S^0, K_S^0 \to \pi^+ \pi^-$	39	28	31	59	13904
61	$D^{*0} \to \pi^0 D^0, D^0 \to \pi^0 \pi^0 \pi^+ \pi^- K_S^0, K_S^0 \to \pi^+ \pi^-$	99	28	29	57	13961
62	$D^{*0} \to \pi^0 D^0, D^0 \to \pi^+ \pi^+ \pi^- \pi^-$	52	27	29	56	14017

rowNo	cascade decay branch of D^{*0}	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
63	$D^{*0} \to \pi^0 D^0, D^0 \to \pi^0\pi^0\pi^0\pi^+\pi^-$	64	26	29	55	14072
64	$D^{*0} \to \pi^0 D^0, D^0 \to \omega K_S^0, \omega \to \pi^0\pi^+\pi^-, K_S^0 \to \pi^+\pi^-$	101	24	30	54	14126
65	$D^{*0} \to D^0\gamma, D^0 \to \mu^+\nu_\mu K^{*-}, K^{*-} \to \pi^0 K^-$	245	31	23	54	14180
66	$D^{*0} \to D^0\gamma, D^0 \to K^+K^-$	115	27	26	53	14233
67	$D^{*0} \to D^0\gamma, D^0 \to \pi^0\pi^0\bar{K}^*, \bar{K}^* \to \pi^+K^-$	148	32	19	51	14284
68	$D^{*0} \to \pi^0 D^0, D^0 \to \pi^0\pi^0\pi^0\pi^+\pi^- K_S^0, K_S^0 \to \pi^+\pi^-$	121	21	29	50	14334
69	$D^{*0} \to \pi^0 D^0, D^0 \to \pi^0 K_L^0\pi^+\pi^-$	127	20	29	49	14383
70	$D^{*0} \to \pi^0 D^0, D^0 \to \pi^+\eta K^-, \eta \to \gamma\gamma$	113	30	18	48	14431
71	$D^{*0} \to \pi^0 D^0, D^0 \to \pi^0\pi^0\pi^0 K_L^0$	232	21	27	48	14479
72	$D^{*0} \to \pi^0 D^0, D^0 \to \pi^0\pi^0 K_L^0$	141	27	20	47	14526
73	$D^{*0} \to \pi^0 D^0, D^0 \to \pi^0\pi^0\pi^0 K_S^0, K_S^0 \to \pi^+\pi^-$	160	26	20	46	14572
74	$D^{*0} \to \pi^0 D^0, D^0 \to \pi^0\pi^0 K_S^0, K_S^0 \to \pi^+\pi^-$	192	23	23	46	14618
75	$D^{*0} \to \pi^0 D^0, D^0 \to \pi^0 K_S^0, K_S^0 \to \pi^+\pi^-$	364	18	28	46	14664
76	$D^{*0} \to D^0\gamma, D^0 \to \omega\bar{K}^*, \omega \to \pi^0\pi^+\pi^-, \bar{K}^* \to \pi^+K^-$	139	24	21	45	14709
77	$D^{*0} \to D^0\gamma, D^0 \to \pi^0\pi^0\pi^0 K_L^0\pi^+\pi^-$	186	15	28	43	14752
78	$D^{*0} \to D^0\gamma, D^0 \to \pi^0 K_L^0$	338	15	26	41	14793
79	$D^{*0} \to \pi^0 D^0, \pi^0 \to e^+e^-, D^0 \to \pi^+K^-$	131	20	20	40	14833
80	$D^{*0} \to \pi^0 D^0, D^0 \to K^-a_1^+, a_1^+ \to \pi^+ f_0(600), f_0(600) \to \pi^0\pi^0$	182	21	19	40	14873
81	$D^{*0} \to \pi^0 D^0, D^0 \to e^+\nu_e\pi^-$	76	16	23	39	14912
82	$D^{*0} \to \pi^0 D^0, D^0 \to \mu^+\nu_\mu K^{*-}, K^{*-} \to \pi^-\bar{K}^0, \bar{K}^0 \to K_L^0$	194	19	20	39	14951
83	$D^{*0} \to \pi^0 D^0, D^0 \to \pi^+\eta K^-, \eta \to \pi^0\pi^0\pi^0$	359	18	21	39	14990
84	$D^{*0} \to D^0\gamma, D^0 \to \pi^0\pi^0 K_L^0\pi^+\pi^-$	184	18	20	38	15028
85	$D^{*0} \to D^0\gamma, D^0 \to \pi^+\pi^+\pi^-\pi^-$	47	18	19	37	15065
86	$D^{*0} \to D^0\gamma, D^0 \to \pi^0\pi^0\pi^0\pi^+\pi^-$	234	17	20	37	15102
87	$D^{*0} \to D^0\gamma, D^0 \to \rho^0\pi^+K^-, \rho^0 \to \pi^+\pi^-$	282	15	22	37	15139
88	$D^{*0} \to D^0\gamma, D^0 \to \pi^+\pi^- K_S^0, K_S^0 \to \pi^0\pi^0$	8	20	16	36	15175
89	$D^{*0} \to D^0\gamma, D^0 \to \pi^0\pi^0 K_L^0$	67	24	12	36	15211
90	$D^{*0} \to D^0\gamma, D^0 \to \pi^0\rho^+K^-, \rho^+ \to \pi^0\pi^+$	172	19	17	36	15247
91	$D^{*0} \to D^0\gamma, D^0 \to K_L^0\omega, \omega \to \pi^0\pi^+\pi^-$	203	12	23	35	15282
92	$D^{*0} \to \pi^0 D^0, D^0 \to \pi^0\pi^+K^{*-}, K^{*-} \to \pi^0 K^-$	83	10	24	34	15316
93	$D^{*0} \to \pi^0 D^0, D^0 \to \pi^0\pi^0\pi^0\pi^+K^-$	94	19	15	34	15350
94	$D^{*0} \to D^0\gamma, D^0 \to \pi^0\pi^0\pi^+\pi^- K_S^0, K_S^0 \to \pi^+\pi^-$	271	17	17	34	15384
95	$D^{*0} \to D^0\gamma, D^0 \to e^+\nu_e K^{*-}, K^{*-} \to \pi^-\bar{K}^0, \bar{K}^0 \to K_S^0, K_S^0 \to \pi^+\pi^-$	87	15	18	33	15417
96	$D^{*0} \to D^0\gamma, D^0 \to \pi^0\pi^0\pi^0\pi^+\pi^-$	154	14	19	33	15450

rowNo	cascade decay branch of D^{*0}	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
97	$D^{*0} \to \pi^0 D^0, D^0 \to K_L^0 K^+ K^-$	62	20	12	32	15482
98	$D^{*0} \to \pi^0 D^0, D^0 \to \pi^+ K_1^-, K_1^- \to \pi^+ \pi^- K^-$	37	13	19	32	15514
99	$D^{*0} \to \pi^0 D^0, D^0 \to K_S^0 K^+ K^-, K_S^0 \to \pi^+ \pi^-$	178	14	18	32	15546
100	$D^{*0} \to D^0 \gamma, D^0 \to \pi^0 K_S^0, K_S^0 \to \pi^+ \pi^-$	49	17	14	31	15577
rest	$D^{*0} \to$ others (1162 in total)	—	2267	2358	4625	20202

Table 11: Cascade decay branches of D^0.

rowNo	cascade decay branch of D^0	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
1	$D^0 \to \pi^0 \pi^+ K^-$	1	4595	4256	8851	8851
2	$D^0 \to e^+ \nu_e K^-$	8	2354	2163	4517	13368
3	$D^0 \to \pi^+ K^-$	2	2028	1887	3915	17283
4	$D^0 \to \mu^+ \nu_\mu K^-$	16	1049	979	2028	19311
5	$D^0 \to \pi^0 \pi^0 \pi^+ K^-$	23	582	566	1148	20459
6	$D^0 \to K^- a_1^+, a_1^+ \to \rho^0 \pi^+, \rho^0 \to \pi^+ \pi^-$	11	594	544	1138	21597
7	$D^0 \to K^- a_1^+, a_1^+ \to \pi^0 \rho^+, \rho^+ \to \pi^0 \pi^+$	7	517	498	1015	22612
8	$D^0 \to \rho^+ K^{*-}, \rho^+ \to \pi^0 \pi^+, K^{*-} \to \pi^0 K^-$	12	460	442	902	23514
9	$D^0 \to K_L^0 \pi^+ \pi^-$	42	372	425	797	24311
10	$D^0 \to \pi^+ \omega K^-, \omega \to \pi^0 \pi^+ \pi^-$	14	385	392	777	25088
11	$D^0 \to \pi^+ \pi^- \bar{K}^*, \bar{K}^* \to \pi^+ K^-$	3	384	354	738	25826
12	$D^0 \to e^+ \nu_e K^{*-}, K^{*-} \to \pi^0 K^-$	4	380	312	692	26518
13	$D^0 \to \pi^0 \pi^+ \pi^-$	54	316	347	663	27181
14	$D^0 \to \pi^+ \pi^- K_S^0, K_S^0 \to \pi^+ \pi^-$	57	305	315	620	27801
15	$D^0 \to \rho^+ K^{*-}, \rho^+ \to \pi^0 \pi^+, K^{*-} \to \pi^- \bar{K}^0, \bar{K}^0 \to K_L^0$	50	265	284	549	28350
16	$D^0 \to \pi^0 \pi^+ \pi^- \bar{K}^*, \bar{K}^* \to \pi^+ K^-$	10	266	261	527	28877
17	$D^0 \to K^- a_1^+, a_1^+ \to \pi^+ \pi^+ \pi^-$	20	234	233	467	29344
18	$D^0 \to \rho^+ K^{*-}, \rho^+ \to \pi^0 \pi^+, K^{*-} \to \pi^- \bar{K}^0, \bar{K}^0 \to K_S^0, K_S^0 \to \pi^+ \pi^-$	18	231	230	461	29805
19	$D^0 \to \rho^0 \bar{K}^*, \rho^0 \to \pi^+ \pi^-, \bar{K}^* \to \pi^+ K^-$	15	216	214	430	30235
20	$D^0 \to K^- a_1^+, a_1^+ \to \pi^+ f_0(600), f_0(600) \to \pi^+ \pi^-$	0	222	198	420	30655
21	$D^0 \to \pi^+ \pi^+ \pi^- K^-$	38	195	215	410	31065
22	$D^0 \to \pi^0 \pi^+ K^-, \pi^0 \to e^+ e^-$	32	200	184	384	31449
23	$D^0 \to K^+ K^-$	145	188	181	369	31818
24	$D^0 \to \pi^0 \pi^0 \bar{K}^*, \bar{K}^* \to \pi^+ K^-$	5	181	161	342	32160
25	$D^0 \to \pi^0 \pi^0 \pi^+ \pi^-$	34	150	178	328	32488
26	$D^0 \to \omega \bar{K}^*, \omega \to \pi^0 \pi^+ \pi^-, \bar{K}^* \to \pi^+ K^-$	135	163	141	304	32792
27	$D^0 \to \mu^+ \nu_\mu K^{*-}, K^{*-} \to \pi^0 K^-$	24	161	134	295	33087
28	$D^0 \to \pi^0 \rho^+ K^-, \rho^+ \to \pi^0 \pi^+$	44	127	131	258	33345
29	$D^0 \to \pi^+ \pi^- K_S^0, K_S^0 \to \pi^0 \pi^0$	17	113	141	254	33599
30	$D^0 \to \rho^0 \pi^+ K^-, \rho^0 \to \pi^+ \pi^-$	74	114	130	244	33843
31	$D^0 \to K_L^0 \omega, \omega \to \pi^0 \pi^+ \pi^-$	119	108	134	242	34085
32	$D^0 \to \pi^0 \pi^0 K_L^0 \pi^+ \pi^-$	40	122	116	238	34323

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rowNo	cascade decay branch of D^0	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
33	$D^0 \to e^+\nu_e K^{*-}, K^{*-} \to \pi^-\bar{K}^0, \bar{K}^0 \to K_L^0$	28	115	121	236	34559
34	$D^0 \to \pi^+\pi^+\pi^-\pi^-$	45	120	114	234	34793
35	$D^0 \to \pi^0\pi^0\pi^0 K_L^0\pi^+\pi^-$	31	106	127	233	35026
36	$D^0 \to \pi^0 K_S^0, K_S^0 \to \pi^+\pi^-$	65	103	120	223	35249
37	$D^0 \to \pi^0\pi^0\pi^+\pi^- K_S^0, K_S^0 \to \pi^+\pi^-$	97	107	113	220	35469
38	$D^0 \to \pi^0 K_L^0$	129	88	125	213	35682
39	$D^0 \to e^+\nu_e K^{*-}, K^{*-} \to \pi^-\bar{K}^0, \bar{K}^0 \to K_S^0, K_S^0 \to \pi^+\pi^-$	53	93	115	208	35890
40	$D^0 \to \omega K_S^0, \omega \to \pi^0\pi^+\pi^-, K_S^0 \to \pi^+\pi^-$	102	97	111	208	36098
41	$D^0 \to \pi^0\pi^0 K_L^0$	87	112	95	207	36305
42	$D^0 \to \rho^+ K^{*-}, \rho^+ \to \pi^0\pi^+, K^{*-} \to \pi^-\bar{K}^0, \bar{K}^0 \to K_S^0, K_S^0 \to \pi^0\pi^0$	71	104	101	205	36510
43	$D^0 \to \pi^0\pi^0\pi^0 K_L^0$	90	107	94	201	36711
44	$D^0 \to \pi^0\pi^0\pi^0\pi^+\pi^-$	48	97	94	191	36902
45	$D^0 \to K^- a_1^+, a_1^+ \to \pi^+ f_0(600), f_0(600) \to \pi^0\pi^0$	35	97	93	190	37092
46	$D^0 \to \pi^0\pi^0\pi^0\pi^+\pi^- K_S^0, K_S^0 \to \pi^+\pi^-$	134	90	96	186	37278
47	$D^0 \to \pi^0\pi^0\pi^0 K_S^0, K_S^0 \to \pi^+\pi^-$	99	93	86	179	37457
48	$D^0 \to \pi^+\eta K^-, \eta \to \gamma\gamma$	36	104	72	176	37633
49	$D^0 \to \mu^+\nu_\mu K^{*-}, K^{*-} \to \pi^-\bar{K}^0, \bar{K}^0 \to K_L^0$	33	75	89	164	37797
50	$D^0 \to \pi^0\pi^0 K_S^0, K_S^0 \to \pi^+\pi^-$	153	75	88	163	37960
51	$D^0 \to \pi^0 K_L^0\pi^+\pi^-$	121	70	83	153	38113
52	$D^0 \to \pi^+\eta K^-, \eta \to \pi^0\pi^0\pi^0$	105	66	81	147	38260
53	$D^0 \to \mu^+\nu_\mu K^{*-}, K^{*-} \to \pi^-\bar{K}^0, \bar{K}^0 \to K_S^0, K_S^0 \to \pi^+\pi^-$	66	65	73	138	38398
54	$D^0 \to \pi^0\pi^0\pi^0\pi^+ K^-$	123	59	79	138	38536
55	$D^0 \to e^+\nu_e\pi^-$	104	69	59	128	38664
56	$D^0 \to \pi^0\pi^+\pi^- K^+ K^-$	122	59	68	127	38791
57	$D^0 \to \pi^0\pi^+ K^{*-}, K^{*-} \to \pi^0 K^-$	83	51	72	123	38914
58	$D^0 \to \pi^+\pi^-$	21	59	63	122	39036
59	$D^0 \to \pi^0\pi^+\pi^- K_S^0, K_S^0 \to \pi^+\pi^-$	136	52	70	122	39158
60	$D^0 \to \pi^+\eta K^-, \eta \to \pi^0\pi^+\pi^-$	194	66	55	121	39279
61	$D^0 \to K_L^0 K^+ K^-$	60	63	55	118	39397
62	$D^0 \to \pi^+ K_1^-, K_1^- \to \pi^+\pi^- K^-$	52	50	65	115	39512
63	$D^0 \to \pi^0\pi^0 K^+ K^-$	166	58	57	115	39627
64	$D^0 \to K_S^0 K^+ K^-, K_S^0 \to \pi^+\pi^-$	49	56	56	112	39739
65	$D^0 \to \pi^0 K_L^0\eta, \eta \to \gamma\gamma$	128	38	62	100	39839
66	$D^0 \to \mu^+\nu_\mu\pi^-$	67	38	60	98	39937

rowNo	cascade decay branch of D^0	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
67	$D^0 \to \pi^0\pi^0\pi^+K^-, \pi^0 \to e^+e^-$	116	51	46	97	40034
68	$D^0 \to e^+\nu_e K^{*-}, K^{*-} \to \pi^-\bar{K}^0, \bar{K}^0 \to K_S^0, K_S^0 \to \pi^0\pi^0$	143	48	47	95	40129
69	$D^0 \to \pi^0\pi^+\pi^-\bar{K}^*, \bar{K}^* \to \pi^0\bar{K}^0, \bar{K}^0 \to K_L^0$	68	49	44	93	40222
70	$D^0 \to \pi^+\pi^-\bar{K}^*, \bar{K}^* \to \pi^0\bar{K}^0, \bar{K}^0 \to K_L^0$	41	49	42	91	40313
71	$D^0 \to K^-K^{*+}, K^{*+} \to \pi^0K^+$	26	47	43	90	40403
72	$D^0 \to \pi^0K_S^0, K_S^0 \to \pi^0\pi^0$	91	45	44	89	40492
73	$D^0 \to e^+\nu_e\pi^0K^-$	43	45	41	86	40578
74	$D^0 \to \pi^+K_1^-, K_1^- \to \rho^0K^-, \rho^0 \to \pi^+\pi^-$	118	44	40	84	40662
75	$D^0 \to \omega K_S^0, \omega \to \pi^0\pi^+\pi^-, K_S^0 \to \pi^0\pi^0$	200	43	40	83	40745
76	$D^0 \to e^+\nu_e\rho^-, \rho^- \to \pi^0\pi^-$	192	42	40	82	40827
77	$D^0 \to K_L^0\eta', \eta' \to \rho^0\gamma, \rho^0 \to \pi^+\pi^-$	59	34	46	80	40907
78	$D^0 \to \pi^+\pi^-\bar{K}^*, \bar{K}^* \to \pi^0\bar{K}^0, \bar{K}^0 \to K_S^0, K_S^0 \to \pi^+\pi^-$	100	34	46	80	40987
79	$D^0 \to \pi^+\pi^+\pi^-\pi^-K_S^0, K_S^0 \to \pi^+\pi^-$	231	42	38	80	41067
80	$D^0 \to \pi^0K_L^0\eta, \eta \to \pi^0\pi^0\pi^0$	110	45	34	79	41146
81	$D^0 \to \pi^0\pi^0\pi^+\pi^-K_S^0, K_S^0 \to \pi^0\pi^0$	187	35	44	79	41225
82	$D^0 \to \pi^0\pi^+K^{*-}, K^{*-} \to \pi^-\bar{K}^0, \bar{K}^0 \to K_L^0$	303	37	42	79	41304
83	$D^0 \to \pi^0\eta K_S^0, \eta \to \gamma\gamma, K_S^0 \to \pi^+\pi^-$	77	40	38	78	41382
84	$D^0 \to \pi^0\pi^0\pi^0K_S^0, K_S^0 \to \pi^0\pi^0$	64	42	35	77	41459
85	$D^0 \to \pi^0\bar{K}^*, \bar{K}^* \to \pi^0\bar{K}^0, \bar{K}^0 \to K_L^0$	19	37	40	77	41536
86	$D^0 \to \pi^0\pi^0\pi^0\pi^+\pi^-K_S^0, K_S^0 \to \pi^0\pi^0$	165	36	40	76	41612
87	$D^0 \to \pi^+K_S^0K^-, K_S^0 \to \pi^+\pi^-$	46	36	39	75	41687
88	$D^0 \to \pi^+K^-\eta', \eta' \to \rho^0\gamma, \rho^0 \to \pi^+\pi^-$	62	41	34	75	41762
89	$D^0 \to K^-K^{*+}, K^{*+} \to \pi^+K^0, K^0 \to K_L^0$	103	41	30	71	41833
90	$D^0 \to \pi^0\pi^+\pi^-\bar{K}^*, \bar{K}^* \to \pi^0\bar{K}^0, \bar{K}^0 \to K_S^0, K_S^0 \to \pi^+\pi^-$	137	38	33	71	41904
91	$D^0 \to \rho^0\bar{K}^*, \rho^0 \to \pi^+\pi^-, \bar{K}^* \to \pi^0\bar{K}^0, \bar{K}^0 \to K_L^0$	37	29	41	70	41974
92	$D^0 \to \pi^+\pi^-\omega, \omega \to \pi^0\pi^+\pi^-$	171	41	26	67	42041
93	$D^0 \to \pi^0\bar{K}_1^0, \bar{K}_1^0 \to \rho^+K^-, \rho^+ \to \pi^0\pi^+$	47	32	34	66	42107
94	$D^0 \to \pi^+\pi^-K^+K^-$	147	34	32	66	42173
95	$D^0 \to \pi^+K^-\eta', \eta' \to \pi^+\pi^-\eta, \eta \to \pi^0\pi^0\pi^0$	204	37	29	66	42239
96	$D^0 \to \pi^0\pi^+K^{*-}, K^{*-} \to \pi^-\bar{K}^0, \bar{K}^0 \to K_S^0, K_S^0 \to \pi^+\pi^-$	154	29	36	65	42304
97	$D^0 \to \rho^+K^{*-}, \rho^+ \to \pi^0\pi^+, K^{*-} \to \pi^0K^-, \pi^0 \to e^+e^-$	217	29	36	65	42369
98	$D^0 \to \pi^0\pi^0K_S^0, K_S^0 \to \pi^0\pi^0$	270	30	35	65	42434
99	$D^0 \to \rho^0\rho^0, \rho^0 \to \pi^+\pi^-, \rho^0 \to \pi^+\pi^-$	114	24	40	64	42498
100	$D^0 \to \mu^+\nu_\mu\rho^-, \rho^- \to \pi^0\pi^-$	225	28	36	64	42562

rowNo	cascade decay branch of D^0	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
rest	$D^0 \rightarrow$ others (976 in total)	—	2924	3153	6077	48639

Table 12: Cascade decay branches of π^0.

rowNo	cascade decay branch of π^0	iCascDcyBrP	nCase	nCcCase	nAllCase	nCCase
1	$\pi^0 \to e^+ e^-$	0	4197	—	4197	4197
2	$\pi^0 \to e^+ e^+ e^- e^-$	1	16	—	16	4213

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

rowNo	decay final state of D^{*+}	iDcyFStP	nCase	nCcCase	nAllCase	nCCase
1	$D^{*+} \dashrightarrow \pi^0\pi^+\pi^+K^-$	14	1177	943	2120	2120
2	$D^{*+} \dashrightarrow \pi^0\pi^0\pi^+\pi^+K^-$	11	565	511	1076	3196
3	$D^{*+} \dashrightarrow e^+\nu_e\pi^+K^-$	19	438	382	820	4016
4	$D^{*+} \dashrightarrow \pi^+\pi^+\pi^+\pi^-K^-$	0	435	380	815	4831
5	$D^{*+} \dashrightarrow \pi^+\pi^+K^-$	18	437	332	769	5600
6	$D^{*+} \dashrightarrow e^+\nu_e\pi^0\pi^+K^-$	28	229	235	464	6064
7	$D^{*+} \dashrightarrow \mu^+\nu_\mu\pi^+K^-$	5	236	164	400	6464
8	$D^{*+} \dashrightarrow \pi^0\pi^+\pi^+\pi^+\pi^-K^-$	16	192	194	386	6850
9	$D^{*+} \dashrightarrow \pi^0K^0_L\pi^+\pi^+\pi^-$	22	161	170	331	7181
10	$D^{*+} \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-$	8	141	182	323	7504
11	$D^{*+} \dashrightarrow \pi^0\pi^+\pi^+\pi^+\pi^-\pi^-$	3	156	138	294	7798
12	$D^{*+} \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-$	23	122	122	244	8042
13	$D^{*+} \dashrightarrow \pi^0\pi^+\pi^+\pi^-$	53	104	132	236	8278
14	$D^{*+} \dashrightarrow \pi^0\pi^0K^0_L\pi^+$	9	96	108	204	8482
15	$D^{*+} \dashrightarrow \pi^+\pi^+\pi^+\pi^-\pi^-$	10	96	84	180	8662
16	$D^{*+} \dashrightarrow \mu^+\nu_\mu\pi^0\pi^+K^-$	55	81	85	166	8828
17	$D^{*+} \dashrightarrow K^0_L\pi^+\pi^+\pi^-$	34	75	86	161	8989
18	$D^{*+} \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-$	69	54	65	119	9108
19	$D^{*+} \dashrightarrow \pi^0\pi^0\pi^0K^0_L\pi^+$	33	49	69	118	9226
20	$D^{*+} \dashrightarrow \pi^0\pi^0K^0_L\pi^+\pi^+\pi^-$	38	51	53	104	9330
21	$D^{*+} \dashrightarrow e^+\nu_e\pi^0K^0_L$	17	47	51	98	9428
22	$D^{*+} \dashrightarrow e^+\nu_e\pi^0\pi^+\pi^-$	7	48	49	97	9525
23	$D^{*+} \dashrightarrow \mu^+\nu_\mu\pi^0\pi^+\pi^-$	24	48	40	88	9613
24	$D^{*+} \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-$	2	41	44	85	9698
25	$D^{*+} \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^+$	75	38	46	84	9782
26	$D^{*+} \dashrightarrow e^+e^-\pi^+\pi^+K^-$	67	38	43	81	9863
27	$D^{*+} \dashrightarrow \pi^0K^0_L\pi^+$	56	35	42	77	9940
28	$D^{*+} \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+K^-$	4	31	44	75	10015
29	$D^{*+} \dashrightarrow \pi^0\pi^+K^+K^-$	58	34	40	74	10089
30	$D^{*+} \dashrightarrow \mu^+\nu_\mu\pi^0K^0_L$	52	38	34	72	10161
31	$D^{*+} \dashrightarrow \pi^+K^+K^-$	46	39	33	72	10233
32	$D^{*+} \dashrightarrow e^+e^-\pi^0\pi^+\pi^+K^-$	6	33	37	70	10303
33	$D^{*+} \dashrightarrow \pi^0\pi^0\pi^+K^+K^-$	110	35	32	67	10370

rowNo	decay final state of D^{*+}	iDcyFStP	nCase	nCcCase	nAllCase	nCCase
34	$D^{*+} \dashrightarrow e^+\nu_e K_L^0 \pi^+\pi^-$	40	28	33	61	10431
35	$D^{*+} \dashrightarrow \pi^0\pi^0\pi^0 K_L^0 \pi^+\pi^+\pi^-$	70	30	29	59	10490
36	$D^{*+} \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^+\pi^-\pi^-$	37	25	32	57	10547
37	$D^{*+} \dashrightarrow \pi^0\pi^+\pi^+\pi^-\gamma\gamma$	79	22	34	56	10603
38	$D^{*+} \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-$	57	24	30	54	10657
39	$D^{*+} \dashrightarrow \pi^+\pi^+\pi^- K^+ K^-$	87	28	24	52	10709
40	$D^{*+} \dashrightarrow e^+\nu_e \pi^0\pi^0\pi^+\pi^-$	27	26	19	45	10754
41	$D^{*+} \dashrightarrow \pi^0\pi^0\pi^0\pi^+$	21	17	26	43	10797
42	$D^{*+} \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^+$	63	23	19	42	10839
43	$D^{*+} \dashrightarrow \mu^+\nu_\mu \pi^+\pi^+\pi^-\pi^-$	42	22	18	40	10879
44	$D^{*+} \dashrightarrow \mu^+\nu_\mu \pi^0\pi^0\pi^+\pi^-$	122	19	20	39	10918
45	$D^{*+} \dashrightarrow \mu^+\nu_\mu K_L^0 \pi^+\pi^-$	100	15	21	36	10954
46	$D^{*+} \dashrightarrow e^+\nu_e \pi^+\pi^+\pi^-\pi^-$	126	18	18	36	10990
47	$D^{*+} \dashrightarrow \pi^0\pi^0\pi^+\pi^- K^+$	80	16	19	35	11025
48	$D^{*+} \dashrightarrow \pi^0\pi^+\pi^+ K^-\gamma$	78	18	17	35	11060
49	$D^{*+} \dashrightarrow \pi^+\pi^+ K^-\gamma\gamma$	136	18	15	33	11093
50	$D^{*+} \dashrightarrow \pi^+\pi^+\pi^-$	1	12	20	32	11125
51	$D^{*+} \dashrightarrow \pi^0\pi^0\pi^0\pi^+\gamma\gamma$	32	16	16	32	11157
52	$D^{*+} \dashrightarrow e^+\nu_e \pi^0\pi^0\pi^0$	49	17	14	31	11188
53	$D^{*+} \dashrightarrow \pi^0\pi^0\pi^0\pi^0 K_L^0 \pi^+$	59	13	17	30	11218
54	$D^{*+} \dashrightarrow K_L^0 \pi^+\pi^+ K^-$	54	13	17	30	11248
55	$D^{*+} \dashrightarrow e^+\nu_e \pi^0\pi^0 K_L^0$	66	17	12	29	11277
56	$D^{*+} \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^+$	61	15	14	29	11306
57	$D^{*+} \dashrightarrow \pi^0\pi^+\pi^+\pi^- K^+ K^-$	26	15	14	29	11335
58	$D^{*+} \dashrightarrow e^+e^-\pi^0\pi^0\pi^+\pi^+\pi^-$	15	15	13	28	11363
59	$D^{*+} \dashrightarrow \mu^+\nu_\mu \pi^0\pi^0\pi^0$	121	13	15	28	11391
60	$D^{*+} \dashrightarrow K_L^0 \pi^+ K^+ K^-$	31	16	9	25	11416
61	$D^{*+} \dashrightarrow \pi^0 K_L^0 \pi^+\gamma\gamma$	127	9	16	25	11441
62	$D^{*+} \dashrightarrow e^+e^-\pi^+\pi^+\pi^+\pi^-\pi^-$	76	11	13	24	11465
63	$D^{*+} \dashrightarrow \pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-$	30	11	11	22	11487
64	$D^{*+} \dashrightarrow e^+\nu_e \pi^+ K^-\gamma$	98	12	10	22	11509
65	$D^{*+} \dashrightarrow \pi^0\pi^0 K_L^0 K^+$	129	8	14	22	11531
66	$D^{*+} \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\gamma\gamma$	119	9	12	21	11552
67	$D^{*+} \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^+\pi^- K^-$	137	13	8	21	11573
68	$D^{*+} \dashrightarrow e^+e^-\pi^0\pi^+\pi^+\pi^-$	68	6	14	20	11593

rowNo	decay final state of D^{*+}	iDcyFStP	nCase	nCcCase	nAllCase	nCCase
69	$D^{*+} \dashrightarrow K_L^0 \pi^+ \pi^+ \pi^- \gamma$	35	9	11	20	11613
70	$D^{*+} \dashrightarrow K_L^0 \pi^+ \pi^+ \pi^+ \pi^- \pi^-$	123	8	12	20	11633
71	$D^{*+} \dashrightarrow \pi^+ \pi^+ K^- \gamma$	90	12	7	19	11652
72	$D^{*+} \dashrightarrow e^+ e^- \pi^0 K_L^0 \pi^+$	20	3	16	19	11671
73	$D^{*+} \dashrightarrow \pi^0 \pi^+ \pi^+ \pi^- \gamma$	135	10	9	19	11690
74	$D^{*+} \dashrightarrow \pi^+ \pi^+ \pi^+ \pi^- K^- \gamma$	146	9	10	19	11709
75	$D^{*+} \dashrightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^+ \pi^+ \pi^- K^-$	64	10	8	18	11727
76	$D^{*+} \dashrightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^0 \pi^0 \pi^0 \pi^0 \pi^+$	200	13	4	17	11744
77	$D^{*+} \dashrightarrow \pi^+ \pi^+ \pi^+ \pi^- \pi^- \gamma$	150	5	11	16	11760
78	$D^{*+} \dashrightarrow e^+ \nu_e \pi^+ \pi^-$	177	10	6	16	11776
79	$D^{*+} \dashrightarrow \mu^+ \nu_\mu \pi^0 \pi^0 K_L^0$	189	7	9	16	11792
80	$D^{*+} \dashrightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \pi^+ \pi^+ \pi^- \pi^-$	198	5	11	16	11808
81	$D^{*+} \dashrightarrow \mu^+ \nu_\mu \pi^+ \pi^-$	93	5	10	15	11823
82	$D^{*+} \dashrightarrow \pi^0 K_L^0 \pi^+ \pi^+ K^-$	151	11	4	15	11838
83	$D^{*+} \dashrightarrow \pi^0 \pi^+ \pi^- K^+$	44	7	7	14	11852
84	$D^{*+} \dashrightarrow e^+ e^- \pi^0 \pi^0 \pi^0 \pi^+ \pi^+ \pi^-$	95	8	6	14	11866
85	$D^{*+} \dashrightarrow e^+ e^- K_L^0 \pi^+ \pi^+ \pi^-$	86	4	10	14	11880
86	$D^{*+} \dashrightarrow e^+ \nu_e \pi^0 \pi^0 \pi^0 \pi^0$	114	7	7	14	11894
87	$D^{*+} \dashrightarrow e^+ e^- \pi^0 \pi^0 \pi^0 \pi^+$	120	8	6	14	11908
88	$D^{*+} \dashrightarrow e^+ \nu_e \pi^0 \pi^0$	128	7	7	14	11922
89	$D^{*+} \dashrightarrow e^+ e^+ e^- \nu_e \pi^+ K^-$	173	10	4	14	11936
90	$D^{*+} \dashrightarrow K_L^0 \pi^+ \pi^- K^+$	65	5	8	13	11949
91	$D^{*+} \dashrightarrow \pi^0 \pi^+ \pi^+ \pi^- \pi^- K^+$	131	5	8	13	11962
92	$D^{*+} \dashrightarrow \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- K^-$	132	5	7	12	11974
93	$D^{*+} \dashrightarrow \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \gamma$	140	9	3	12	11986
94	$D^{*+} \dashrightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \gamma \gamma$	180	7	5	12	11998
95	$D^{*+} \dashrightarrow e^+ e^- \pi^0 \pi^+ \pi^+ \pi^+ \pi^- \pi^-$	41	6	5	11	12009
96	$D^{*+} \dashrightarrow \pi^0 K_L^0 \pi^+ \gamma$	45	5	6	11	12020
97	$D^{*+} \dashrightarrow e^+ e^- \pi^0 \pi^0 K_L^0 \pi^+$	166	3	8	11	12031
98	$D^{*+} \dashrightarrow \pi^0 K_L^0 K^+$	183	6	5	11	12042
99	$D^{*+} \dashrightarrow e^+ e^- \pi^+ \pi^+ \pi^-$	13	8	2	10	12052
100	$D^{*+} \dashrightarrow \pi^0 \pi^+ \gamma \gamma$	85	5	5	10	12062
rest	$D^{*+} \dashrightarrow$ others (263 in total)	—	322	324	646	12708

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

rowNo	decay final state of D^{*0}	iDcyFStP	nCase	nCcCase	nAllCase	nCCase
1	$D^{*0} \dashrightarrow \pi^0\pi^0\pi^+K^-$	1	1206	1174	2380	2380
2	$D^{*0} \dashrightarrow \pi^0\pi^+K^-\gamma$	11	627	624	1251	3631
3	$D^{*0} \dashrightarrow e^+\nu_e\pi^0K^-$	5	626	563	1189	4820
4	$D^{*0} \dashrightarrow \pi^0\pi^+\pi^+\pi^-K^-$	0	571	590	1161	5981
5	$D^{*0} \dashrightarrow \pi^0\pi^0\pi^0\pi^+K^-$	15	561	563	1124	7105
6	$D^{*0} \dashrightarrow \pi^0\pi^+K^-$	2	473	438	911	8016
7	$D^{*0} \dashrightarrow \pi^+\pi^+\pi^-K^-\gamma$	17	310	324	634	8650
8	$D^{*0} \dashrightarrow e^+\nu_eK^-\gamma$	19	319	306	625	9275
9	$D^{*0} \dashrightarrow \pi^0\pi^0\pi^+K^-\gamma$	24	321	300	621	9896
10	$D^{*0} \dashrightarrow \pi^+K^-\gamma$	30	274	259	533	10429
11	$D^{*0} \dashrightarrow \mu^+\nu_\mu\pi^0K^-$	6	265	251	516	10945
12	$D^{*0} \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-K^-$	16	243	235	478	11423
13	$D^{*0} \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-$	8	158	187	345	11768
14	$D^{*0} \dashrightarrow \pi^0\pi^0K^0_L\pi^+\pi^-$	27	163	178	341	12109
15	$D^{*0} \dashrightarrow \pi^0\pi^+\pi^+\pi^-K^-\gamma$	64	138	144	282	12391
16	$D^{*0} \dashrightarrow \mu^+\nu_\mu K^-\gamma$	20	136	142	278	12669
17	$D^{*0} \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^-$	4	137	128	265	12934
18	$D^{*0} \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^-$	70	111	136	247	13181
19	$D^{*0} \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-$	39	117	121	238	13419
20	$D^{*0} \dashrightarrow \pi^0\pi^0\pi^+\pi^-$	38	96	127	223	13642
21	$D^{*0} \dashrightarrow \pi^0K^0_L\pi^+\pi^-$	41	107	112	219	13861
22	$D^{*0} \dashrightarrow \pi^0K^0_L\pi^+\pi^-\gamma$	34	102	116	218	14079
23	$D^{*0} \dashrightarrow e^+\nu_e\pi^0\pi^0K^-$	3	123	84	207	14286
24	$D^{*0} \dashrightarrow e^+e^-\pi^0\pi^+K^-$	29	108	96	204	14490
25	$D^{*0} \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\gamma$	40	96	105	201	14691
26	$D^{*0} \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^-\gamma$	61	79	76	155	14846
27	$D^{*0} \dashrightarrow \pi^+\pi^+\pi^-\pi^-\gamma$	35	70	78	148	14994
28	$D^{*0} \dashrightarrow \pi^0\pi^+\pi^-\gamma$	31	75	59	134	15128
29	$D^{*0} \dashrightarrow \pi^0\pi^0\pi^0K^0_L\pi^+\pi^-$	89	68	59	127	15255
30	$D^{*0} \dashrightarrow e^+e^-\pi^0\pi^0\pi^+K^-$	80	55	69	124	15379
31	$D^{*0} \dashrightarrow K^0_L\pi^+\pi^-\gamma$	22	57	64	121	15500
32	$D^{*0} \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-$	66	49	69	118	15618
33	$D^{*0} \dashrightarrow e^+\nu_e\pi^0K^-\gamma$	23	64	53	117	15735

rowNo	decay final state of D^{*0}	iDcyFStP	nCase	nCcCase	nAllCase	nCCase
34	$D^{*0} \dashrightarrow \pi^0\pi^0\pi^+\pi^-\gamma$	7	52	60	112	15847
35	$D^{*0} \dashrightarrow \mu^+\nu_\mu\pi^0\pi^0 K^-$	25	58	48	106	15953
36	$D^{*0} \dashrightarrow \pi^0 K^+ K^-$	85	45	43	88	16041
37	$D^{*0} \dashrightarrow \pi^0\pi^0 K_L^0\pi^+\pi^-\gamma$	65	39	46	85	16126
38	$D^{*0} \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^-$	86	49	33	82	16208
39	$D^{*0} \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^+ K^-$	62	43	39	82	16290
40	$D^{*0} \dashrightarrow e^+\nu_e\pi^0 K_L^0\pi^-$	12	40	38	78	16368
41	$D^{*0} \dashrightarrow e^+\nu_e\pi^0\pi^+\pi^-\pi^-$	28	41	34	75	16443
42	$D^{*0} \dashrightarrow \pi^0\pi^0\pi^0\pi^0 K_L^0\pi^+\pi^-$	14	31	43	74	16517
43	$D^{*0} \dashrightarrow \pi^0\pi^0\pi^0\pi^0 K_L^0$	36	32	37	69	16586
44	$D^{*0} \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-$	77	28	41	69	16655
45	$D^{*0} \dashrightarrow \pi^0\pi^0\pi^0 K_L^0$	58	32	31	63	16718
46	$D^{*0} \dashrightarrow \pi^0\pi^+ K^-\gamma\gamma$	74	40	22	62	16780
47	$D^{*0} \dashrightarrow e^+e^-\pi^+ K^-\gamma$	102	32	30	62	16842
48	$D^{*0} \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\gamma$	113	30	31	61	16903
49	$D^{*0} \dashrightarrow \mu^+\nu_\mu\pi^0 K^-\gamma$	137	35	26	61	16964
50	$D^{*0} \dashrightarrow \pi^0\pi^0 K_L^0$	169	23	38	61	17025
51	$D^{*0} \dashrightarrow e^+e^-\pi^0\pi^+ K^-\gamma$	44	30	27	57	17082
52	$D^{*0} \dashrightarrow \pi^0\pi^0 K_L^0\gamma$	49	36	19	55	17137
53	$D^{*0} \dashrightarrow K^+ K^-\gamma$	75	27	26	53	17190
54	$D^{*0} \dashrightarrow \pi^0\pi^0\pi^0\pi^+ K^-\gamma$	132	20	32	52	17242
55	$D^{*0} \dashrightarrow \pi^0\pi^+\pi^- K^+ K^-$	76	24	27	51	17293
56	$D^{*0} \dashrightarrow \pi^0\pi^0\pi^0 K_L^0\pi^+\pi^-\gamma$	108	19	31	50	17343
57	$D^{*0} \dashrightarrow \mu^+\nu_\mu\pi^0 K_L^0\pi^-$	111	25	24	49	17392
58	$D^{*0} \dashrightarrow e^+e^-\pi^+\pi^+\pi^- K^-$	21	17	29	46	17438
59	$D^{*0} \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^-\gamma$	71	26	20	46	17484
60	$D^{*0} \dashrightarrow \pi^0\pi^0 K^+ K^-$	10	22	20	42	17526
61	$D^{*0} \dashrightarrow \pi^0\pi^0\pi^0 K^+ K^-$	60	20	21	41	17567
62	$D^{*0} \dashrightarrow \pi^+\pi^- K^+ K^-\gamma$	46	22	19	41	17608
63	$D^{*0} \dashrightarrow \pi^0 K_L^0\gamma$	171	15	26	41	17649
64	$D^{*0} \dashrightarrow e^+e^-\pi^+ K^-$	81	20	20	40	17689
65	$D^{*0} \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-\gamma$	69	19	21	40	17729
66	$D^{*0} \dashrightarrow e^+\nu_e\pi^0\pi^-$	54	16	23	39	17768
67	$D^{*0} \dashrightarrow \mu^+\nu_\mu\pi^0\pi^+\pi^-\pi^-$	87	21	18	39	17807
68	$D^{*0} \dashrightarrow e^+\nu_e\pi^+\pi^-\pi^-\gamma$	59	18	21	39	17846

rowNo	decay final state of D^{*0}	iDcyFStP	nCase	nCcCase	nAllCase	nCCase
69	$D^{*0} \dashrightarrow e^+e^-\pi^0\pi^+\pi^+\pi^-K^-$	148	20	19	39	17885
70	$D^{*0} \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^0$	93	19	18	37	17922
71	$D^{*0} \dashrightarrow e^+\nu_e K_L^0\pi^-\gamma$	105	17	20	37	17959
72	$D^{*0} \dashrightarrow \pi^0\pi^0\pi^0 K_L^0\gamma$	116	20	17	37	17996
73	$D^{*0} \dashrightarrow \pi^+K^-\gamma\gamma$	18	22	14	36	18032
74	$D^{*0} \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^-$	106	15	19	34	18066
75	$D^{*0} \dashrightarrow e^+e^-\pi^0\pi^0\pi^0\pi^+\pi^-$	175	18	16	34	18100
76	$D^{*0} \dashrightarrow \pi^0 K_L^0 K^+ K^-$	45	20	12	32	18132
77	$D^{*0} \dashrightarrow \pi^0 K_L^0\pi^+ K^-$	78	18	14	32	18164
78	$D^{*0} \dashrightarrow \pi^0\pi^0 K_L^0\gamma\gamma$	67	11	21	32	18196
79	$D^{*0} \dashrightarrow \pi^0\pi^0\pi^+\pi^- K^+ K^-$	92	13	18	31	18227
80	$D^{*0} \dashrightarrow \pi^0\pi^+\pi^- K^+ K^-\gamma$	63	14	17	31	18258
81	$D^{*0} \dashrightarrow \mu^+\nu_\mu K_L^0\pi^-\gamma$	83	12	17	29	18287
82	$D^{*0} \dashrightarrow \pi^0\pi^+\pi^-\gamma\gamma$	194	16	13	29	18316
83	$D^{*0} \dashrightarrow e^+e^-\pi^0 K_L^0\pi^+\pi^-$	94	12	16	28	18344
84	$D^{*0} \dashrightarrow e^+\nu_e\pi^0\pi^0\pi^0\pi^-$	133	15	13	28	18372
85	$D^{*0} \dashrightarrow \pi^0\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-$	147	14	14	28	18400
86	$D^{*0} \dashrightarrow e^+e^-\pi^0\pi^0\pi^+\pi^-$	135	17	10	27	18427
87	$D^{*0} \dashrightarrow e^+e^+e^-\nu_e K^-$	115	18	8	26	18453
88	$D^{*0} \dashrightarrow K_L^0\pi^+ K^-\gamma$	140	15	11	26	18479
89	$D^{*0} \dashrightarrow e^+e^-\pi^0\pi^+\pi^+\pi^-\pi^-$	90	15	10	25	18504
90	$D^{*0} \dashrightarrow \pi^0\pi^0\pi^0\pi^0$	158	15	10	25	18529
91	$D^{*0} \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^-\gamma$	188	12	13	25	18554
92	$D^{*0} \dashrightarrow \pi^0\pi^0\pi^+\pi^-\gamma\gamma$	199	13	12	25	18579
93	$D^{*0} \dashrightarrow e^+e^-\mu^+\nu_\mu K^-$	91	11	13	24	18603
94	$D^{*0} \dashrightarrow \pi^0\pi^+\pi^-$	26	13	11	24	18627
95	$D^{*0} \dashrightarrow \mu^+\nu_\mu\pi^+\pi^-\pi^-\gamma$	190	10	14	24	18651
96	$D^{*0} \dashrightarrow \pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\gamma$	79	10	13	23	18674
97	$D^{*0} \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0 K_L^0$	184	15	8	23	18697
98	$D^{*0} \dashrightarrow \pi^0 K^+ K^-\gamma$	202	12	11	23	18720
99	$D^{*0} \dashrightarrow \pi^0\pi^0 K^+ K^-\gamma$	96	13	9	22	18742
100	$D^{*0} \dashrightarrow \pi^0 K_L^0\pi^+\pi^+\pi^-\pi^-$	157	10	10	20	18762
rest	$D^{*0} \dashrightarrow$ others (354 in total)	—	686	754	1440	20202

Table 15: Decay final states of D^0.

rowNo	decay final state of D^0	iDcyFStP	nCase	nCcCase	nAllCase	nCCase
1	$D^0 \dashrightarrow \pi^0\pi^+K^-$	1	4595	4256	8851	8851
2	$D^0 \dashrightarrow e^+\nu_e K^-$	6	2354	2163	4517	13368
3	$D^0 \dashrightarrow \pi^+\pi^+\pi^-K^-$	0	2176	2119	4295	17663
4	$D^0 \dashrightarrow \pi^0\pi^0\pi^+K^-$	4	2132	2092	4224	21887
5	$D^0 \dashrightarrow \pi^+K^-$	2	2028	1887	3915	25802
6	$D^0 \dashrightarrow \mu^+\nu_\mu K^-$	8	1049	979	2028	27830
7	$D^0 \dashrightarrow \pi^0\pi^+\pi^+\pi^-K^-$	7	921	886	1807	29637
8	$D^0 \dashrightarrow \pi^0 K_L^0 \pi^+\pi^-$	24	636	712	1348	30985
9	$D^0 \dashrightarrow \pi^0\pi^+\pi^+\pi^-\pi^-$	10	614	674	1288	32273
10	$D^0 \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^-$	5	495	480	975	33248
11	$D^0 \dashrightarrow \pi^+\pi^+\pi^-\pi^-$	28	459	474	933	34181
12	$D^0 \dashrightarrow \pi^0\pi^+\pi^-$	31	419	467	886	35067
13	$D^0 \dashrightarrow \pi^0\pi^0\pi^+\pi^-$	9	368	444	812	35879
14	$D^0 \dashrightarrow K_L^0 \pi^+\pi^-$	27	372	428	800	36679
15	$D^0 \dashrightarrow e^+\nu_e \pi^0 K^-$	3	425	353	778	37457
16	$D^0 \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-\pi^-$	59	226	240	466	37923
17	$D^0 \dashrightarrow \pi^0\pi^0 K_L^0 \pi^+\pi^-$	26	228	214	442	38365
18	$D^0 \dashrightarrow e^+e^-\pi^+K^-$	21	207	192	399	38764
19	$D^0 \dashrightarrow K^+K^-$	82	188	181	369	39133
20	$D^0 \dashrightarrow \mu^+\nu_\mu \pi^0 K^-$	14	193	163	356	39489
21	$D^0 \dashrightarrow e^+e^-\pi^0\pi^+K^-$	25	158	185	343	39832
22	$D^0 \dashrightarrow \pi^0\pi^0\pi^0\pi^+K^-$	62	138	172	310	40142
23	$D^0 \dashrightarrow \pi^0\pi^0\pi^0 K_L^0$	39	161	142	303	40445
24	$D^0 \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^+\pi^-$	15	137	149	286	40731
25	$D^0 \dashrightarrow \pi^0\pi^0 K_L^0$	11	149	135	284	41015
26	$D^0 \dashrightarrow \pi^0\pi^0\pi^0 K_L^0 \pi^+\pi^-$	20	126	152	278	41293
27	$D^0 \dashrightarrow e^+\nu_e K_L^0 \pi^-$	17	131	141	272	41565
28	$D^0 \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-$	76	115	134	249	41814
29	$D^0 \dashrightarrow e^+\nu_e \pi^+\pi^-\pi^-$	30	118	127	245	42059
30	$D^0 \dashrightarrow \pi^+\pi^-K^+K^-$	29	109	110	219	42278
31	$D^0 \dashrightarrow \pi^0 K_L^0$	71	88	125	213	42491
32	$D^0 \dashrightarrow \mu^+\nu_\mu K_L^0 \pi^-$	22	99	108	207	42698
33	$D^0 \dashrightarrow \pi^+K^-\gamma\gamma$	23	116	89	205	42903

rowNo	decay final state of D^0	iDcyFStP	nCase	nCcCase	nAllCase	nCCase
34	$D^0 \dashrightarrow \mu^+\nu_\mu\pi^+\pi^-\pi^-$	41	88	89	177	43080
35	$D^0 \dashrightarrow \pi^0 K^+ K^-$	16	89	88	177	43257
36	$D^0 \dashrightarrow \pi^0\pi^0 K^+ K^-$	67	81	83	164	43421
37	$D^0 \dashrightarrow \pi^0\pi^+\pi^- K^+ K^-$	49	72	86	158	43579
38	$D^0 \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^+\pi^-$	19	61	70	131	43710
39	$D^0 \dashrightarrow K_L^0\pi^+ K^-$	60	69	60	129	43839
40	$D^0 \dashrightarrow e^+\nu_e\pi^-$	61	69	59	128	43967
41	$D^0 \dashrightarrow \pi^+\pi^+\pi^+\pi^-\pi^-\pi^-$	75	61	64	125	44092
42	$D^0 \dashrightarrow \pi^+\pi^-$	12	59	63	122	44214
43	$D^0 \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0$	40	62	59	121	44335
44	$D^0 \dashrightarrow K_L^0 K^+ K^-$	36	63	55	118	44453
45	$D^0 \dashrightarrow e^+\nu_e\pi^0\pi^0\pi^-$	80	56	50	106	44559
46	$D^0 \dashrightarrow \pi^0 K_L^0\gamma\gamma$	70	40	63	103	44662
47	$D^0 \dashrightarrow \mu^+\nu_\mu\pi^-$	42	38	60	98	44760
48	$D^0 \dashrightarrow \pi^0\pi^+ K^-\gamma$	78	50	47	97	44857
49	$D^0 \dashrightarrow \pi^0\pi^+\pi^-\gamma\gamma$	47	49	47	96	44953
50	$D^0 \dashrightarrow \pi^0\pi^0\pi^0\pi^0$	131	43	53	96	45049
51	$D^0 \dashrightarrow K_L^0\pi^+\pi^+\pi^-\pi^-$	84	46	48	94	45143
52	$D^0 \dashrightarrow \pi^0\pi^0\pi^0$	55	45	48	93	45236
53	$D^0 \dashrightarrow \pi^0\pi^0\pi^0\pi^0 K_L^0$	66	50	40	90	45326
54	$D^0 \dashrightarrow \pi^0\pi^0\pi^0\pi^+\pi^+\pi^- K^-$	102	47	43	90	45416
55	$D^0 \dashrightarrow e^+e^-\pi^0\pi^0\pi^+\pi^-$	101	42	47	89	45505
56	$D^0 \dashrightarrow e^+\nu_e\pi^0\pi^-$	97	43	40	83	45588
57	$D^0 \dashrightarrow K_L^0\pi^+\pi^-\gamma$	35	35	46	81	45669
58	$D^0 \dashrightarrow e^+e^-\pi^+\pi^+\pi^- K^-$	138	41	37	78	45747
59	$D^0 \dashrightarrow \pi^+\pi^+\pi^- K^-\gamma$	38	42	35	77	45824
60	$D^0 \dashrightarrow \mu^+\nu_\mu\pi^0\pi^0\pi^-$	64	37	31	68	45892
61	$D^0 \dashrightarrow \pi^+\pi^+\pi^-\pi^-\gamma$	54	33	33	66	45958
62	$D^0 \dashrightarrow \pi^+\pi^-\gamma\gamma$	72	35	29	64	46022
63	$D^0 \dashrightarrow \mu^+\nu_\mu\pi^0\pi^-$	113	28	36	64	46086
64	$D^0 \dashrightarrow \pi^+\pi^-\pi^- K^+$	110	33	28	61	46147
65	$D^0 \dashrightarrow e^+e^-\pi^+\pi^+\pi^-\pi^-$	90	28	31	59	46206
66	$D^0 \dashrightarrow \pi^0\pi^0\pi^0\gamma\gamma$	53	28	29	57	46263
67	$D^0 \dashrightarrow e^+e^-\pi^0\pi^+\pi^-$	122	27	28	55	46318
68	$D^0 \dashrightarrow K_L^0\pi^- K^+$	136	27	28	55	46373

rowNo	decay final state of D^0	iDcyFStP	nCase	nCcCase	nAllCase	nCCase
69	$D^0 \dashrightarrow \pi^0\pi^0\pi^0\pi^0\pi^0\pi^0$	95	27	27	54	46427
70	$D^0 \dashrightarrow \pi^+\pi^+\pi^-K^-\gamma\gamma$	144	26	27	53	46480
71	$D^0 \dashrightarrow e^+e^-K_L^0\pi^+\pi^-$	147	20	33	53	46533
72	$D^0 \dashrightarrow \pi^+\pi^+\pi^+\pi^-\pi^-K^-$	89	21	27	48	46581
73	$D^0 \dashrightarrow \pi^+\pi^+\pi^-\pi^-\gamma\gamma$	149	24	21	45	46626
74	$D^0 \dashrightarrow \pi^0\pi^0\pi^+\pi^+\pi^-K^-$	172	21	24	45	46671
75	$D^0 \dashrightarrow \pi^0\pi^0\pi^+\pi^-\gamma\gamma$	58	25	17	42	46713
76	$D^0 \dashrightarrow \pi^0\pi^+\pi^-\gamma$	124	17	25	42	46755
77	$D^0 \dashrightarrow K_L^0\gamma\gamma$	99	14	26	40	46795
78	$D^0 \dashrightarrow K_L^0\pi^+\pi^-\gamma\gamma$	134	19	19	38	46833
79	$D^0 \dashrightarrow e^+e^-\pi^+\pi^-$	37	19	18	37	46870
80	$D^0 \dashrightarrow K_L^0K_L^0\pi^+\pi^-$	44	17	20	37	46907
81	$D^0 \dashrightarrow e^+e^-\pi^0\pi^+\pi^+\pi^-\pi^-$	92	17	20	37	46944
82	$D^0 \dashrightarrow e^+e^-\pi^0\pi^0\pi^0\pi^+\pi^-$	179	18	19	37	46981
83	$D^0 \dashrightarrow e^+e^-\pi^0\pi^0\pi^+K^-$	88	18	18	36	47017
84	$D^0 \dashrightarrow e^+e^-\pi^0\pi^0K_L^0$	114	15	20	35	47052
85	$D^0 \dashrightarrow e^+e^-\pi^0\pi^0K_L^0\pi^+\pi^-$	105	22	12	34	47086
86	$D^0 \dashrightarrow \pi^0\pi^0\pi^-K^+$	146	14	20	34	47120
87	$D^0 \dashrightarrow \pi^0K_L^0\gamma$	50	14	19	33	47153
88	$D^0 \dashrightarrow \pi^0\pi^+\pi^+\pi^+\pi^-\pi^-K^-$	119	16	17	33	47186
89	$D^0 \dashrightarrow \pi^0\pi^0\pi^+\pi^-\gamma$	68	19	13	32	47218
90	$D^0 \dashrightarrow e^+e^-\pi^0K_L^0\pi^+\pi^-$	117	18	13	31	47249
91	$D^0 \dashrightarrow e^+\nu_e\pi^+\pi^-K^-$	34	20	10	30	47279
92	$D^0 \dashrightarrow \pi^0K_L^0K^+K^-$	33	16	13	29	47308
93	$D^0 \dashrightarrow e^+\nu_e\pi^0\pi^+\pi^-\pi^-$	203	26	3	29	47337
94	$D^0 \dashrightarrow \pi^0\pi^0\pi^+K^-\gamma\gamma$	57	10	18	28	47365
95	$D^0 \dashrightarrow \pi^0K_L^0\pi^+\pi^+\pi^-\pi^-$	73	8	18	26	47391
96	$D^0 \dashrightarrow e^+e^-\pi^0K_L^0$	83	9	16	25	47416
97	$D^0 \dashrightarrow \pi^0\pi^0$	128	10	15	25	47441
98	$D^0 \dashrightarrow \pi^0\pi^0K_L^0K_L^0$	130	13	12	25	47466
99	$D^0 \dashrightarrow e^+e^-\pi^0\pi^0\pi^+\pi^+\pi^-\pi^-$	65	12	11	23	47489
100	$D^0 \dashrightarrow e^+e^+e^-\nu_eK^-$	140	11	12	23	47512
rest	$D^0 \dashrightarrow$ others (279 in total)	—	514	613	1127	48639

Table 16: Decay final states of π^0.

rowNo	decay final state of π^0	iDcyFStP	nCase	nCcCase	nAllCase	nCCase
1	$\pi^0 \dashrightarrow e^+e^-$	0	4197	—	4197	4197
2	$\pi^0 \dashrightarrow e^+e^+e^-e^-$	1	16	—	16	4213

Table 17: Production branches of D_s^+.

rowNo	production branch of D_s^+	iProdBrP	nCase	nCcCase	nAllCase	nCCase
1	$D_s^{*+} \to D_s^+ \gamma$	0	1351	1419	2770	2770
2	$D_{s0}^{*+} \to \pi^0 D_s^+$	1	565	628	1193	3963
3	$B^+ \to \bar{D}^0 D_s^+$	2	206	216	422	4385
4	$B^+ \to \bar{D}^{*0} D_s^+$	3	166	199	365	4750
5	$B^0 \to D^{*-} D_s^+$	33	84	109	193	4943
6	$D_s^{*+} \to \pi^0 D_s^+$	5	93	98	191	5134
7	$B^0 \to D^- D_s^+$	37	60	87	147	5281
8	$B^+ \to \bar{D}_2^{*0} D_s^+$	6	66	56	122	5403
9	$D_{s1}'^+ \to D_s^+ \gamma$	17	39	54	93	5496
10	$B^0 \to \pi^- \bar{D}^0 D_s^+$	34	30	39	69	5565
11	$B^+ \to \pi^+ D^- D_s^+$	8	37	32	69	5634
12	$B^0 \to D_2^{*-} D_s^+$	36	31	31	62	5696
13	$B^+ \to \pi^+ \pi^- \bar{D}^0 D_s^+$	9	27	34	61	5757
14	$B^+ \to \pi^0 \bar{D}^0 D_s^+$	31	24	29	53	5810
15	$B^+ \to \pi^0 \pi^+ D^- D_s^+$	14	18	22	40	5850
16	$B^+ \to D_s^+ \bar{D}_1^0$	28	15	23	38	5888
17	$B^- \to \pi^- K^- D_s^+$	18	14	16	30	5918
18	$B^0 \to D_s^+ D_1^-$	40	7	16	23	5941
19	$B^0 \to \pi^0 \pi^0 D^- D_s^+$	48	7	15	22	5963
20	$B^0 \to \pi^+ \pi^- D^- D_s^+$	43	9	12	21	5984
21	$B^0 \to \pi^0 \pi^- \bar{D}^0 D_s^+$	39	9	11	20	6004
22	$B^+ \to D_s^+ \bar{D}_1'^0$	58	9	11	20	6024
23	$B^- \to \mu^- \bar{\nu}_\mu K^- D_s^+$	4	10	9	19	6043
24	$B^0 \to \pi^0 D^- D_s^+$	42	7	11	18	6061
25	$B^+ \to K^+ D_s^+ D_s^{*-}$	29	10	3	13	6074
26	$B^+ \to \pi^0 \pi^0 \bar{D}^0 D_s^+$	10	7	6	13	6087
27	$B^- \to e^- \bar{\nu}_e K^- D_s^+$	12	5	6	11	6098
28	$\bar{B}^0 \to K^- D_s^+$	52	7	4	11	6109
29	$B^0 \to D_s^+ D_1'^-$	35	5	6	11	6120
30	$B^+ \to \pi^+ D^{*-} D_s^+$	112	4	7	11	6131
31	$B^+ \to \phi \bar{D}^0 D_s^+$	81	7	3	10	6141
32	$B^- \to K^- D_s^+ D_s^{*-}$	64	4	4	8	6149
33	$B^- \to K^- D_s^+ D_s^-$	91	5	3	8	6157

rowNo	production branch of D_s^+	iProdBrP	nCase	nCcCase	nAllCase	nCCase
34	$B^+ \to K^+ D_s^+ D_s^-$	92	3	5	8	6165
35	$B^+ \to \rho^0 D_s^+$	71	3	4	7	6172
36	$B^0 \to \pi^- D_s^+$	55	2	5	7	6179
37	$B^+ \to \eta \bar{D}^0 D_s^+$	114	2	5	7	6186
38	$B^0 \to \pi^- \bar{D}^{*0} D_s^+$	57	2	4	6	6192
39	$B^- \to \rho^- K^- D_s^+$	106	4	2	6	6198
40	$B^+ \to \rho^+ D^{*-} D_s^+$	113	3	3	6	6204
41	$B^+ \to \rho^+ D^- D_s^+$	143	4	2	6	6210
42	$B^+ \to \pi^0 \bar{D}^{*0} D_s^+$	59	5	0	5	6215
43	$B^- \to K^- K^{*-} D_s^+$	68	3	2	5	6220
44	$B^0 \to \rho^- \bar{D}^0 D_s^+$	98	2	3	5	6225
45	$B^0 \to K^0 D_s^+ D_s^{*-}$	147	4	1	5	6230
46	$B^+ \to \omega \bar{D}^0 D_s^+$	16	3	1	4	6234
47	$B^+ \to \rho^0 \bar{D}^0 D_s^+$	11	2	2	4	6238
48	$B^+ \to \eta \bar{D}^{*0} D_s^+$	70	2	2	4	6242
49	$B^- \to \pi^0 \pi^- K^- D_s^+$	15	2	2	4	6246
50	$B^- \to K^- K^{*-} \bar{D}^0 D_s^+$	73	2	1	3	6249
51	$\bar{B}^0 \to \bar{K}^* D_s^+ D_s^{*-}$	54	0	3	3	6252
52	$B^0 \to \pi^0 D^{*-} D_s^+$	83	1	2	3	6255
53	$B^+ \to \phi \bar{D}^{*0} D_s^+$	69	1	2	3	6258
54	$B^- \to \bar{K}^0 K^- D^{*-} D_s^+$	21	1	2	3	6261
55	$B^- \to K^- K^- D_s^+$	26	3	0	3	6264
56	$B^+ \to K^{*+} D_s^+ D_s^-$	101	1	2	3	6267
57	$B^- \to K^{*-} D_s^+ D_s^-$	102	2	1	3	6270
58	$B^+ \to \pi^+ \phi D^- D_s^+$	103	2	1	3	6273
59	$\bar{B}^0 \to \pi^- \bar{K}^0 D_s^+$	124	1	2	3	6276
60	$B^+ \to K^{*+} D_s^+ D_s^{*-}$	139	0	3	3	6279
61	$\psi(4160) \to D_s^+ D_s^-$	20	1	1	2	6281
62	$B^+ \to \rho^0 \bar{D}^{*0} D_s^+$	74	1	1	2	6283
63	$B^+ \to K^+ K^- \bar{D}^{*0} D_s^+$	75	1	1	2	6285
64	$B^- \to \pi^- \bar{K}^* D_s^+ D_s^{*-}$	80	1	1	2	6287
65	$\psi(4160) \to D_s^+ D_s^{*-}$	67	1	1	2	6289
66	$B^+ \to D_s^+ a_1^0$	27	1	1	2	6291
67	$\bar{B}^0 \to \rho^0 \pi^- \bar{K}^* D_s^+$	85	0	2	2	6293
68	$\bar{B}^0 \to \omega K^- D_s^+$	86	1	1	2	6295

rowNo	production branch of D_s^+	iProdBrP	nCase	nCcCase	nAllCase	nCCase
69	$B^0 \to K^0 D_s^+ D_s^-$	89	1	1	2	6297
70	$\bar{B}^0 \to \bar{K}^0 D_s^+ D_s^-$	90	1	1	2	6299
71	$\bar{B}^0 \to \pi^0 \pi^- \bar{K}^* D_s^+$	47	0	2	2	6301
72	$B^+ \to \rho^+ \eta D^- D_s^+$	7	0	2	2	6303
73	$B^+ \to K^+ K^- \bar{D}^0 D_s^+$	95	2	0	2	6305
74	$B^- \to \rho^- \bar{K}^0 K^- D_s^+$	96	2	0	2	6307
75	$B^+ \to \eta' \bar{D}^{*0} D_s^+$	97	1	1	2	6309
76	$B^+ \to \omega \phi D_s^+$	22	0	2	2	6311
77	$B^- \to \pi^0 \eta K^- K^- D_s^+$	104	1	1	2	6313
78	$B^+ \to \pi^+ \pi^- \bar{D}^{*0} D_s^+$	111	0	2	2	6315
79	$\bar{B}^0 \to \pi^+ K^- K^{*-} D_s^+$	119	2	0	2	6317
80	$B^0 \to \rho^- D_s^+$	120	1	1	2	6319
81	$B^0 \to \omega D^- D_s^+$	127	0	2	2	6321
82	$B^+ \to \rho^0 \pi^+ D^{*-} D_s^+$	129	0	2	2	6323
83	$B^- \to \pi^0 K^- K^{*-} D_s^+$	140	0	2	2	6325
84	$B^- \to \pi^0 \pi^- \pi^- \rho^+ K^- D_s^+$	146	1	1	2	6327
85	$\bar{B}^0 \to K^{*-} D_s^+$	162	1	1	2	6329
86	$\bar{B}^0 \to \rho^0 K^- D_s^+$	171	2	0	2	6331
87	$B^- \to \pi^- \eta K^- D_s^+$	177	1	1	2	6333
88	$B^+ \to K^0 \bar{K}^* \bar{D}^0 D_s^+$	178	0	2	2	6335
89	$B^+ \to \pi^0 \rho^+ D^- D_s^+$	182	0	2	2	6337
90	$B^- \to \pi^0 K^- K^- \bar{D}^0 D_s^+$	65	1	0	1	6338
91	$B^- \to \pi^+ \pi^- K^- K^- \bar{D}^0 D_s^+$	66	0	1	1	6339
92	$B^0 \to \bar{K}^* D^{*-} D_s^+$	44	0	1	1	6340
93	$B^0 \to \pi^0 \pi^- K^{*+} D_s^+ D_s^-$	45	1	0	1	6341
94	$\bar{B}^0 \to \pi^0 \pi^+ K^{*-} D_s^+ D_s^-$	46	0	1	1	6342
95	$B^- \to \bar{K}^0 K^- D^- D_s^+$	23	1	0	1	6343
96	$B^- \to \pi^0 K^- D_s^+ D_s^-$	24	1	0	1	6344
97	$B^- \to \pi^0 \rho^- D_s^+ D_s^{*-}$	72	1	0	1	6345
98	$B^0 \to \eta D^{*-} D_s^+$	49	0	1	1	6346
99	$B^0 \to \eta D^- D_s^+$	50	0	1	1	6347
100	$\bar{B}^0 \to \omega K^{*-} D_s^+$	51	0	1	1	6348
rest	others (118 in total)	—	57	61	118	6466

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

rowNo	production branch of D^{*+}	iProdBrP	nCase	nCcCase	nAllCase	nCCase
1	$\bar{B}^0 \to \pi^- D^{*+}$	50	587	765	1352	1352
2	$B^- \to \pi^0 \pi^- \pi^- D^{*+}$	0	477	459	936	2288
3	$\bar{B}^0 \to \rho^- D^{*+}$	58	319	359	678	2966
4	$\bar{B}^0 \to e^- \bar{\nu}_e D^{*+}$	63	362	300	662	3628
5	$\bar{B}^0 \to \mu^- \bar{\nu}_\mu D^{*+}$	56	345	305	650	4278
6	$D_1'^0 \to \pi^- D^{*+}$	7	236	272	508	4786
7	$\bar{B}^0 \to D^{*+} a_1^-$	59	266	239	505	5291
8	$\bar{B}^0 \to \pi^0 \pi^- D^{*+}$	52	229	263	492	5783
9	$\bar{B}^0 \to D^{*+} D_s^{*-}$	65	187	158	345	6128
10	$D_1^0 \to \pi^- D^{*+}$	8	157	146	303	6431
11	$\bar{B}^0 \to \pi^0 \pi^+ \pi^- \pi^- D^{*+}$	55	149	141	290	6721
12	$\bar{B}^0 \to D^{*+} D_{s0}^{*-}$	68	159	111	270	6991
13	$D_2^{*0} \to \pi^- D^{*+}$	2	140	103	243	7234
14	$B^- \to \pi^- \pi^- D^{*+}$	15	122	107	229	7463
15	$\bar{B}^0 \to \rho^0 \pi^- D^{*+}$	79	113	106	219	7682
16	$\bar{B}^0 \to K^- D^{*+} \bar{D}^{*0}$	77	106	91	197	7879
17	$\bar{B}^0 \to D^{*+} D_s^-$	64	109	84	193	8072
18	$\bar{B}^0 \to \pi^- \eta D^{*+}$	80	68	83	151	8223
19	$B^- \to \pi^- \rho^- D^{*+}$	27	61	79	140	8363
20	$B^+ \to K^0 D^{*+} \bar{D}^{*0}$	1	73	66	139	8502
21	$\bar{B}^0 \to D^{*+} D_{s1}'^-$	97	74	45	119	8621
22	$\bar{B}^0 \to K^0 K^- D^{*+}$	83	59	52	111	8732
23	$\bar{B}^0 \to K^- D^{*+}$	82	50	61	111	8843
24	$\bar{B}^0 \to \tau^- \bar{\nu}_\tau D^{*+}$	72	63	46	109	8952
25	$B^+ \to K^* D^{*+} \bar{D}^{*0}$	23	50	55	105	9057
26	$\bar{B}^0 \to \pi^- \omega D^{*+}$	61	56	34	90	9147
27	$B^- \to \pi^+ \pi^- \pi^- \pi^- D^{*+}$	25	30	48	78	9225
28	$\bar{B}^0 \to K^- D^{*+} \bar{D}^0$	88	35	33	68	9293
29	$B^0 \to K^0 D^{*+} D^{*-}$	139	38	26	64	9357
30	$\bar{B}^0 \to \bar{K}^0 D^{*+} D^{*-}$	140	26	38	64	9421
31	$\bar{B}^0 \to K^* K^- D^{*+}$	67	38	23	61	9482
32	$\bar{B}^0 \to K^{*-} D^{*+} \bar{D}^{*0}$	92	38	20	58	9540
33	$D_1'^+ \to \pi^0 D^{*+}$	73	32	26	58	9598

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rowNo	production branch of D^{*+}	iProdBrP	nCase	nCcCase	nAllCase	nCCase
34	$B^+ \to K^0 D^{*+} \bar{D}^0$	13	30	25	55	9653
35	$D_1^+ \to \pi^0 D^{*+}$	57	34	21	55	9708
36	$B^+ \to K^* D^{*+} \bar{D}^0$	18	22	31	53	9761
37	$\bar{B}^0 \to \pi^0 \pi^- \omega D^{*+}$	60	28	24	52	9813
38	$\bar{B}^0 \to \pi^+ \pi^+ \pi^- \pi^- \pi^- D^{*+}$	102	28	24	52	9865
39	$B^+ \to K^+ D^{*+} D^{*-}$	3	23	26	49	9914
40	$B^- \to K^- D^{*+} D^{*-}$	4	26	23	49	9963
41	$B^0 \to K^* D^{*+} D^{*-}$	107	27	18	45	10008
42	$\bar{B}^0 \to \bar{K}^* D^{*+} D^{*-}$	108	18	27	45	10053
43	$\bar{B}^0 \to \pi^+ \pi^- \rho^- D^{*+}$	74	20	24	44	10097
44	$D_2^{*+} \to \pi^0 D^{*+}$	51	22	19	41	10138
45	$\bar{B}^0 \to \rho^0 \rho^- D^{*+}$	145	21	20	41	10179
46	$\bar{B}^0 \to \rho^- \omega D^{*+}$	62	20	20	40	10219
47	$\bar{B}^0 \to \pi^0 \rho^0 \pi^- D^{*+}$	126	22	15	37	10256
48	$B^0 \to K^0 D^- D^{*+}$	53	19	17	36	10292
49	$\bar{B}^0 \to \rho^- \eta D^{*+}$	115	18	18	36	10328
50	$B^- \to e^- \bar{\nu}_e \pi^- D^{*+}$	5	17	18	35	10363
51	$\bar{B}^0 \to \bar{K}^* D^- D^{*+}$	81	17	16	33	10396
52	$B^- \to e^- \bar{\nu}_e \pi^0 \pi^- D^{*+}$	16	16	17	33	10429
53	$\bar{B}^0 \to \pi^0 \pi^- \eta D^{*+}$	152	15	17	32	10461
54	$B^+ \to D^{*+} \bar{D}^{*0}$	10	16	12	28	10489
55	$\bar{B}^0 \to K^{*-} D^{*+} \bar{D}^0$	84	17	10	27	10516
56	$\bar{B}^0 \to \pi^- \pi^- \rho^+ D^{*+}$	101	16	11	27	10543
57	$B^- \to K^- D^- D^{*+}$	6	17	9	26	10569
58	$\bar{B}^0 \to \pi^0 \rho^- D^{*+}$	116	12	14	26	10595
59	$\bar{B}^0 \to \pi^- K^+ K^- D^{*+}$	142	17	8	25	10620
60	$\bar{B}^0 \to K^{*-} D^{*+}$	143	12	12	24	10644
61	$\bar{B}^0 \to e^- \bar{\nu}_e \eta D^{*+}$	124	14	9	23	10667
62	$\bar{B}^0 \to \pi^0 K^0 K^- D^{*+}$	114	13	9	22	10689
63	$B^+ \to K^+ D^- D^{*+}$	37	7	14	21	10710
64	$B^- \to \pi^- K^- D^{*+}$	44	10	10	20	10730
65	$\bar{B}^0 \to \pi^0 \pi^0 \pi^- D^{*+}$	137	9	11	20	10750
66	$\bar{B}^0 \to \mu^- \bar{\nu}_\mu \eta D^{*+}$	218	14	6	20	10770
67	$B^- \to \mu^- \bar{\nu}_\mu \pi^- D^{*+}$	293	12	8	20	10790
68	$\psi(4160) \to D^{*+} D^{*-}$	38	9	9	18	10808

rowNo	production branch of D^{*+}	iProdBrP	nCase	nCcCase	nAllCase	nCCase
69	$\bar{B}^0 \to \rho^0 \pi^- \omega D^{*+}$	75	10	8	18	10826
70	$B^0 \to K^* D^- D^{*+}$	120	9	9	18	10844
71	$B^- \to K^{*-} D^{*+} D^{*-}$	48	14	3	17	10861
72	$B^+ \to K^{*+} D^{*+} D^{*-}$	49	3	14	17	10878
73	$D_{s1}^+ \to K^0 D^{*+}$	45	11	6	17	10895
74	$\bar{B}^0 \to \pi^- \rho^+ \rho^- D^{*+}$	259	6	11	17	10912
75	$\bar{B}^0 \to \pi^- \eta' D^{*+}$	109	7	9	16	10928
76	$\bar{B}^0 \to \pi^0 \pi^+ \pi^- \rho^- D^{*+}$	168	11	5	16	10944
77	$B^- \to \mu^- \bar{\nu}_\mu \pi^0 \pi^- D^{*+}$	263	9	7	16	10960
78	$B^+ \to D^{*+} \bar{D}^0$	265	9	7	16	10976
79	$\bar{B}^0 \to \bar{K}^0 D^- D^{*+}$	99	9	6	15	10991
80	$\bar{B}^0 \to \pi^0 \rho^0 \rho^- D^{*+}$	112	9	6	15	11006
81	$\bar{B}^0 \to \pi^0 \pi^0 \rho^- D^{*+}$	121	8	7	15	11021
82	$\bar{B}^0 \to e^- \bar{\nu}_e \pi^+ \pi^- D^{*+}$	66	5	9	14	11035
83	$\bar{B}^0 \to \pi^0 \pi^- \pi^- \rho^+ D^{*+}$	350	9	4	13	11048
84	$\bar{B}^0 \to K^0 K^{*-} D^{*+}$	125	6	6	12	11060
85	$\bar{B}^0 \to \mu^- \bar{\nu}_\mu \pi^+ \pi^- D^{*+}$	135	8	4	12	11072
86	$B^+ \to \pi^- K^+ D^{*+} \bar{D}^0$	274	3	9	12	11084
87	$B^- \to \pi^- D^{*+} D_s^{*-}$	41	6	5	11	11095
88	$\bar{B}^0 \to \pi^0 \pi^0 \pi^- \eta D^{*+}$	173	6	5	11	11106
89	$\bar{B}^0 \to \pi^0 K^* K^- D^{*+}$	213	6	5	11	11117
90	$B^0 \to D^{*+} D^{*-}$	421	5	6	11	11128
91	$\bar{B}^0 \to D^{*+} D^{*-}$	422	6	5	11	11139
92	$B^- \to \pi^- D^{*+} D_s^-$	434	7	4	11	11150
93	$B^- \to \pi^- K^- D^{*+} \bar{D}^0$	28	7	3	10	11160
94	$B^- \to D^{*+} \Delta^- \bar{\Delta}^-$	29	7	3	10	11170
95	$B^- \to D^{*+} \Delta^- \bar{p}$	9	6	4	10	11180
96	$\bar{B}^0 \to \pi^- \eta \omega D^{*+}$	163	4	6	10	11190
97	$\bar{B}^0 \to \rho^- K^+ K^- D^{*+}$	172	7	3	10	11200
98	$B^0 \to D^- D^{*+}$	309	6	4	10	11210
99	$\bar{B}^0 \to \pi^0 \rho^- \omega D^{*+}$	146	7	2	9	11219
100	$\bar{B}^0 \to \pi^0 \pi^- \rho^+ \rho^- D^{*+}$	151	7	2	9	11228
rest	others (835 in total)	—	819	661	1480	12708

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

rowNo	production branch of D^{*0}	iProdBrP	nCase	nCcCase	nAllCase	nCCase
1	$B^- \to \pi^- D^{*0}$	0	1694	1950	3644	3644
2	$B^- \to \rho^- D^{*0}$	10	726	843	1569	5213
3	$B^- \to e^- \bar{\nu}_e D^{*0}$	15	662	700	1362	6575
4	$B^- \to \mu^- \bar{\nu}_\mu D^{*0}$	3	741	612	1353	7928
5	$B^- \to D^{*0} a_1^-$	7	663	595	1258	9186
6	$B^- \to D^{*0} D_s^{*-}$	18	331	302	633	9819
7	$B^- \to D^{*0} D_{s0}^{*-}$	5	286	270	556	10375
8	$B^- \to \pi^0 \pi^+ \pi^- \pi^- D^{*0}$	11	261	251	512	10887
9	$B^- \to K^- D^{*0} \bar{D}^{*0}$	33	217	182	399	11286
10	$B^+ \to K^+ D^{*0} \bar{D}^{*0}$	34	182	217	399	11685
11	$B^- \to D^{*0} D_s^-$	27	199	166	365	12050
12	$B^- \to D^{*0} D_{s1}'^-$	4	183	173	356	12406
13	$B^- \to \pi^- \omega D^{*0}$	30	140	172	312	12718
14	$B^+ \to K^+ \bar{D}^0 D^{*0}$	36	146	150	296	13014
15	$B^- \to K^- D^{*0}$	25	137	131	268	13282
16	$B^- \to \pi^- \eta D^{*0}$	16	120	105	225	13507
17	$B^- \to \tau^- \bar{\nu}_\tau D^{*0}$	13	125	96	221	13728
18	$B^0 \to K^+ D^{*-} D^{*0}$	181	91	106	197	13925
19	$D_1'^0 \to \pi^0 D^{*0}$	20	101	95	196	14121
20	$D_1'^+ \to \pi^+ D^{*0}$	171	109	84	193	14314
21	$B^- \to \bar{K}^* K^- D^{*0}$	52	93	71	164	14478
22	$D_1^0 \to \pi^0 D^{*0}$	14	75	87	162	14640
23	$B^- \to \bar{K}^0 D^{*-} D^{*0}$	8	66	73	139	14779
24	$B^- \to \pi^+ \pi^+ \pi^- \pi^- \pi^- D^{*0}$	6	73	61	134	14913
25	$B^- \to K^0 K^- D^{*0}$	48	70	58	128	15041
26	$B^- \to \pi^+ \pi^- \pi^- D^{*0}$	92	68	58	126	15167
27	$B^- \to K^* K^- D^{*0}$	24	58	63	121	15288
28	$D_2^{*0} \to \pi^0 D^{*0}$	54	64	56	120	15408
29	$D_1^+ \to \pi^+ D^{*0}$	182	47	65	112	15520
30	$D_2^{*+} \to \pi^+ D^{*0}$	193	46	62	108	15628
31	$B^- \to \bar{K}^* D^{*-} D^{*0}$	63	55	50	105	15733
32	$B^- \to K^{*-} D^{*0}$	38	50	39	89	15822
33	$B^- \to \pi^+ \pi^- \rho^- D^{*0}$	94	45	40	85	15907

rowNo	production branch of D^{*0}	iProdBrP	nCase	nCcCase	nAllCase	nCCase
34	$B^+ \to K^{*+} D^{*0} \bar{D}^{*0}$	73	40	39	79	15986
35	$B^- \to K^{*-} D^{*0} \bar{D}^{*0}$	74	39	40	79	16065
36	$B^- \to K^- \bar{D}^0 D^{*0}$	160	47	31	78	16143
37	$B^- \to \rho^0 \rho^- D^{*0}$	32	41	32	73	16216
38	$B^- \to \rho^- \omega D^{*0}$	62	30	32	62	16278
39	$B^- \to \pi^0 \pi^- \omega D^{*0}$	66	36	26	62	16340
40	$B^0 \to K^+ D^- D^{*0}$	170	29	32	61	16401
41	$B^- \to \bar{K}^* D^- D^{*0}$	105	35	25	60	16461
42	$B^- \to \pi^0 \rho^0 \pi^- D^{*0}$	267	29	30	59	16520
43	$B^0 \to K^{*+} D^{*-} D^{*0}$	191	20	38	58	16578
44	$B^- \to \pi^0 \pi^- \eta D^{*0}$	108	18	33	51	16629
45	$\bar{B}^0 \to \pi^+ \pi^- D^{*0}$	202	27	24	51	16680
46	$B^- \to \pi^0 \pi^- D^{*0}$	61	23	24	47	16727
47	$B^- \to e^- \bar{\nu}_e \eta D^{*0}$	67	28	17	45	16772
48	$B^- \to \pi^- \pi^- \rho^+ D^{*0}$	114	24	20	44	16816
49	$B^+ \to K^{*+} \bar{D}^0 D^{*0}$	121	27	17	44	16860
50	$B^- \to \mu^- \bar{\nu}_\mu \pi^+ \pi^- D^{*0}$	120	26	16	42	16902
51	$B^0 \to \pi^+ \pi^+ \pi^- \pi^- D^{*0}$	179	24	18	42	16944
52	$B^- \to K^{*-} \bar{D}^0 D^{*0}$	2	17	23	40	16984
53	$B^- \to e^- \bar{\nu}_e \pi^+ \pi^- D^{*0}$	95	19	21	40	17024
54	$B^- \to \mu^- \bar{\nu}_\mu \eta D^{*0}$	39	21	17	38	17062
55	$\bar{B}^0 \to \rho^0 D^{*0}$	194	16	19	35	17097
56	$B^- \to \rho^- \eta D^{*0}$	88	15	19	34	17131
57	$B^- \to \bar{K}^0 D^- D^{*0}$	65	20	12	32	17163
58	$B^- \to \pi^0 \pi^+ \pi^- \rho^- D^{*0}$	80	16	16	32	17195
59	$B^- \to \pi^0 K^0 K^- D^{*0}$	19	20	12	32	17227
60	$B^- \to K^0 K^{*-} D^{*0}$	51	12	19	31	17258
61	$B^- \to D^- D^{*0}$	102	14	16	30	17288
62	$B^- \to \pi^0 \pi^0 \rho^- D^{*0}$	76	17	12	29	17317
63	$B^- \to \rho^0 \pi^- \omega D^{*0}$	101	15	14	29	17346
64	$B^- \to D^{*0} n \bar{p}$	17	12	16	28	17374
65	$B^- \to D^{*-} D^{*0}$	31	12	16	28	17402
66	$\bar{B}^0 \to \pi^0 \pi^+ \pi^- D^{*0}$	186	16	11	27	17429
67	$\bar{B}^0 \to \bar{K}^0 D^{*0} \bar{D}^{*0}$	226	12	15	27	17456
68	$B^0 \to K^0 D^{*0} \bar{D}^{*0}$	227	15	12	27	17483

rowNo	production branch of D^{*0}	iProdBrP	nCase	nCcCase	nAllCase	nCCase
69	$D_{s1}^+ \to K^+ D^{*0}$	90	9	17	26	17509
70	$B^- \to \pi^- K^+ K^- D^{*0}$	68	14	12	26	17535
71	$B^- \to \rho^0 \pi^- D^{*0}$	143	14	12	26	17561
72	$B^- \to \pi^- \eta' D^{*0}$	150	15	9	24	17585
73	$B^- \to \pi^- \rho^+ \rho^- D^{*0}$	91	12	11	23	17608
74	$B^- \to \pi^0 \rho^- \omega D^{*0}$	28	9	14	23	17631
75	$B^- \to \pi^0 \rho^0 \rho^- D^{*0}$	269	8	14	22	17653
76	$B^- \to \pi^+ \pi^- \pi^- \omega D^{*0}$	83	13	8	21	17674
77	$B^- \to \pi^0 \pi^0 \pi^- D^{*0}$	273	8	13	21	17695
78	$B^- \to \pi^0 \rho^- D^{*0}$	449	13	8	21	17716
79	$B^0 \to K^{*+} D^- D^{*0}$	172	10	10	20	17736
80	$B^- \to D^{*0} D_{s1}^-$	89	10	9	19	17755
81	$B^- \to \pi^0 K^- D^{*0}$	145	14	5	19	17774
82	$B^- \to \mu^- \bar{\nu}_\mu \pi^0 \pi^0 D^{*0}$	1	10	8	18	17792
83	$B^- \to \pi^+ \rho^- \rho^- D^{*0}$	130	10	8	18	17810
84	$B^- \to \pi^0 \rho^- \eta D^{*0}$	580	11	7	18	17828
85	$B^- \to D^{*0} p \bar{\Delta}^{--}$	375	7	10	17	17845
86	$B^- \to \pi^0 \rho^0 \pi^- \omega D^{*0}$	93	5	11	16	17861
87	$B^- \to e^- \bar{\nu}_e \pi^0 D^{*0}$	153	7	9	16	17877
88	$\bar{B}^0 \to \omega D^{*0}$	264	4	12	16	17893
89	$B^- \to \omega K^0 K^- D^{*0}$	21	8	7	15	17908
90	$B^- \to \rho^0 \pi^- \eta D^{*0}$	122	5	10	15	17923
91	$B^- \to \pi^- \omega \omega D^{*0}$	82	5	9	14	17937
92	$\bar{B}^0 \to \bar{K}^* D^{*0} \bar{D}^{*0}$	175	8	6	14	17951
93	$B^0 \to K^* D^{*0} \bar{D}^{*0}$	176	6	8	14	17965
94	$B^- \to \pi^- \bar{K}^0 D^{*0}$	294	9	5	14	17979
95	$B^- \to \pi^+ \pi^- \pi^- \eta D^{*0}$	317	5	9	14	17993
96	$B^- \to \rho^0 K^- D^{*0}$	29	4	9	13	18006
97	$B^- \to \rho^- K^+ K^- D^{*0}$	110	8	5	13	18019
98	$B^- \to \pi^+ \pi^- \rho^- \omega D^{*0}$	141	8	5	13	18032
99	$B^- \to \pi^0 \pi^- \pi^- \rho^+ D^{*0}$	284	6	7	13	18045
100	$B^- \to \pi^- K^0 \bar{K}^0 D^{*0}$	313	7	6	13	18058
rest	others (1113 in total)	—	1095	1049	2144	20202

Table 20: Production branches of D^0.

rowNo	production branch of D^0	iProdBrP	nCase	nCcCase	nAllCase	nCCase
1	$D^{*0} \to \pi^0 D^0$	0	6621	6572	13193	13193
2	$D^{*+} \to \pi^+ D^0$	10	4900	4421	9321	22514
3	$D^{*0} \to D^0 \gamma$	12	3492	3517	7009	29523
4	$B^- \to \pi^- D^0$	3	1886	2167	4053	33576
5	$B^- \to \rho^- D^0$	17	1357	1466	2823	36399
6	$B^- \to \mu^- \bar{\nu}_\mu D^0$	11	446	426	872	37271
7	$B^- \to e^- \bar{\nu}_e D^0$	2	417	379	796	38067
8	$B^- \to D^0 D_s^-$	19	216	206	422	38489
9	$B^- \to \rho^0 \pi^- D^0$	24	169	172	341	38830
10	$B^- \to D^0 a_1^-$	27	179	160	339	39169
11	$B^- \to D^0 D_s^{*-}$	18	164	174	338	39507
12	$B^- \to \pi^- \omega D^0$	48	156	157	313	39820
13	$B^- \to \pi^+ \pi^- \pi^- D^0$	8	155	157	312	40132
14	$B^- \to K^- D^0 \bar{D}^{*0}$	38	150	146	296	40428
15	$B^- \to K^- D^0$	23	138	148	286	40714
16	$B^- \to \pi^- \eta D^0$	37	135	149	284	40998
17	$B^- \to D^0 D_{s0}^{*-}$	29	139	142	281	41279
18	$B^- \to \pi^0 \rho^- D^0$	50	97	94	191	41470
19	$D_2^{*0} \to \pi^0 D^0$	53	74	90	164	41634
20	$D_0^{*0} \to \pi^0 D^0$	7	67	87	154	41788
21	$D_1^0 \to \pi^+ \pi^- D^0$	106	69	85	154	41942
22	$B^- \to \tau^- \bar{\nu}_\tau D^0$	56	64	55	119	42061
23	$B^- \to D^0 D_{s1}'^-$	33	64	51	115	42176
24	$D_2^{*+} \to \pi^+ D^0$	244	52	63	115	42291
25	$D_1^0 \to \pi^0 \pi^0 D^0$	64	53	56	109	42400
26	$B^- \to \pi^0 \pi^0 \pi^- D^0$	21	41	60	101	42501
27	$B^- \to K^0 K^- D^0$	26	84	17	101	42602
28	$B^- \to \pi^+ \pi^- \rho^- D^0$	54	54	46	100	42702
29	$D_0^{*+} \to \pi^+ D^0$	224	46	51	97	42799
30	$B^- \to \rho^0 \rho^- D^0$	52	44	46	90	42889
31	$B^- \to \pi^0 \pi^- \omega D^0$	31	45	39	84	42973
32	$B^- \to \rho^- \omega D^0$	32	48	35	83	43056
33	$\bar{B}^0 \to \pi^+ \pi^- D^0$	221	32	49	81	43137

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rowNo	production branch of D^0	iProdBrP	nCase	nCcCase	nAllCase	nCCase
34	$B^- \to \pi^0 \rho^0 \pi^- D^0$	191	38	40	78	43215
35	$B^+ \to K^+ D^0 \bar{D}^{*0}$	200	31	47	78	43293
36	$\psi(3770) \to D^0 \bar{D}^0$	212	38	38	76	43369
37	$\bar{B}^0 \to \pi^+ D^0 D_s^-$	227	39	30	69	43438
38	$B^- \to \pi^0 \pi^- \eta D^0$	90	39	29	68	43506
39	$B^- \to K^{*-} D^0$	126	34	34	68	43574
40	$B^0 \to K^+ D^{*-} D^0$	233	33	35	68	43642
41	$B^- \to \pi^0 \pi^- D^0$	34	31	35	66	43708
42	$B^- \to \pi^+ \pi^- D^0 D_s^{*-}$	111	32	32	64	43772
43	$B^- \to K^* K^- D^0$	205	34	28	62	43834
44	$B^- \to \pi^+ \pi^- D^0 D_s^-$	49	34	27	61	43895
45	$B^- \to \pi^0 D^0 D_s^{*-}$	14	27	33	60	43955
46	$B^- \to \bar{K}^* D^- D^0$	209	37	23	60	44015
47	$B^- \to \pi^0 \pi^+ \pi^- \pi^- D^0$	96	25	32	57	44072
48	$B^- \to \rho^- \eta D^0$	73	24	32	56	44128
49	$\bar{B}^0 \to \rho^0 D^0$	256	28	28	56	44184
50	$B^- \to \bar{K}^0 D^{*-} D^0$	42	25	30	55	44239
51	$B^- \to K^- D^0 \bar{D}^0$	119	29	26	55	44294
52	$B^+ \to K^+ D^0 \bar{D}^0$	120	26	29	55	44349
53	$B^+ \to K^{*+} D^0 \bar{D}^0$	44	18	36	54	44403
54	$B^- \to \pi^- \pi^- \rho^+ D^0$	61	31	23	54	44457
55	$B^- \to K^{*-} D^0 \bar{D}^0$	45	36	18	54	44511
56	$B^- \to \bar{K}^* D^{*-} D^0$	62	31	22	53	44564
57	$B^- \to \pi^0 D^0 D_s^-$	218	29	24	53	44617
58	$\bar{B}^0 \to \pi^+ D^0 D_s^{*-}$	239	22	27	49	44666
59	$B^- \to \mu^- \bar{\nu}_\mu \eta D^0$	71	28	20	48	44714
60	$B^- \to e^- \bar{\nu}_e \eta D^0$	83	23	22	45	44759
61	$B^- \to \bar{K}^* K^- D^0$	183	45	0	45	44804
62	$B^- \to K^{*-} D^0 \bar{D}^{*0}$	162	17	27	44	44848
63	$B^+ \to K^{*+} D^0 \bar{D}^{*0}$	1	23	17	40	44888
64	$B^- \to \pi^0 \rho^0 \rho^- D^0$	16	19	18	37	44925
65	$B^- \to \pi^0 \rho^- \omega D^0$	36	18	18	36	44961
66	$B^- \to \rho^0 \pi^- \omega D^0$	39	17	17	34	44995
67	$D_1^+ \to \pi^0 \pi^+ D^0$	264	19	15	34	45029
68	$B^- \to \pi^- K^+ K^- D^0$	91	19	14	33	45062

rowNo	production branch of D^0	iProdBrP	nCase	nCcCase	nAllCase	nCCase
69	$B^- \to K^0 K^{*-} D^0$	6	14	18	32	45094
70	$B^- \to \pi^0 \pi^+ \pi^- \rho^- D^0$	25	14	18	32	45126
71	$B^- \to \pi^0 K^- D^0$	124	17	14	31	45157
72	$B^- \to \pi^0 K^0 K^- D^0$	101	14	16	30	45187
73	$B^- \to \pi^0 K^* K^- D^0$	333	10	19	29	45216
74	$B^- \to \pi^- \eta' D^0$	5	19	9	28	45244
75	$B^- \to D^0 n \bar{p}$	70	14	14	28	45272
76	$B^- \to \bar{K}^0 K^- D^0$	88	27	0	27	45299
77	$B^- \to \pi^0 \pi^0 \rho^- D^0$	78	12	15	27	45326
78	$B^- \to \pi^- \rho^+ \rho^- D^0$	207	16	11	27	45353
79	$B^0 \to K^{*+} D^- D^0$	228	13	14	27	45380
80	$B^0 \to K^{*+} D^{*-} D^0$	230	10	17	27	45407
81	$B^0 \to K^+ D^- D^0$	265	15	12	27	45434
82	$B^- \to D^0 p \bar{\Delta}^{--}$	81	19	6	25	45459
83	$\bar{B}^0 \to \pi^0 \pi^+ \pi^- D^0$	231	16	9	25	45484
84	$\bar{B}^0 \to \pi^0 D^0$	226	12	12	24	45508
85	$B^- \to \rho^0 \pi^- \eta D^0$	69	10	13	23	45531
86	$B^- \to \pi^0 \rho^- \eta D^0$	158	15	8	23	45554
87	$\bar{B}^0 \to \pi^0 \pi^+ D^0 D_s^{*-}$	249	9	14	23	45577
88	$B^- \to \bar{K}^0 D^- D^0$	198	14	8	22	45599
89	$B^- \to \pi^- \eta \omega D^0$	136	9	12	21	45620
90	$B^- \to \rho^0 \pi^+ \pi^- \pi^- D^0$	93	12	8	20	45640
91	$\bar{B}^0 \to \pi^0 \pi^+ D^0 D_s^-$	241	11	9	20	45660
92	$B^- \to \pi^+ \pi^- \pi^- \eta D^0$	15	14	5	19	45679
93	$B^- \to \pi^+ \pi^- \pi^- \omega D^0$	98	8	11	19	45698
94	$B^- \to \eta K^0 K^- D^0$	102	11	8	19	45717
95	$B^- \to \pi^0 \pi^- \pi^- \rho^+ D^0$	166	12	7	19	45736
96	$B^- \to D^0 n \bar{\Delta}^-$	327	9	10	19	45755
97	$B^- \to \rho^0 \rho^0 \pi^- D^0$	76	7	11	18	45773
98	$B^- \to K^* K^{*-} D^0$	20	11	7	18	45791
99	$B^- \to \omega K^0 K^- D^0$	320	9	9	18	45809
100	$B^- \to \pi^0 \pi^- \rho^+ \rho^- D^0$	144	9	7	16	45825
rest	others (1320 in total)	—	1452	1362	2814	48639

Table 21: Production branches of π^0.

rowNo	production branch of π^0	iProdBrP	nCase	nCcCase	nAllCase	nCCase
1	$\eta \to \pi^0\pi^0\pi^0$	15	9999	—	9999	9999
2	$\rho^+ \to \pi^0\pi^+$	4	9667	0	9667	19666
3	$\rho^- \to \pi^0\pi^-$	29	9571	0	9571	29237
4	$K_S^0 \to \pi^0\pi^0$	12	8804	—	8804	38041
5	$D^{*0} \to \pi^0 D^0$	5	6621	0	6621	44662
6	$\bar{D}^{*0} \to \pi^0 \bar{D}^0$	0	6572	0	6572	51234
7	$\omega \to \pi^0\pi^+\pi^-$	25	6224	—	6224	57458
8	$D^0 \to \pi^0\pi^+ K^-$	6	4795	6	4801	62259
9	$\bar{D}^0 \to \pi^0\pi^- K^+$	36	4441	3	4444	66703
10	$\eta \to \pi^0\pi^+\pi^-$	34	2296	—	2296	68999
11	$K^{*-} \to \pi^0 K^-$	8	1991	0	1991	70990
12	$K^{*+} \to \pi^0 K^+$	11	1913	0	1913	72903
13	$D^{*-} \to \pi^0 D^-$	52	1662	0	1662	74565
14	$D^{*+} \to \pi^0 D^+$	50	1552	0	1552	76117
15	$K^* \to \pi^0 K^0$	7	1461	0	1461	77578
16	$D^0 \to \pi^0\pi^0\pi^+ K^-$	37	1270	10	1280	78858
17	$\bar{K}^* \to \pi^0 \bar{K}^0$	31	1249	0	1249	80107
18	$\bar{D}^0 \to \pi^0\pi^0\pi^- K^+$	75	1224	14	1238	81345
19	$\eta' \to \pi^0\pi^0\eta$	73	1100	—	1100	82445
20	$a_1^- \to \pi^0\rho^-$	51	1016	0	1016	83461
21	$a_1^+ \to \pi^0\rho^+$	16	911	0	911	84372
22	$K_L^0 \to \pi^0\pi^0\pi^0$	9	837	—	837	85209
23	$f_0(600) \to \pi^0\pi^0$	43	802	—	802	86011
24	$D_{s0}^{*-} \to \pi^0 D_s^-$	24	628	0	628	86639
25	$D_{s0}^{*+} \to \pi^0 D_s^+$	66	565	0	565	87204
26	$D^0 \to \pi^0\pi^0 \bar{K}^*$	10	502	0	502	87706
27	$\omega \to \pi^0\gamma$	104	492	—	492	88198
28	$B^- \to \pi^0\pi^-\pi^- D^{*+}$	40	477	0	477	88675
29	$\bar{D}^0 \to \pi^0\pi^0 K^*$	129	472	0	472	89147
30	$B^+ \to \pi^0\pi^+\pi^+ D^{*-}$	28	459	0	459	89606
31	$\bar{D}^0 \to \pi^0\pi^0\pi^0 K_L^0\pi^+\pi^-$	187	459	—	459	90065
32	$\bar{D}^0 \to \pi^0\pi^0\pi^0\pi^+\pi^- K_S^0$	221	459	—	459	90524
33	$D^0 \to \pi^0\pi^0\pi^0 K_S^0$	86	444	—	444	90968

rowNo	production branch of π^0	iProdBrP	nCase	nCcCase	nAllCase	nCCase
34	$D^0 \to \pi^0\pi^0\pi^0 K_L^0 \pi^+\pi^-$	46	429	—	429	91397
35	$D^0 \to \pi^0\pi^0\pi^0 \pi^+\pi^- K_S^0$	140	417	—	417	91814
36	$\bar{D}^0 \to \pi^0\pi^0\pi^0 K_S^0$	128	408	—	408	92222
37	$D^- \to \pi^0\pi^- K_S^0$	150	408	0	408	92630
38	$D^0 \to \pi^0\pi^+\pi^- \bar{K}^*$	21	400	0	400	93030
39	$D^0 \to \pi^0\pi^0\pi^0 K_L^0$	115	378	—	378	93408
40	$\bar{D}^0 \to \pi^0\pi^0\pi^+\pi^-$	48	372	—	372	93780
41	$\bar{D}^0 \to \pi^0\pi^0\pi^0 K_L^0$	340	372	—	372	94152
42	$\bar{D}^0 \to \pi^0\pi^+\pi^- K^*$	89	368	0	368	94520
43	$\bar{D}^0 \to \pi^0\pi^+\pi^-$	77	361	—	361	94881
44	$\bar{D}^0 \to \pi^0\pi^0\pi^+\pi^- K_S^0$	125	354	—	354	95235
45	$D^- \to \pi^0 K_L^0 \pi^-$	60	351	0	351	95586
46	$D^0 \to \pi^0\pi^+\pi^-$	155	328	—	328	95914
47	$D^0 \to \pi^0\pi^0\pi^+\pi^-$	174	328	—	328	96242
48	$D^+ \to \pi^0\pi^+ K_S^0$	95	327	0	327	96569
49	$\bar{D}^0 \to \pi^0\pi^0\pi^0\pi^+\pi^-$	63	312	—	312	96881
50	$D^0 \to \pi^0\pi^0\pi^+\pi^- K_S^0$	168	312	—	312	97193
51	$D^0 \to \pi^0\pi^0\pi^0\pi^+\pi^-$	119	309	—	309	97502
52	$D^- \to \pi^0\pi^- K^*$	118	308	0	308	97810
53	$D_{s1}'^- \to \pi^0 D_s^{*-}$	71	291	0	291	98101
54	$D^+ \to \pi^0 K_L^0 \pi^+$	39	287	0	287	98388
55	$D^0 \to \pi^0\pi^0 K_L^0 \pi^+\pi^-$	54	276	—	276	98664
56	$D^+ \to \pi^0\pi^+ \bar{K}^*$	117	276	0	276	98940
57	$\bar{D}^0 \to \pi^0\pi^0 K_L^0 \pi^+\pi^-$	137	268	—	268	99208
58	$\bar{D}^0 \to \pi^0\pi^0\pi^0\pi^- K^+$	370	267	0	267	99475
59	$B^0 \to \pi^0\pi^+ D^{*-}$	476	263	0	263	99738
60	$B^- \to \pi^0\pi^+\pi^-\pi^- D^{*0}$	45	261	0	261	99999
61	$\bar{D}^0 \to \pi^0\pi^0 K_S^0$	197	260	—	260	100259
62	$D^0 \to \pi^0\pi^0 K_L^0$	111	256	—	256	100515
63	$B^+ \to \pi^0\pi^+\pi^+\pi^- \bar{D}^{*0}$	101	251	0	251	100766
64	$D_{s1}'^+ \to \pi^0 D_s^{*+}$	14	247	0	247	101013
65	$\bar{D}^0 \to \pi^0\pi^0 K_L^0$	205	240	—	240	101253
66	$D^0 \to \pi^0\pi^0 K_S^0$	235	236	—	236	101489
67	$\bar{B}^0 \to \pi^0\pi^- D^{*+}$	477	229	0	229	101718
68	$D^0 \to \pi^0\pi^0\pi^0\pi^+ K^-$	156	198	0	198	101916

rowNo	production branch of π^0	iProdBrP	nCase	nCcCase	nAllCase	nCCase
69	$\bar{D}^0 \to \pi^0 \pi^- K^{*+}$	144	183	0	183	102099
70	$\bar{D}^0 \to \pi^0 K_S^0$	87	175	—	175	102274
71	$D^- \to \pi^0 \pi^0 \pi^0 \pi^- \eta$	760	174	0	174	102448
72	$\bar{D}^0 \to \pi^0 \eta K_S^0$	26	171	—	171	102619
73	$D^+ \to \pi^0 \pi^0 \pi^0 \pi^+ \eta$	249	171	0	171	102790
74	$D^0 \to \pi^0 \eta K_S^0$	100	165	—	165	102955
75	$D^0 \to \pi^0 K_S^0$	106	157	—	157	103112
76	$\bar{D}^0 \to \pi^0 K_L^0 \eta$	141	157	—	157	103269
77	$D^0 \to \pi^0 K_L^0 \eta$	248	150	—	150	103419
78	$\bar{B}^0 \to \pi^0 \pi^+ \pi^- \pi^- D^{*+}$	484	149	0	149	103568
79	$D^- \to \pi^0 \pi^0 \pi^- \eta$	182	148	0	148	103716
80	$K_L^0 \to \pi^0 \pi^+ \pi^-$	27	143	—	143	103859
81	$\bar{D}^0 \to \pi^0 \rho^- K^+$	152	143	0	143	104002
82	$B^0 \to \pi^0 \pi^+ \pi^+ \pi^- D^{*-}$	478	141	0	141	104143
83	$\bar{D}^0 \to \pi^0 K_1^0$	96	140	0	140	104283
84	$D^0 \to \pi^0 \rho^+ K^-$	62	138	0	138	104421
85	$D^0 \to \pi^0 \pi^+ K^{*-}$	108	138	0	138	104559
86	$\bar{D}^0 \to \pi^0 K_L^0$	172	131	—	131	104690
87	$D_s^- \to \pi^0 \pi^+ \pi^+ \pi^- \pi^- \pi^-$	236	131	0	131	104821
88	$\eta_c \to \pi^0 \pi^0 \pi^+ \pi^+ \pi^- \pi^-$	191	122	—	122	104943
89	$D^0 \to \pi^0 \pi^0 K^+ K^-$	233	122	—	122	105065
90	$\bar{D}^0 \to \pi^0 \pi^0 K^+ K^-$	99	120	—	120	105185
91	$B^+ \to \pi^0 \pi^0 \pi^+ \bar{D}^0$	202	120	0	120	105305
92	$\tau^+ \to \bar{\nu}_\tau \pi^0 \pi^+$	218	119	0	119	105424
93	$D^- \to \pi^0 \pi^+ \pi^- \pi^- \eta$	132	117	0	117	105541
94	$D_s^+ \to \pi^0 \pi^+ \pi^+ \pi^+ \pi^- \pi^-$	122	112	0	112	105653
95	$\bar{D}_1^0 \to \pi^0 \pi^0 \bar{D}^0$	159	112	0	112	105765
96	$\tau^- \to \nu_\tau \pi^0 \pi^-$	262	110	0	110	105875
97	$D_1^0 \to \pi^0 \pi^0 D^0$	348	106	0	106	105981
98	$\bar{D}^0 \to \pi^0 \pi^+ \pi^- K_S^0$	252	103	—	103	106084
99	$D^0 \to \pi^0 \bar{K}_1^0$	64	102	0	102	106186
100	$D^+ \to \pi^0 \pi^0 \pi^+ \eta$	316	102	0	102	106288
rest	others (3316 in total)	—	—	—	15615	121903

Table 22: Production branches of e^+.

rowNo	production branch of e^+	iProdBrP	nCase	nCcCase	nAllCase	nCCase
1	$\pi^0 \to e^+e^-$	0	4197	4197	8394	8394
2	$D^0 \to e^+\nu_e K^-$	3	2354	2163	4517	12911
3	$B^+ \to e^+\nu_e \bar{D}^{*0}$	7	700	662	1362	14273
4	$D^0 \to e^+\nu_e K^{*-}$	1	654	627	1281	15554
5	$D^+ \to e^+\nu_e \bar{K}^*$	12	631	614	1245	16799
6	$D^+ \to e^+\nu_e \bar{K}^0$	9	440	458	898	17697
7	$B^+ \to e^+\nu_e \bar{D}^0$	2	379	417	796	18493
8	$B^0 \to e^+\nu_e D^{*-}$	53	300	362	662	19155
9	$\eta \to e^+e^-$	22	202	202	404	19559
10	$K_L^0 \to e^+\bar{\nu}_e \pi^-$	5	0	286	286	19845
11	$B^0 \to e^+\nu_e D^-$	51	116	144	260	20105
12	$K_L^0 \to e^+\nu_e \pi^-$	4	245	0	245	20350
13	$D^+ \to e^+\nu_e \pi^+ K^-$	23	128	117	245	20595
14	$B^+ \to e^+\nu_e \bar{D}_1'^0$	15	100	94	194	20789
15	$D_s^+ \to e^+\nu_e \phi$	32	84	78	162	20951
16	$\tau^+ \to e^+\nu_e \bar{\nu}_\tau$	6	62	75	137	21088
17	$D_s^+ \to e^+\nu_e \eta$	14	63	73	136	21224
18	$B^+ \to e^+\nu_e \bar{D}_1^0$	19	63	72	135	21359
19	$B^+ \to e^+\nu_e \bar{D}_0^{*0}$	41	67	65	132	21491
20	$D^0 \to e^+\nu_e \pi^-$	18	69	59	128	21619
21	$D^0 \to e^+\nu_e \pi^0 K^-$	10	45	43	88	21707
22	$D^0 \to e^+\nu_e \rho^-$	36	46	41	87	21794
23	$B^0 \to e^+\nu_e D_1^-$	58	45	39	84	21878
24	$J/\psi \to e^+e^-$	44	36	36	72	21950
25	$D^0 \to e^+\nu_e \pi^- \bar{K}^0$	33	35	36	71	22021
26	$B^0 \to e^+\nu_e D_1'^-$	63	29	42	71	22092
27	$B^+ \to e^+\nu_e \bar{D}_2^{*0}$	28	37	28	65	22157
28	$\pi^0 \to e^+e^+e^-e^-$	45	32	32	64	22221
29	$B^+ \to e^+\nu_e X_u^0$	40	33	30	63	22284
30	$B^0 \to e^+\nu_e D_0^{*-}$	52	22	30	52	22336
31	$D^0 \to e^+\nu_e K_1^-$	13	31	19	50	22386
32	$D^+ \to e^+\nu_e \pi^0 \bar{K}^0$	55	27	22	49	22435
33	$D^+ \to e^+\nu_e \pi^0$	65	23	23	46	22481

rowNo	production branch of e^+	iProdBrP	nCase	nCcCase	nAllCase	nCCase
34	$B^+ \to e^+ \nu_e \eta \bar{D}^0$	24	22	23	45	22526
35	$B^+ \to e^+ \nu_e \eta \bar{D}^{*0}$	21	17	28	45	22571
36	$B^0 \to e^+ \nu_e X_u^-$	60	30	13	43	22614
37	$B^+ \to e^+ \nu_e \pi^+ \pi^- \bar{D}^{*0}$	35	21	19	40	22654
38	$D_s^+ \to e^+ \nu_e \eta'$	39	21	18	39	22693
39	$B^+ \to e^+ \nu_e \pi^+ D^{*-}$	8	18	17	35	22728
40	$B^0 \to e^+ \nu_e D_2^{*-}$	50	17	17	34	22762
41	$B^+ \to e^+ \nu_e \pi^0 \pi^+ D^{*-}$	17	17	16	33	22795
42	$D^+ \to e^+ \nu_e \rho^0$	27	15	16	31	22826
43	$\omega \to e^+ e^- \pi^0$	37	15	15	30	22856
44	$\eta' \to e^+ e^- \pi^+ \pi^-$	59	14	14	28	22884
45	$B^+ \to e^+ \nu_e \pi^+ D^-$	48	13	13	26	22910
46	$D^+ \to e^+ \nu_e \omega$	16	8	17	25	22935
47	$B^0 \to e^+ \nu_e \eta D^{*-}$	61	9	14	23	22958
48	$\eta \to e^+ e^- \pi^+ \pi^-$	25	11	11	22	22980
49	$D_s^+ \to e^+ \nu_e K^0$	30	8	10	18	22998
50	$B^+ \to e^+ \nu_e \pi^0 \bar{D}^{*0}$	49	9	7	16	23014
51	$B^+ \to e^+ \nu_e \rho^0$	11	7	8	15	23029
52	$B^0 \to e^+ \nu_e \pi^+ \pi^- D^{*-}$	54	9	5	14	23043
53	$B^+ \to e^+ \nu_e K^+ D_s^{*-}$	29	7	7	14	23057
54	$B^0 \to e^+ \nu_e \eta D^-$	56	5	9	14	23071
55	$B^0 \to e^+ \nu_e \pi^-$	62	8	5	13	23084
56	$D^+ \to e^+ \nu_e \eta$	66	8	5	13	23097
57	$D_s^+ \to e^+ \nu_e K^*$	46	3	9	12	23109
58	$\Lambda_c^+ \to e^+ \nu_e \Lambda$	70	3	9	12	23121
59	$B^+ \to e^+ \nu_e \pi^+ \pi^- \bar{D}^0$	74	6	6	12	23133
60	$K_S^0 \to e^+ \nu_e \pi^-$	20	11	0	11	23144
61	$B^0 \to e^+ \nu_e \rho^-$	67	5	6	11	23155
62	$D_s^+ \to e^+ \nu_e \omega$	26	6	5	11	23166
63	$B^0 \to e^+ \nu_e \pi^0 \pi^- \bar{D}^{*0}$	71	3	8	11	23177
64	$B^0 \to e^+ \nu_e \pi^- \bar{D}^{*0}$	72	3	8	11	23188
65	$B^+ \to e^+ \nu_e K^+ D_s^-$	31	6	5	11	23199
66	$B^+ \to e^+ \nu_e \pi^0 \pi^0 \bar{D}^{*0}$	81	4	7	11	23210
67	$B^0 \to e^+ \nu_e \pi^- \bar{D}^0$	57	6	4	10	23220
68	$B^+ \to e^+ \nu_e \pi^0 \bar{D}^0$	42	5	4	9	23229

rowNo	production branch of e^+	iProdBrP	nCase	nCcCase	nAllCase	nCCase
69	$B^+ \to e^+ \nu_e \pi^0 \pi^+ D^-$	43	3	5	8	23237
70	$\omega \to e^+ e^-$	84	4	4	8	23245
71	$K_S^0 \to e^+ \bar{\nu}_e \pi^-$	77	0	7	7	23252
72	$\Xi_c^+ \to e^+ \nu_e \Xi^0$	38	2	4	6	23258
73	$\Lambda_c^+ \to e^+ \nu_e \pi^- p$	69	2	3	5	23263
74	$B^+ \to e^+ \nu_e \omega$	73	4	1	5	23268
75	$B^0 \to e^+ \nu_e \pi^0 D^{*-}$	78	1	3	4	23272
76	$B^0 \to e^+ \nu_e \pi^0 D^-$	76	1	3	4	23276
77	$B^+ \to e^+ \nu_e \pi^0$	47	3	1	4	23280
78	$B^+ \to e^+ \nu_e \pi^0 \pi^0 \bar{D}^0$	75	0	3	3	23283
79	$B^0 \to e^+ \nu_e \pi^0 \pi^0 D^{*-}$	64	0	3	3	23286
80	$\Lambda_c^+ \to e^+ \nu_e \Delta^0$	34	1	1	2	23288
81	$K_S^0 \to e^+ e^- \pi^+ \pi^-$	82	1	1	2	23290
82	$D^+ \to e^+ \nu_e \eta'$	83	2	0	2	23292
83	$\psi' \to e^+ e^-$	68	1	1	2	23294
84	$\Lambda_c^+ \to e^+ \nu_e \pi^0 n$	89	2	0	2	23296
85	$\Lambda_c^+ \to e^+ \nu_e \Sigma^{*0}$	91	2	0	2	23298
86	$B^0 \to e^+ \nu_e \pi^0 \pi^0 D^-$	85	0	1	1	23299
87	$\bar{\Sigma}^0 \to e^+ e^- \bar{\Lambda}$	86	1	0	1	23300
88	$\Sigma^0 \to e^+ e^- \Lambda$	87	0	1	1	23301
89	$\Lambda_c^+ \to e^+ \nu_e \Sigma^0$	88	1	0	1	23302
90	$B^0 \to e^+ \nu_e \pi^+ \pi^- D^-$	79	1	0	1	23303
91	$B^+ \to e^+ \nu_e \eta$	90	0	1	1	23304
92	$B^0 \to e^+ \nu_e \pi^0 \pi^- \bar{D}^0$	80	0	1	1	23305

Table 23: Mothers of D_s^+.

rowNo	mother of D_s^+	PDGMoth	nCase	nCcCase	nAllCase	nCCase
1	D_s^{*+}	433	1444	1517	2961	2961
2	B^+	521	643	702	1345	4306
3	D_{s0}^{*+}	10431	565	628	1193	5499
4	B^0	511	274	372	646	6145
5	B^-	-521	86	71	157	6302
6	$D_{s1}'^+$	20433	39	54	93	6395
7	$\bar{B}^0$	-511	30	37	67	6462
8	$\psi(4160)$	9010443	2	2	4	6466

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

rowNo	mother of D^{*+}	PDGMoth	nCase	nCcCase	nAllCase	nCCase
1	$\bar{B}^0$	-511	4435	4152	8587	8587
2	B^-	-521	1013	985	1998	10585
3	B^+	521	308	304	612	11197
4	$D_1'^0$	20423	236	272	508	11705
5	D_1^0	10423	157	146	303	12008
6	B^0	511	145	121	266	12274
7	D_2^{*0}	425	140	103	243	12517
8	$D_1'^+$	20413	32	26	58	12575
9	D_1^+	10413	34	21	55	12630
10	D_2^{*+}	415	22	19	41	12671
11	$\psi(4160)$	9010443	11	9	20	12691
12	D_{s1}^+	10433	11	6	17	12708

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

rowNo	mother of D^{*0}	PDGMoth	nCase	nCcCase	nAllCase	nCCase
1	B^-	-521	8662	8562	17224	17224
2	B^+	521	458	497	955	18179
3	$\bar{B}^0$	-511	296	268	564	18743
4	B^0	511	239	289	528	19271
5	$D_1'^0$	20423	101	95	196	19467
6	$D_1'^+$	20413	109	84	193	19660
7	D_1^0	10423	75	87	162	19822
8	D_2^{*0}	425	64	56	120	19942
9	D_1^+	10413	47	65	112	20054
10	D_2^{*+}	415	46	62	108	20162
11	D_{s1}^+	10433	9	17	26	20188
12	$\psi(4160)$	9010443	7	7	14	20202

Table 26: Mothers of D^0.

rowNo	mother of D^0	PDGMoth	nCase	nCcCase	nAllCase	nCCase
1	D^{*0}	423	10113	10089	20202	20202
2	B^-	-521	8359	8340	16699	36901
3	D^{*+}	413	4900	4421	9321	46222
4	$\bar{B}^0$	-511	401	410	811	47033
5	B^+	521	181	230	411	47444
6	B^0	511	142	144	286	47730
7	D_1^0	10423	122	141	263	47993
8	D_2^{*0}	425	74	90	164	48157
9	D_0^{*0}	10421	67	87	154	48311
10	D_2^{*+}	415	52	63	115	48426
11	D_0^{*+}	10411	46	51	97	48523
12	$\psi(3770)$	30443	38	38	76	48599
13	D_1^+	10413	19	15	34	48633
14	$\psi(4160)$	9010443	3	3	6	48639

Table 27: Mothers of π^0.

rowNo	mother of π^0	PDGMoth	nCase	nCcCase	nAllCase	nCCase
1	D^0	421	12526	12537	25063	25063
2	ρ^+	213	9667	9571	19238	44301
3	$\bar{D}^{*0}$	-423	6572	6621	13193	57494
4	η	221	12295	—	12295	69789
5	K^0_S	310	8804	—	8804	78593
6	ω	223	6731	—	6731	85324
7	B^+	521	3254	3455	6709	92033
8	D^+	411	1885	2169	4054	96087
9	K^{*-}	-323	1991	1913	3904	99991
10	B^0	511	1686	1719	3405	103396
11	D^{*+}	413	1552	1662	3214	106610
12	K^*	313	1476	1253	2729	109339
13	a_1^+	20213	1030	1131	2161	111500
14	D^{*-}_{s0}	-10431	628	565	1193	112693
15	η'	331	1118	—	1118	113811
16	D^+_s	431	519	582	1101	114912
17	K^0_L	130	980	—	980	115892
18	$f_0(600)$	9000221	802	—	802	116694
19	D'^+_{s1}	20433	247	291	538	117232
20	$\bar{D}^0_1$	-10423	233	226	459	117691
21	τ^-	15	232	226	458	118149
22	η_c	441	330	—	330	118479
23	D^{*0}_2	425	138	146	284	118763
24	J/ψ	443	281	—	281	119044
25	D'^0_1	20423	101	95	196	119240
26	D^{*-}_s	-433	98	93	191	119431
27	$\bar{\Delta}^-$	-2214	82	89	171	119602
28	K^+_1	10323	91	69	160	119762
29	D^{*0}_0	10421	67	87	154	119916
30	$\bar{\Lambda}$	-3122	71	78	149	120065
31	D^-_1	-10413	62	75	137	120202
32	$\rho^+(1450)$	100213	71	64	135	120337
33	Λ^+_c	4122	51	62	113	120450

rowNo	mother of π^0	PDGMoth	nCase	nCcCase	nAllCase	nCCase
34	Δ^0	2114	52	56	108	120558
35	ϕ	333	104	—	104	120662
36	D_2^{*+}	415	46	45	91	120753
37	$K_1'^0$	20313	51	37	88	120841
38	Σ^+	3222	45	34	79	120920
39	$\bar{K}_1^0$	−10313	33	37	70	120990
40	χ_{c1}	20443	67	—	67	121057
41	Σ_c^+	4212	29	34	63	121120
42	$D_1'^+$	20413	32	26	58	121178
43	X_u^-	−44	32	26	58	121236
44	$\rho^0(1450)$	100113	48	—	48	121284
45	$\eta_c(2S)$	100441	47	—	47	121331
46	a_1^0	20113	40	—	40	121371
47	$\bar{\Xi}^0$	−3322	22	16	38	121409
48	ψ'	100443	37	—	37	121446
49	Σ^{*0}	3214	21	16	37	121483
50	Σ_c^{*+}	4214	18	19	37	121520
51	χ_{c0}	10441	33	—	33	121553
52	D_0^{*+}	10411	19	10	29	121582
53	X_u^0	43	28	—	28	121610
54	K_0^0	10311	13	15	28	121638
55	b_1^0	10113	28	—	28	121666
56	K_0^{*+}	10321	13	14	27	121693
57	f_0'	30221	20	—	20	121713
58	$f_0(980)$	9010221	20	—	20	121733
59	$f_2(1270)$	225	16	—	16	121749
60	$K^*(1410)^0$	100313	4	11	15	121764
61	χ_{c2}	445	15	—	15	121779
62	$K^*(1410)^+$	100323	8	5	13	121792
63	K_2^{*+}	325	6	5	11	121803
64	a_0^0	9000111	11	—	11	121814
65	$\bar{K}_1'^-$	−20323	3	7	10	121824
66	a_2^-	−215	7	3	10	121834
67	ρ^0	113	9	—	9	121843
68	K_2^{*0}	−315	2	7	9	121852

rowNo	mother of π^0	PDGMoth	nCase	nCcCase	nAllCase	nCCase
69	$\bar{X}_{su}$	-30353	3	5	8	121860
70	$\bar{\Xi}_c^{*0}$	-4314	4	2	6	121866
71	$\bar{\Xi}_c^-$	-4232	3	2	5	121871
72	$\psi(3770)$	30443	5	—	5	121876
73	Ξ_c^{*+}	4324	5	0	5	121881
74	$h_1(1170)$	10223	4	—	4	121885
75	$K^*(1680)^-$	-30323	2	2	4	121889
76	$\bar{\Xi}^{*0}$	-3324	2	1	3	121892
77	Σ^{*+}	3224	2	1	3	121895
78	a_2^0	115	2	—	2	121897
79	$f_1(1285)$	20223	2	—	2	121899
80	$K^*(\bar{1}680)^0$	-30313	1	1	2	121901
81	$\bar{\Xi}_c^0$	-4132	1	0	1	121902
82	$\rho(1700)^0$	30113	1	—	1	121903

Table 28: Mothers of e^+.

rowNo	mother of e^+	PDGMoth	nCase	nCcCase	nAllCase	nCCase
1	π^0	111	4229	4229	8458	8458
2	D^0	421	3234	2988	6222	14680
3	B^+	521	1541	1539	3080	17760
4	D^+	411	1282	1272	2554	20314
5	B^0	511	610	717	1327	21641
6	K_L^0	130	245	286	531	22172
7	η	221	213	213	426	22598
8	D_s^+	431	185	193	378	22976
9	τ^+	-15	62	75	137	23113
10	J/ψ	443	36	36	72	23185
11	ω	223	19	19	38	23223
12	η'	331	14	14	28	23251
13	Λ_c^+	4122	11	13	24	23275
14	K_S^0	310	12	8	20	23295
15	Ξ_c^+	4232	2	4	6	23301
16	ψ'	100443	1	1	2	23303
17	$\bar{\Sigma}^0$	-3212	1	0	1	23304
18	Σ^0	3212	0	1	1	23305