

# Topology Analysis <sup>\*</sup>

(v1.6.1)

Xingyu Zhou <sup>†</sup>  
Beihang University

December 2, 2018

---

<sup>\*</sup>This package is implemented with reference to a program called TOPO, which is developed by Prof. Shuxian Du from Zhengzhou University in China and has been widely used by people in BESIII collaboration. Several years ago, when I was a PhD student working on BESIII experiment, I learned the idea of topology analysis and a lot of programming techniques from the TOPO program. So, I really appreciate Prof. Du's original work very much. To meet my own needs and to practice developing analysis tools with C++, ROOT and LaTeX, I wrote the package from scratch. At that time, the package functioned well but was relatively simple. At the end of last year (2017), my co-supervisor, Prof. Chengping Shen reminded me that it could be a useful tool for Belle II experiment as well. So, I revised and extended it, making it more well-rounded and suitable for Belle II experiment. Here, I would like to thank Prof. Du for his original work, Prof. Shen for his suggestion and encouragement, and Wencheng Yan, Sen Jia, Yubo Li, Suxian Li, Longke Li, Guanda Gong, Junhao Yin, Xiaoping Qin, Xiqing Hao, HongPeng Wang, JiaWei Zhang and Yeqi Chen for their efforts in helping me test the program.

<sup>†</sup>Email: zhouxy@buaa.edu.cn

List of Tables

1	Event trees and their respective initial-final states. . . . .	3
2	Event initial-final states. . . . .	23

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

index	event tree (event initial-final states)	iEvtTr	iEvtIFSts	nEvts	nCmltEvts
1	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \rho^0 \pi^+ \omega D^-, \bar{B}^0 \rightarrow \pi^0 \pi^+ \pi^- \pi^- D^{*+}, \rho^0 \rightarrow \pi^+ \pi^-, \omega \rightarrow \pi^0 \gamma, D^- \rightarrow \mu^- \bar{\nu}_\mu K^*,$ $D^{*+} \rightarrow \pi^+ D^0, K^* \rightarrow \pi^- K^+, D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \rho^0 \pi^+, \rho^0 \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow \mu^- \bar{\nu}_\mu \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ K^- \gamma \gamma \gamma \gamma)$	0	0	1	1
2	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow K^* \chi_{c0}, \bar{B}^0 \rightarrow D^{*+} D_s^-, K^* \rightarrow \pi^- K^+, \chi_{c0} \rightarrow \omega K^+ K^-, D^{*+} \rightarrow \pi^+ D^0,$ $D_s^- \rightarrow \pi^0 \pi^- \bar{K}^*, \omega \rightarrow \pi^0 \pi^+ \pi^-, D^0 \rightarrow K_S K^+ K^-, \bar{K}^* \rightarrow \bar{K}^0 \gamma, K_S \rightarrow \pi^+ \pi^-, \bar{K}^0 \rightarrow K_L$ $(\Upsilon(4S) \rightarrow K_L \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ K^+ K^+ K^- K^- \gamma \gamma \gamma \gamma)$	1	1	1	2
3	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow K^+ \bar{D}^{*-} D^{*0}, \bar{B}^0 \rightarrow \mu^- \bar{\nu}_\mu D_0^{*+}, \bar{D}^{*-} \rightarrow \pi^0 D^-, D^{*0} \rightarrow \pi^0 D^0, D_0^{*+} \rightarrow \pi^0 D^+,$ $D^- \rightarrow e^- \bar{\nu}_e K^*, D^0 \rightarrow \pi^0 \pi^+ K^-, D^+ \rightarrow K_L a_1^+, K^* \rightarrow \pi^- K^+, a_1^+ \rightarrow \rho^0 \pi^+, \rho^0 \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow e^- \bar{\nu}_e \mu^- \bar{\nu}_\mu K_L \pi^+ \pi^+ \pi^- \pi^- K^+ K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma)$	2	2	1	3
4	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \bar{D}^{*-}, \bar{B}^0 \rightarrow D^{*+} D_s^-, \bar{D}^{*-} \rightarrow \pi^0 D^-, D^{*+} \rightarrow \pi^+ D^0, D_s^- \rightarrow D_s^- \gamma,$ $D^- \rightarrow K_L a_1^-, D^0 \rightarrow K^+ K^-, D_s^- \rightarrow \rho^- \eta', a_1^- \rightarrow \rho^0 \pi^-, \rho^- \rightarrow \pi^0 \pi^-, \eta' \rightarrow \pi^+ \pi^- \eta,$ $\rho^0 \rightarrow \pi^+ \pi^-, \eta \rightarrow \gamma \gamma$ $(\Upsilon(4S) \rightarrow K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	3	3	1	4
5	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow e^+ \nu_e D^-, \bar{B}^0 \rightarrow \pi^0 \pi^+ \pi^- \pi^- D^{*+}, D^- \rightarrow e^- \bar{\nu}_e K^0, D^{*+} \rightarrow \pi^+ D^0, K^0 \rightarrow K_S,$ $D^0 \rightarrow e^+ \nu_e K^{*-}, K_S \rightarrow \pi^+ \pi^-, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_L$ $(\Upsilon(4S) \rightarrow e^+ e^+ e^- \nu_e \nu_e \bar{\nu}_e K_L \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \gamma \gamma)$	4	4	1	5
6	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^- \rho^+ \bar{D}^{*0}, \bar{B}^0 \rightarrow K^{*+} \bar{D}^{*-} D^{*0}, \rho^+ \rightarrow \pi^0 \pi^+, \bar{D}^{*0} \rightarrow \pi^0 \bar{D}^0, K^{*+} \rightarrow \pi^0 K^+,$ $\bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, D^{*0} \rightarrow \pi^0 D^0, \bar{D}^0 \rightarrow e^- \bar{\nu}_e \pi^0 K^+, \bar{D}^0 \rightarrow e^- \bar{\nu}_e K^+, D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow e^- e^- \bar{\nu}_e \bar{\nu}_e \pi^+ \pi^+ \pi^- \pi^- \pi^- K^+ K^+ K^+ \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	5	5	1	6
7	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^- \bar{D}^0 D_s^{*+}, \bar{B}^0 \rightarrow \pi^0 \rho^0 \pi^- \pi^- \rho^+ D^+, \bar{D}^0 \rightarrow \pi^+ \pi^- \pi^- K^+, D_s^{*+} \rightarrow D_s^+ \gamma, \rho^0 \rightarrow \pi^+ \pi^-,$ $\rho^+ \rightarrow \pi^0 \pi^+, D^+ \rightarrow \mu^+ \nu_\mu \bar{K}^0, D_s^+ \rightarrow \mu^+ \nu_\mu \phi, \bar{K}^0 \rightarrow K_S, \phi \rightarrow K_L K_S, K_S \rightarrow \pi^+ \pi^-,$ $K_S \rightarrow \pi^0 \pi^0$ $(\Upsilon(4S) \rightarrow \mu^+ \mu^+ \nu_\mu \nu_\mu K_L \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- K^+ \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	6	6	1	7
8	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \tau^+ \nu_\tau D^-, \bar{B}^0 \rightarrow e^- \bar{\nu}_e D^{*+}, \tau^+ \rightarrow \bar{\nu}_\tau \pi^+ \pi^+ \pi^-, D^- \rightarrow \pi^0 \pi^- \pi^- K^+, D^{*+} \rightarrow \pi^+ D^0,$ $D^0 \rightarrow \pi^0 \pi^+ K^-$ $(\Upsilon(4S) \rightarrow e^- \bar{\nu}_e \nu_\tau \bar{\nu}_\tau \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- K^+ K^- \gamma \gamma \gamma)$	7	7	1	8
9	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^0 \pi^- \rho^+ \eta p \bar{\Lambda}_c^-, \bar{B}^0 \rightarrow e^- \bar{\nu}_e \pi^0 D^+, \rho^+ \rightarrow \pi^0 \pi^+, \eta \rightarrow \pi^0 \pi^+ \pi^-, \bar{\Lambda}_c^- \rightarrow \pi^- \eta' \bar{n},$ $D^+ \rightarrow \mu^+ \nu_\mu \pi^+ K^-, \eta' \rightarrow \pi^0 \pi^0 \eta, \eta \rightarrow \gamma \gamma$ $(\Upsilon(4S) \rightarrow e^- \bar{\nu}_e \mu^+ \nu_\mu \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- K^- \bar{n} p \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	8	8	1	9
10	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \mu^+ \nu_\mu D_1^-, \bar{B}^0 \rightarrow \rho^- D_2^{*+}, D_1^- \rightarrow \pi^- \bar{D}^{*0}, \rho^- \rightarrow \pi^0 \pi^-, D_2^{*+} \rightarrow \pi^+ D^{*0},$ $\bar{D}^{*0} \rightarrow \bar{D}^0 \gamma, D^{*0} \rightarrow \pi^0 D^0, \bar{D}^0 \rightarrow \pi^0 \pi^- K^+, D^0 \rightarrow K_S K_S K_S, K_S \rightarrow \pi^0 \pi^0, K_S \rightarrow \pi^+ \pi^-,$ $K_S \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow \mu^+ \nu_\mu \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- K^+ \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	9	9	1	10

index	event tree (event initial-final states)	iEvtTr	iEvtIFSts	nEvts	nCmltEvts
11	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^+ \pi^- \rho^+ \eta D^-, \bar{B}^0 \rightarrow \pi^- \rho^+ \rho^- D^+, \rho^+ \rightarrow \pi^0 \pi^+, \eta \rightarrow \gamma \gamma, D^- \rightarrow \pi^0 K_L \pi^-,$ $\rho^+ \rightarrow \pi^0 \pi^+, \rho^- \rightarrow \pi^0 \pi^-, D^+ \rightarrow e^+ \nu_e \pi^+ K^-$ $(\Upsilon(4S) \rightarrow e^+ \nu_e K_L \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	10	10	1	11
12	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^0 \pi^+ \Sigma^- \Xi_c^{*0}, \bar{B}^0 \rightarrow \pi^- \bar{\Delta}^+ \Sigma_c^{*+}, \Sigma^- \rightarrow \pi^- n, \Xi_c^{*0} \rightarrow \Xi_c^0 \gamma, \bar{\Delta}^+ \rightarrow \pi^- \bar{n},$ $\Sigma_c^{*+} \rightarrow \pi^+ \Lambda_c^+, \Xi_c^0 \rightarrow \rho^- \Xi^+, \Lambda_c^+ \rightarrow \pi^0 \pi^+ \pi^- \Sigma^+, \rho^- \rightarrow \pi^0 \pi^-, \Xi^+ \rightarrow \pi^+ \bar{\Lambda}, \Sigma^+ \rightarrow \pi^0 p,$ $\bar{\Lambda} \rightarrow \pi^0 \bar{n}$ $(\Upsilon(4S) \rightarrow \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- n \bar{n} p \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	11	11	1	12
13	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow K^0 D^{*0} \bar{D}^{*0}, \bar{B}^0 \rightarrow D^{*+} a_1^-, K^0 \rightarrow K_S, D^{*0} \rightarrow D^0 \gamma, \bar{D}^{*0} \rightarrow \pi^0 \bar{D}^0,$ $D^{*+} \rightarrow \pi^+ D^0, a_1^- \rightarrow \pi^0 \rho^-, K_S \rightarrow \pi^+ \pi^-, D^0 \rightarrow \pi^0 \pi^+ \pi^- \bar{K}^*, \bar{D}^0 \rightarrow K_S K^+ K^-, D^0 \rightarrow e^+ \nu_e \pi^- \bar{K}^0,$ $\rho^- \rightarrow \pi^0 \pi^-, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, K_S \rightarrow \pi^0 \pi^0, \bar{K}^0 \rightarrow K_S, \bar{K}^0 \rightarrow K_S, K_S \rightarrow \pi^+ \pi^-,$ $K_S \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow e^+ \nu_e \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	12	12	1	13
14	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \mu^+ \nu_\mu \bar{D}^{*-}, \bar{B}^0 \rightarrow \mu^- \bar{\nu}_\mu D_1^{*+}, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, D_1^{*+} \rightarrow \pi^0 D^{*+}, \bar{D}^0 \rightarrow \pi^- K^+,$ $D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \pi^0 \rho^+, \rho^+ \rightarrow \pi^0 \pi^+$ $(\Upsilon(4S) \rightarrow \mu^+ \mu^- \nu_\mu \bar{\nu}_\mu \pi^+ \pi^+ \pi^- \pi^- K^+ K^- \gamma \gamma \gamma \gamma \gamma)$	13	13	1	14
15	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow K^0 K^- \bar{D}^0 D_s^+, \bar{B}^0 \rightarrow \mu^- \bar{\nu}_\mu D^{*+}, K^0 \rightarrow K_L, \bar{D}^0 \rightarrow \pi^0 \pi^0 K^+ K^-, D_s^+ \rightarrow \rho^+ \eta,$ $D^{*+} \rightarrow \pi^+ D^0, \rho^+ \rightarrow \pi^0 \pi^+, \eta \rightarrow \pi^0 \pi^+ \pi^-, D^0 \rightarrow e^+ \nu_e K^-$ $(\Upsilon(4S) \rightarrow e^+ \nu_e \mu^- \bar{\nu}_\mu K_L \pi^+ \pi^+ \pi^+ \pi^- K^+ K^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	14	14	1	15
16	$\Upsilon(4S) \rightarrow \bar{B}^0 \bar{B}^0, \bar{B}^0 \rightarrow e^- \bar{\nu}_e D^{*+}, \bar{B}^0 \rightarrow \pi^0 \pi^- \bar{K}^* K^+ D^0, D^{*+} \rightarrow \pi^+ D^0, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, D^0 \rightarrow \pi^0 \pi^+ \pi^- K_S,$ $D^0 \rightarrow \pi^0 \pi^+ K^-, \bar{K}^0 \rightarrow K_L, K_S \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow e^- \bar{\nu}_e K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	15	15	1	16
17	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^0 \pi^0 K^+ D_s^{*-}, \bar{B}^0 \rightarrow \pi^+ \pi^+ \pi^- \pi^- \omega \bar{K}^0, D_s^{*-} \rightarrow D_s^- \gamma, \omega \rightarrow \pi^0 \pi^+ \pi^-, \bar{K}^0 \rightarrow K_S,$ $D_s^- \rightarrow \rho^- \eta, K_S \rightarrow \pi^+ \pi^-, \rho^- \rightarrow \pi^0 \pi^-, \eta \rightarrow \pi^0 \pi^0 \pi^0$ $(\Upsilon(4S) \rightarrow \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- K^+ \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	16	16	1	17
18	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow K^+ \bar{D}^{*-} D^0, \bar{B}^0 \rightarrow \mu^- \bar{\nu}_\mu \pi^+ D^{*0}, \bar{D}^{*-} \rightarrow \pi^0 D^-, D^0 \rightarrow \pi^0 \pi^+ \pi^- K_S, D^{*0} \rightarrow \pi^0 D^0,$ $D^- \rightarrow \pi^0 K_L \pi^-, K_S \rightarrow \pi^+ \pi^-, D^0 \rightarrow \pi^+ K_1^-, K_1^- \rightarrow \rho^- \bar{K}^0, \rho^- \rightarrow \pi^0 \pi^-, \bar{K}^0 \rightarrow K_S,$ $K_S \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow \mu^- \bar{\nu}_\mu K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- K^+ \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	17	17	1	18
19	$\Upsilon(4S) \rightarrow \bar{B}^0 \bar{B}^0, \bar{B}^0 \rightarrow \bar{K}^0 D^{*+} \bar{D}^{*-}, \bar{B}^0 \rightarrow e^- \bar{\nu}_e \pi^+ D^{*0}, \bar{K}^0 \rightarrow K_L, D^{*+} \rightarrow \pi^+ D^0, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0,$ $D^{*0} \rightarrow \pi^0 D^0, D^0 \rightarrow \pi^0 \pi^+ K^{*-}, \bar{D}^0 \rightarrow \pi^- K_1^+, D^0 \rightarrow \pi^0 \pi^+ K^-, K^{*-} \rightarrow \pi^- \bar{K}^0, K_1^+ \rightarrow \pi^0 \pi^+ K^0,$ $\bar{K}^0 \rightarrow K_S, K^0 \rightarrow K_S, K_S \rightarrow \pi^+ \pi^-, K_S \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow e^- \bar{\nu}_e K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	18	18	1	19
20	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \rho^+ D^-, \bar{B}^0 \rightarrow \pi^+ K^0 \bar{K}^0 \bar{K}^0 K^* K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, D^- \rightarrow \pi^- \eta, K^0 \rightarrow K_S,$ $\bar{K}^0 \rightarrow K_L, \bar{K}^0 \rightarrow K_L, K^* \rightarrow \pi^- K^+, K^{*-} \rightarrow \pi^- \bar{K}^0, \eta \rightarrow \pi^0 \pi^0 \pi^0, K_S \rightarrow \pi^+ \pi^-,$ $\bar{K}^0 \rightarrow K_L$ $(\Upsilon(4S) \rightarrow K_L K_L K_L \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	19	19	1	20



index	event tree (event initial-final states)	iEvtTr	iEvtIFSts	nEvts	nCmltEvts
32	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^0 \rho^0 \pi^+ \pi^- \rho^- K^+ K^{*+} D_s^-, \bar{B}^0 \rightarrow K^- \bar{D}^0 \Lambda_c^+, \rho^0 \rightarrow \pi^+ \pi^-, \rho^- \rightarrow \pi^0 \pi^-, K^{*+} \rightarrow \pi^+ K^0,$ $D_s^- \rightarrow \pi^+ \pi^- K_S K^-, \bar{D}^0 \rightarrow \pi^0 \bar{n}, \Lambda_c^+ \rightarrow \mu^+ \nu_\mu \Lambda, K^0 \rightarrow K_S, K_S \rightarrow \pi^+ \pi^-, \Lambda \rightarrow \pi^0 n,$ $K_S \rightarrow \pi^0 \pi^0$ $(\Upsilon(4S) \rightarrow \mu^+ \nu_\mu \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- K^+ K^- K^- n \bar{n} \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	31	31	1	32
33	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \bar{D}^{*-} D_{s0}^{*+}, \bar{B}^0 \rightarrow \pi^0 \pi^+ \pi^- \pi^- D^{*+}, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, D_{s0}^{*+} \rightarrow \pi^0 D_s^+, D^{*+} \rightarrow \pi^0 D^+,$ $\bar{D}^0 \rightarrow \pi^0 \pi^+ \pi^- K^*, D_s^+ \rightarrow \pi^0 \pi^0 \pi^+, D^+ \rightarrow e^+ \nu_e \pi^+ K^-, K^* \rightarrow \pi^- K^+$ $(\Upsilon(4S) \rightarrow e^+ \nu_e \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	32	32	1	33
34	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow K^+ \bar{D}^{*-} D^{*0}, \bar{B}^0 \rightarrow \bar{K}^0 \bar{n} \Sigma_c^0, \bar{D}^{*-} \rightarrow \pi^0 D^-, D^{*0} \rightarrow \pi^0 D^0, \bar{K}^0 \rightarrow K_S,$ $\Sigma_c^0 \rightarrow \pi^- \Lambda_c^+, D^- \rightarrow K^* a_1^-, D^0 \rightarrow \pi^0 \pi^+ K^-, K_S \rightarrow \pi^0 \pi^0, \Lambda_c^+ \rightarrow p f_0(980), K^* \rightarrow \pi^0 K^0,$ $a_1^- \rightarrow \pi^0 \rho^-, f_0(980) \rightarrow \pi^+ \pi^-, K^0 \rightarrow K_L, \rho^- \rightarrow \pi^0 \pi^-$ $(\Upsilon(4S) \rightarrow K_L \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ K^- \bar{n} p \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	33	33	1	34
35	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \bar{D}^{*0} \Delta^+ \bar{\Delta}^+, \bar{B}^0 \rightarrow \mu^- \bar{\nu}_\mu D^{*+}, \bar{D}^{*0} \rightarrow \pi^0 \bar{D}^0, \Delta^+ \rightarrow \pi^+ n, \bar{\Delta}^+ \rightarrow \pi^- \bar{n},$ $D^{*+} \rightarrow \pi^+ D^0, \bar{D}^0 \rightarrow e^- \bar{\nu}_e K_2^{*+}, D^0 \rightarrow \pi^0 \pi^+ \pi^- K_S, K_2^{*+} \rightarrow \pi^0 K^+, K_S \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow e^- \bar{\nu}_e \mu^- \bar{\nu}_\mu \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ n \bar{n} \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	34	34	1	35
36	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^0 \pi^0 \pi^+ \omega D^-, \bar{B}^0 \rightarrow \rho^0 \pi^- \bar{K}^0 \bar{K}^* D_s^{*+}, \omega \rightarrow \pi^0 \pi^+ \pi^-, D^- \rightarrow \rho^- K^*, \rho^0 \rightarrow \pi^+ \pi^-,$ $\bar{K}^0 \rightarrow K_L, \bar{K}^* \rightarrow \pi^+ K^-, D_s^{*+} \rightarrow D_s^+ \gamma, \rho^- \rightarrow \pi^0 \pi^-, K^* \rightarrow \pi^- K^+, D_s^+ \rightarrow \pi^+ \pi^+ \pi^- \omega,$ $\omega \rightarrow \pi^0 \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	35	35	1	36
37	$\Upsilon(4S) \rightarrow \bar{B}^0 \bar{B}^0, \bar{B}^0 \rightarrow \pi^- \bar{\Delta}^+ \Sigma_c^{++}, \bar{B}^0 \rightarrow \pi^+ \pi^- \pi^- \eta K^0 \bar{K}^0 D^+, \bar{\Delta}^+ \rightarrow \pi^0 \bar{p}, \Sigma_c^{++} \rightarrow \pi^+ \Lambda_c^+, \eta \rightarrow \pi^0 \pi^0 \pi^0,$ $K^0 \rightarrow K_L, \bar{K}^0 \rightarrow K_S, D^+ \rightarrow \pi^+ K_S, \Lambda_c^+ \rightarrow \pi^0 \bar{K}^0 p, K_S \rightarrow \pi^0 \pi^0, K_S \rightarrow \pi^+ \pi^-,$ $\bar{K}^0 \rightarrow K_L$ $(\Upsilon(4S) \rightarrow K_L K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- p \bar{p} \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	36	36	1	37
38	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^0 \pi^+ \pi^- K^+ \bar{D}^{*-}, \bar{B}^0 \rightarrow \pi^+ \pi^- \rho^+ \rho^- K^- D_s^{*+}, \bar{D}^{*-} \rightarrow \pi^0 D^-, \rho^+ \rightarrow \pi^0 \pi^+, \rho^- \rightarrow \pi^0 \pi^-,$ $D_s^{*+} \rightarrow D_s^+ \gamma, D^- \rightarrow e^- \bar{\nu}_e K^*, D_s^+ \rightarrow \bar{K}^* K^{*+}, K^* \rightarrow \pi^- K^+, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, K^{*+} \rightarrow \pi^+ K^0,$ $\bar{K}^0 \rightarrow K_L, K^0 \rightarrow K_L, K_L \rightarrow \pi^0 \pi^0 \pi^0$ $(\Upsilon(4S) \rightarrow e^- \bar{\nu}_e K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	37	37	1	38
39	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \bar{D}^{*-} D_s^{*+}, \bar{B}^0 \rightarrow e^- \bar{\nu}_e D_2^{*+}, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, D_s^{*+} \rightarrow \pi^0 D_s^+, D_2^{*+} \rightarrow \pi^0 D^{*+},$ $\bar{D}^0 \rightarrow \rho^- K^{*+}, D_s^+ \rightarrow \rho^+ \eta, D^{*+} \rightarrow \pi^+ D^0, \rho^- \rightarrow \pi^0 \pi^-, K^{*+} \rightarrow \pi^+ K^0, \rho^+ \rightarrow \pi^0 \pi^+,$ $\eta \rightarrow \gamma \gamma, D^0 \rightarrow K_L \phi, K^0 \rightarrow K_L, \phi \rightarrow \pi^0 \rho^0, \rho^0 \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow e^- \bar{\nu}_e K_L K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	38	38	1	39
40	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^- K^+ D^0 \bar{D}^{*0}, \bar{B}^0 \rightarrow \pi^0 \bar{K}^* J/\psi, D^0 \rightarrow e^+ \nu_e K^{*-}, \bar{D}^{*0} \rightarrow \bar{D}^0 \gamma, \bar{K}^* \rightarrow \pi^+ K^-,$ $J/\psi \rightarrow \pi^0 \pi^+ \pi^- \eta, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{D}^0 \rightarrow K^+ a_1^-, \eta \rightarrow \pi^0 \pi^+ \pi^-, \bar{K}^0 \rightarrow K_L, a_1^- \rightarrow \pi^0 \rho^-,$ $K_L \rightarrow \mu^- \nu_\mu \pi^+, \rho^- \rightarrow \pi^0 \pi^-$ $(\Upsilon(4S) \rightarrow e^+ \nu_e \mu^- \nu_\mu \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- K^+ K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	39	39	1	40

index	event tree (event initial-final states)	iEvtTr	iEvtIFSts	nEvts	nCmltEvts
41	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow K^* D^{*+} \bar{D}^{*-}, \bar{B}^0 \rightarrow \pi^- K^0 D^+, K^* \rightarrow \pi^0 K^0, D^{*+} \rightarrow \pi^+ D^0, \bar{D}^{*-} \rightarrow \pi^0 D^-,$ $K^0 \rightarrow K_L, D^+ \rightarrow \pi^0 \pi^0 \pi^+ \pi^+ K^-, K^0 \rightarrow K_S, D^0 \rightarrow \mu^+ \nu_\mu K^-, D^- \rightarrow \pi^0 \pi^- K^*, \pi^0 \rightarrow e^+ e^-,$ $K_S \rightarrow \pi^+ \pi^-, K^* \rightarrow \pi^- K^+$ $(\Upsilon(4S) \rightarrow e^+ e^- \mu^+ \nu_\mu K_L \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ K^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	40	40	1	41
42	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^+ \eta D^-, \bar{B}^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^- \rho^+ K^+ K^- D^0, \eta \rightarrow \pi^0 \pi^+ \pi^-, D^- \rightarrow K_L \pi^-, \rho^+ \rightarrow \pi^0 \pi^+,$ $D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \pi^0 \rho^+, \rho^+ \rightarrow \pi^0 \pi^+$ $(\Upsilon(4S) \rightarrow K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- K^+ K^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	41	41	1	42
43	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \mu^+ \nu_\mu \pi^- \bar{D}^{*0}, B^0 \rightarrow \rho^0 \pi^+ K^0 D^-, \bar{D}^{*0} \rightarrow \bar{D}^0 \gamma, \rho^0 \rightarrow \pi^+ \pi^-, K^0 \rightarrow K_L,$ $D^- \rightarrow \pi^0 K_L \pi^-, \bar{D}^0 \rightarrow \rho^- K^{*+}, \rho^- \rightarrow \pi^0 \pi^-, K^{*+} \rightarrow \pi^0 K^+$ $(\Upsilon(4S) \rightarrow \mu^+ \nu_\mu K_L K_L \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ \gamma \gamma \gamma \gamma \gamma \gamma)$	42	42	1	43
44	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^- \bar{D}^0 D_s^+, \bar{B}^0 \rightarrow \pi^+ \pi^- D^+ D_s^{*-}, \bar{D}^0 \rightarrow \pi^+ \rho^-, D_s^+ \rightarrow \pi^+ \phi, D^+ \rightarrow \mu^+ \nu_\mu \pi^+ K^-,$ $D_s^{*-} \rightarrow D_s^- \gamma, \rho^- \rightarrow \pi^0 \pi^-, \phi \rightarrow K_L K_S, D_s^- \rightarrow \rho^- \eta', K_S \rightarrow \pi^0 \pi^0, \rho^- \rightarrow \pi^0 \pi^-,$ $\eta' \rightarrow \gamma \gamma$ $(\Upsilon(4S) \rightarrow \mu^+ \nu_\mu K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	43	43	1	44
45	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^+ \pi^- \rho^+ \omega \bar{K}^0 K^* \bar{D}^{*-}, \bar{B}^0 \rightarrow K_S J/\psi, \rho^+ \rightarrow \pi^0 \pi^+, \omega \rightarrow \pi^0 \pi^+ \pi^-, \bar{K}^0 \rightarrow K_L,$ $K^* \rightarrow \pi^- K^+, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, K_S \rightarrow \pi^+ \pi^-, J/\psi \rightarrow \pi^0 \omega \omega, \bar{D}^0 \rightarrow \pi^0 \pi^- K^+, \omega \rightarrow \pi^0 \pi^+ \pi^-,$ $\omega \rightarrow \pi^0 \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- K^+ K^+ \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	44	44	1	45
46	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow K^+ \bar{D}^{*-} D^{*0}, \bar{B}^0 \rightarrow \mu^- \bar{\nu}_\mu D^+, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, D^{*0} \rightarrow \pi^0 D^0, D^+ \rightarrow \mu^+ \nu_\mu \bar{K}^*,$ $\bar{D}^0 \rightarrow \pi^- \eta K^+, D^0 \rightarrow e^+ \nu_e K^-, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, \eta \rightarrow \pi^+ \pi^-, \bar{K}^0 \rightarrow K_S, K_S \rightarrow \pi^0 \pi^0$ $(\Upsilon(4S) \rightarrow e^+ \nu_e \mu^+ \mu^- \nu_\mu \bar{\nu}_\mu \pi^+ \pi^- \pi^- \pi^- K^+ K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	45	45	1	46
47	$\Upsilon(4S) \rightarrow \bar{B}^0 \bar{B}^0, \bar{B}^0 \rightarrow D^+ a_1^-, \bar{B}^0 \rightarrow \pi^0 \rho^+ \omega K^{*-} D^{*0}, D^+ \rightarrow \mu^+ \nu_\mu \bar{K}^0, a_1^- \rightarrow \pi^0 \rho^-, \rho^+ \rightarrow \pi^0 \pi^+,$ $\omega \rightarrow \pi^0 \pi^+ \pi^-, K^{*-} \rightarrow \pi^0 K^-, D^{*0} \rightarrow \pi^0 D^0, \bar{K}^0 \rightarrow K_L, \rho^- \rightarrow \pi^0 \pi^-, D^0 \rightarrow K_L \omega,$ $\omega \rightarrow \pi^0 \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow \mu^+ \nu_\mu K_L K_L \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	46	46	1	47
48	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow D^+ D^-, B^0 \rightarrow D^- D_s^{*+}, D^+ \rightarrow e^+ \nu_e \pi^+ K^-, D^- \rightarrow \mu^- \bar{\nu}_\mu K^*, D^- \rightarrow \pi^0 \pi^- K_S,$ $D_s^{*+} \rightarrow D_s^+ \gamma, K^* \rightarrow \pi^- K^+, K_S \rightarrow \pi^0 \pi^0, D_s^+ \rightarrow \pi^+ \phi, \phi \rightarrow K_L K_S, K_L \rightarrow e^+ \nu_e \pi^-,$ $K_S \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow e^+ e^+ \nu_e \nu_e \mu^- \bar{\nu}_\mu \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	47	47	1	48
49	$\Upsilon(4S) \rightarrow \bar{B}^0 \bar{B}^0, \bar{B}^0 \rightarrow \tau^- \bar{\nu}_\tau D_2^{*+}, \bar{B}^0 \rightarrow D^{*+} \Delta^- \bar{\Delta}^0, \tau^- \rightarrow \mu^- \bar{\nu}_\mu \nu_\tau, D_2^{*+} \rightarrow \pi^+ D^0, D^{*+} \rightarrow \pi^0 D^+,$ $\Delta^- \rightarrow \pi^- n, \bar{\Delta}^0 \rightarrow \pi^+ \bar{p}, D^0 \rightarrow \pi^0 \pi^+ K^-, D^+ \rightarrow \mu^+ \nu_\mu \bar{K}^0, \bar{K}^0 \rightarrow K_L, K_L \rightarrow e^+ \nu_e \pi^-$ $(\Upsilon(4S) \rightarrow e^+ \nu_e \mu^+ \mu^- \nu_\mu \bar{\nu}_\mu \nu_\tau \bar{\nu}_\tau \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- K^- n \bar{p} \gamma \gamma \gamma \gamma)$	48	48	1	49
50	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^0 \pi^0 \rho^+ \bar{K}^0 K^* D^-, \bar{B}^0 \rightarrow \pi^0 \rho^0 \pi^+ \pi^- \rho^- \eta D^{*+}, \rho^+ \rightarrow \pi^0 \pi^+, \bar{K}^0 \rightarrow K_L, K^* \rightarrow \pi^- K^+,$ $D^- \rightarrow \mu^- \bar{\nu}_\mu K^0, \rho^0 \rightarrow \pi^+ \pi^-, \rho^- \rightarrow \pi^0 \pi^-, \eta \rightarrow \gamma \gamma, D^{*+} \rightarrow \pi^0 D^+, K^0 \rightarrow K_S,$ $D^+ \rightarrow K_L \pi^+, K_S \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow \mu^- \bar{\nu}_\mu K_L K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	49	49	1	50

index	event tree (event initial-final states)	iEvtTr	iEvtIFSts	nEvts	nCmltEvts
51	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow K^+ \bar{D}^{*-} D^{*0}, \bar{B}^0 \rightarrow \pi^- \bar{D}^0 \Sigma_c^{*+}, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, D^{*0} \rightarrow \pi^0 D^0, \bar{D}^0 \rightarrow \pi^0 \bar{n},$ $\Sigma_c^{*+} \rightarrow \pi^0 \Lambda_c^+, \bar{D}^0 \rightarrow \mu^- \bar{\nu}_\mu K^+, D^0 \rightarrow \pi^+ K^-, \Lambda_c^+ \rightarrow \rho^0 \pi^+ \Lambda, \rho^0 \rightarrow \pi^+ \pi^-, \Lambda \rightarrow \pi^- p$ $(\Upsilon(4S) \rightarrow \mu^- \bar{\nu}_\mu \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ K^+ K^- \bar{n} p \gamma \gamma \gamma \gamma \gamma)$	50	50	1	51
52	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^0 \pi^+ K^0 K^0 D_s^-, \bar{B}^0 \rightarrow \mu^- \bar{\nu}_\mu D^+, K^0 \rightarrow K_L, K^0 \rightarrow K_L, D_s^- \rightarrow \rho^- \phi,$ $D^+ \rightarrow \pi^+ \pi^+ K^-, \rho^- \rightarrow \pi^0 \pi^-, \phi \rightarrow K^+ K^-$ $(\Upsilon(4S) \rightarrow \mu^- \bar{\nu}_\mu K_L K_L \pi^+ \pi^+ \pi^- K^+ K^- K^- \gamma \gamma \gamma \gamma)$	51	51	1	52
53	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \mu^+ \nu_\mu \bar{D}^{*-}, \bar{B}^0 \rightarrow \pi^0 \rho^0 \rho^- D^{*+} \gamma, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, \rho^0 \rightarrow \pi^+ \pi^-, \rho^- \rightarrow \pi^0 \pi^-,$ $D^{*+} \rightarrow \pi^0 D^+, \bar{D}^0 \rightarrow e^- \bar{\nu}_e K^+, D^+ \rightarrow \pi^0 \pi^+ K^+ K^-$ $(\Upsilon(4S) \rightarrow e^- \bar{\nu}_e \mu^+ \nu_\mu \pi^+ \pi^+ \pi^- \pi^- \pi^- K^+ K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	52	52	1	53
54	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^+ \pi^+ \pi^+ \pi^- \pi^- \bar{D}^{*-}, \bar{B}^0 \rightarrow \pi^0 \pi^0 \pi^- \pi^- \rho^+ D^{*+}, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, \rho^+ \rightarrow \pi^0 \pi^+, D^{*+} \rightarrow \pi^+ D^0,$ $\bar{D}^0 \rightarrow \pi^+ \pi^- K_S K_S, D^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^+ \pi^-, K_S \rightarrow \pi^0 \pi^0, K_S \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	53	53	1	54
55	$\Upsilon(4S) \rightarrow \bar{B}^0 \bar{B}^0, \bar{B}^0 \rightarrow D^{*+} D_s^{*-}, \bar{B}^0 \rightarrow \pi^- \bar{\Delta}^+ \Sigma_c^{*+}, D^{*+} \rightarrow \pi^+ D^0, D_s^{*-} \rightarrow D_s^- \gamma, \bar{\Delta}^+ \rightarrow \pi^- \bar{n},$ $\Sigma_c^{*+} \rightarrow \pi^+ \Lambda_c^+, D^0 \rightarrow \pi^0 \pi^+ K^-, D_s^- \rightarrow \rho^- \eta, \Lambda_c^+ \rightarrow K^{*+} \Sigma^{*0}, \rho^- \rightarrow \pi^0 \pi^-, \eta \rightarrow \pi^0 \pi^+ \pi^-,$ $K^{*+} \rightarrow \pi^0 K^+, \Sigma^{*0} \rightarrow \pi^0 \Lambda, \Lambda \rightarrow \pi^0 n$ $(\Upsilon(4S) \rightarrow \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ K^- n \bar{n} \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	54	54	1	55
56	$\Upsilon(4S) \rightarrow B^0 B^0, B^0 \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \bar{D}^{*-}, B^0 \rightarrow \pi^+ \omega \bar{D}^{*-} \bar{p} \Delta^+, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, \omega \rightarrow \pi^0 \pi^+ \pi^-, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0,$ $\Delta^+ \rightarrow \pi^0 p, \bar{D}^0 \rightarrow \pi^- \eta K^+, \bar{D}^0 \rightarrow \rho^0 K^*, \eta \rightarrow \pi^0 \pi^0 \pi^0, \rho^0 \rightarrow \pi^+ \pi^-, K^* \rightarrow \pi^- K^+$ $(\Upsilon(4S) \rightarrow \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- K^+ K^+ p \bar{p} \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	55	55	1	56
57	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \bar{D}^{*-}, \bar{B}^0 \rightarrow K^- D^+ \bar{D}^{*0}, \bar{D}^{*-} \rightarrow \pi^0 D^-, D^+ \rightarrow \pi^+ \pi^+ K^-, \bar{D}^{*0} \rightarrow \pi^0 \bar{D}^0,$ $D^- \rightarrow \pi^0 \pi^- K^*, \bar{D}^0 \rightarrow K^+ a_1^-, K^* \rightarrow \pi^- K^+, a_1^- \rightarrow \rho^0 \pi^-, \rho^0 \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- K^+ K^+ K^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	56	56	1	57
58	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^+ \pi^- K^0 \chi_{c1}, \bar{B}^0 \rightarrow \pi^0 \rho^0 \rho^- D^{*+}, K^0 \rightarrow K_L, \chi_{c1} \rightarrow \rho^0 \pi^+ K^0 K^{*-}, \rho^0 \rightarrow \pi^+ \pi^-,$ $\rho^- \rightarrow \pi^0 \pi^-, D^{*+} \rightarrow \pi^+ D^0, \rho^0 \rightarrow \pi^+ \pi^-, K^0 \rightarrow K_L, K^{*-} \rightarrow \pi^- \bar{K}^0, D^0 \rightarrow \pi^0 \pi^+ \pi^- K_S,$ $\bar{K}^0 \rightarrow K_L, K_S \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow K_L K_L K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	57	57	1	58
59	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow e^+ \nu_e \bar{D}^{*-}, \bar{B}^0 \rightarrow e^- \bar{\nu}_e D^{*+}, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, D^{*+} \rightarrow \pi^+ D^0, \bar{D}^0 \rightarrow \pi^+ K_S K^-,$ $D^0 \rightarrow e^+ \nu_e K^-, K_S \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow e^+ e^+ e^- \nu_e \bar{\nu}_e \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- K^- K^-)$	58	58	1	59
60	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow K^{*+} \bar{D}^{*-} D^{*0}, \bar{B}^0 \rightarrow \mu^- \bar{\nu}_\mu D^{*+}, K^{*+} \rightarrow \pi^+ K^0, \bar{D}^{*-} \rightarrow \pi^0 D^-, D^{*0} \rightarrow D^0 \gamma,$ $D^{*+} \rightarrow \pi^+ D^0, K^0 \rightarrow K_L, D^- \rightarrow e^- \bar{\nu}_e \pi^- K^+, D^0 \rightarrow K_L \pi^- K^+, D^0 \rightarrow e^+ \nu_e K^{*-}, K^{*-} \rightarrow \pi^0 K^-$ $(\Upsilon(4S) \rightarrow e^+ e^- \nu_e \bar{\nu}_e \mu^- \bar{\nu}_\mu K_L K_L \pi^+ \pi^+ \pi^- \pi^- K^+ K^+ K^- \gamma \gamma \gamma \gamma \gamma)$	59	59	1	60
61	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \bar{D}^{*-} \bar{\Delta}^- n, \bar{B}^0 \rightarrow \pi^+ \bar{\Delta}^+ \Sigma_c^{*0}, \bar{D}^{*-} \rightarrow D^- \gamma, \bar{\Delta}^- \rightarrow \pi^+ \bar{n}, \bar{\Delta}^+ \rightarrow \pi^0 \bar{p},$ $\Sigma_c^{*0} \rightarrow \pi^- \Lambda_c^+, D^- \rightarrow e^- \bar{\nu}_e K^*, \Lambda_c^+ \rightarrow \pi^0 \pi^+ \Lambda, K^* \rightarrow \pi^- K^+, \Lambda \rightarrow \pi^- p$ $(\Upsilon(4S) \rightarrow e^- \bar{\nu}_e \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- K^+ n \bar{n} p \bar{p} \gamma \gamma \gamma \gamma \gamma)$	60	60	1	61



index	event tree (event initial-final states)	iEvtTr	iEvtIFSts	nEvts	nCmltEvts
62	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow e^+ \nu_e D_1^-, \bar{B}^0 \rightarrow \mu^- \bar{\nu}_\mu D^{*+}, D_1^- \rightarrow \pi^0 \bar{D}^{*-}, D^{*+} \rightarrow \pi^+ D^0, \bar{D}^{*-} \rightarrow \pi^0 D^-,$ $D^0 \rightarrow K^- a_1^+, D^- \rightarrow e^- \bar{\nu}_e K^*, a_1^+ \rightarrow \rho^0 \pi^+, K^* \rightarrow \pi^- K^+, \rho^0 \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow e^+ e^- \nu_e \bar{\nu}_e \mu^- \bar{\nu}_\mu \pi^+ \pi^+ \pi^- \pi^- K^+ K^- \gamma \gamma \gamma \gamma)$	61	61	1	62
63	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^0 \rho^+ \eta D^-, \bar{B}^0 \rightarrow D^+ D_s^{*-}, \rho^+ \rightarrow \pi^0 \pi^+, \eta \rightarrow \pi^0 \pi^0 \pi^0, D^- \rightarrow \pi^- \pi^- K^+,$ $D^+ \rightarrow \pi^+ \bar{K}_1'^0, D_s^{*-} \rightarrow D_s^- \gamma, \bar{K}_1'^0 \rightarrow \pi^+ K^{*-}, D_s^- \rightarrow \pi^+ \pi^- K^-, K^{*-} \rightarrow \pi^0 K^-$ $(\Upsilon(4S) \rightarrow \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- K^+ K^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	62	62	1	63
64	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^+ \pi^- K^0 J/\psi, \bar{B}^0 \rightarrow \rho^0 \rho^- \eta D^+, K^0 \rightarrow K_L, J/\psi \rightarrow \pi^+ \rho^- \eta, \rho^0 \rightarrow \pi^+ \pi^-,$ $\rho^- \rightarrow \pi^0 \pi^-, \eta \rightarrow \pi^0 \pi^0 \pi^0, D^+ \rightarrow e^+ \nu_e \bar{K}^*, \rho^- \rightarrow \pi^0 \pi^-, \eta \rightarrow \gamma \gamma, \bar{K}^* \rightarrow \pi^+ K^-$ $(\Upsilon(4S) \rightarrow e^+ \nu_e K_L \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	63	63	1	64
65	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^0 \rho^0 \rho^0 \pi^+ D^-, \bar{B}^0 \rightarrow \mu^- \bar{\nu}_\mu D^{*+}, \rho^0 \rightarrow \pi^+ \pi^-, \rho^0 \rightarrow \pi^+ \pi^-, D^- \rightarrow \pi^0 \pi^- \phi,$ $D^{*+} \rightarrow \pi^0 D^+, \phi \rightarrow \pi^0 \rho^0, \pi^0 \rightarrow e^+ e^-, D^+ \rightarrow \pi^+ \bar{K}_1'^0, \rho^0 \rightarrow \pi^+ \pi^-, \bar{K}_1'^0 \rightarrow \pi^0 \bar{K}^*,$ $\pi^0 \rightarrow e^+ e^-, \bar{K}^* \rightarrow \pi^+ K^-$ $(\Upsilon(4S) \rightarrow e^+ e^+ e^- e^- \mu^- \bar{\nu}_\mu \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^- \gamma \gamma \gamma \gamma \gamma \gamma)$	64	64	1	65
66	$\Upsilon(4S) \rightarrow \bar{B}^0 \bar{B}^0, \bar{B}^0 \rightarrow \tau^- \bar{\nu}_\tau D^{*+}, \bar{B}^0 \rightarrow \pi^- \eta \omega \eta' D^+, \tau^- \rightarrow \nu_\tau \pi^0 \pi^-, D^{*+} \rightarrow \pi^+ D^0, \eta \rightarrow \gamma \gamma,$ $\omega \rightarrow \pi^0 \pi^+ \pi^-, \eta' \rightarrow \pi^0 \pi^0 \eta, D^+ \rightarrow e^+ \nu_e \bar{K}^*, D^0 \rightarrow e^+ \nu_e K^{*-}, \eta \rightarrow \gamma \gamma, \bar{K}^* \rightarrow \pi^0 \bar{K}^0,$ $K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S, \bar{K}^0 \rightarrow K_L, K_S \rightarrow \pi^0 \pi^0$ $(\Upsilon(4S) \rightarrow e^+ e^+ \nu_e \nu_e \nu_\tau \bar{\nu}_\tau K_L \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	65	65	1	66
67	$\Upsilon(4S) \rightarrow \bar{B}^0 \bar{B}^0, \bar{B}^0 \rightarrow D^+ a_1^-, \bar{B}^0 \rightarrow \pi^0 \eta' D^{*+} \bar{D}^{*-}, D^+ \rightarrow \mu^+ \nu_\mu \bar{K}^0, a_1^- \rightarrow \rho^0 \pi^-, \eta' \rightarrow \pi^+ \pi^- \eta,$ $D^{*+} \rightarrow \pi^+ D^0, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, \bar{K}^0 \rightarrow K_S, \rho^0 \rightarrow \pi^+ \pi^-, \eta \rightarrow \pi^0 \pi^0 \pi^0, D^0 \rightarrow e^+ \nu_e K^-,$ $\bar{D}^0 \rightarrow K_S K^+ K^-, K_S \rightarrow \pi^0 \pi^0, K_S \rightarrow \pi^0 \pi^0$ $(\Upsilon(4S) \rightarrow e^+ \nu_e \mu^+ \nu_\mu \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ K^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	66	66	1	67
68	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow e^+ \nu_e \bar{D}^{*-}, \bar{B}^0 \rightarrow \pi^0 \rho^0 \rho^0 \rho^- D^{*+}, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, \rho^0 \rightarrow \pi^+ \pi^-, \rho^0 \rightarrow \pi^+ \pi^-,$ $\rho^- \rightarrow \pi^0 \pi^-, D^{*+} \rightarrow \pi^+ D^0, \bar{D}^0 \rightarrow K^+ a_1^-, D^0 \rightarrow \pi^0 \pi^+ K^-, a_1^- \rightarrow \rho^0 \pi^-, \rho^0 \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow e^+ \nu_e \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma)$	67	67	1	68
69	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \bar{K}^* K^+ \bar{D}^{*-}, \bar{B}^0 \rightarrow \pi^0 \rho^0 \eta \omega, \bar{K}^* \rightarrow \pi^+ K^-, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, \rho^0 \rightarrow \pi^+ \pi^-,$ $\eta \rightarrow \pi^0 \pi^0 \pi^0, \omega \rightarrow \pi^0 \pi^+ \pi^-, \bar{D}^0 \rightarrow \pi^- K^+$ $(\Upsilon(4S) \rightarrow \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	68	68	1	69
70	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \rho^+ K^+ K^- D^-, \bar{B}^0 \rightarrow \pi^0 \pi^+ \pi^- \pi^- D^+, \rho^+ \rightarrow \pi^0 \pi^+, D^- \rightarrow e^- \bar{\nu}_e \rho^0, D^+ \rightarrow K_S K^{*+},$ $\rho^0 \rightarrow \pi^+ \pi^-, K_S \rightarrow \pi^+ \pi^-, K^{*+} \rightarrow \pi^0 K^+$ $(\Upsilon(4S) \rightarrow e^- \bar{\nu}_e \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma)$	69	69	1	70
71	$\Upsilon(4S) \rightarrow \bar{B}^0 \bar{B}^0, \bar{B}^0 \rightarrow D^{*+} D_s^{*-}, \bar{B}^0 \rightarrow \rho^- \bar{\Delta}^0 \Sigma_c^+, D^{*+} \rightarrow \pi^+ D^0, D_s^{*-} \rightarrow D_s^- \gamma, \rho^- \rightarrow \pi^0 \pi^-,$ $\bar{\Delta}^0 \rightarrow \pi^0 \bar{n}, \Sigma_c^+ \rightarrow \pi^0 \Lambda_c^+, D^0 \rightarrow \mu^+ \nu_\mu K^-, D_s^- \rightarrow \pi^- \eta', \Lambda_c^+ \rightarrow \mu^+ \nu_\mu \pi^- p, \eta' \rightarrow \rho^0 \gamma,$ $\rho^0 \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow \mu^+ \mu^+ \nu_\mu \nu_\mu \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^- \bar{n} p \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	70	70	1	71

index	event tree (event initial-final states)	iEvtTr	iEvtIFSts	nEvts	nCmltEvts
72	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow e^+ \nu_e \bar{D}^{*-}, \bar{B}^0 \rightarrow \rho^0 \pi^+ \eta D^-, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, \rho^0 \rightarrow \pi^+ \pi^-, \eta \rightarrow \pi^0 \pi^+ \pi^-,$ $D^- \rightarrow \pi^- \omega K^*, \bar{D}^0 \rightarrow \pi^0 \pi^+ \pi^- K_S, \omega \rightarrow \pi^0 \pi^+ \pi^-, K^* \rightarrow \pi^- K^+, K_S \rightarrow \pi^0 \pi^0$ $(\Upsilon(4S) \rightarrow e^+ \nu_e \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- K^+ \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	71	71	1	72
73	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \bar{D}^{*-}, \bar{B}^0 \rightarrow \pi^0 \bar{K}^0 D^+ \bar{D}^{*-}, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, \bar{K}^0 \rightarrow K_L, D^+ \rightarrow \pi^0 \pi^+ K_S,$ $\bar{D}^{*-} \rightarrow \pi^0 D^-, \bar{D}^0 \rightarrow \pi^0 K_S, K_L \rightarrow e^+ \nu_e \pi^-, K_S \rightarrow \pi^+ \pi^-, D^- \rightarrow \pi^- \pi^- K^+, K_S \rightarrow \pi^0 \pi^0$ $(\Upsilon(4S) \rightarrow e^+ \nu_e \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- K^+ \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	72	72	1	73
74	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \tau^+ \nu_\tau \bar{D}^{*-}, \bar{B}^0 \rightarrow e^- \bar{\nu}_e D^+, \tau^+ \rightarrow \mu^+ \nu_\mu \bar{\nu}_\tau, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, D^+ \rightarrow e^+ \nu_e \pi^+ K^-,$ $\bar{D}^0 \rightarrow \pi^0 \pi^- K^+$ $(\Upsilon(4S) \rightarrow e^+ e^- \nu_e \bar{\nu}_e \mu^+ \nu_\mu \nu_\tau \bar{\nu}_\tau \pi^+ \pi^- \pi^- K^+ K^- \gamma \gamma)$	73	73	1	74
75	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^- K^{*+} D^0 \bar{D}^0, \bar{B}^0 \rightarrow \pi^0 \pi^+ \pi^- \pi^- D^{*+}, K^{*+} \rightarrow \pi^0 K^+, D^0 \rightarrow \rho^+ K^{*-}, \bar{D}^0 \rightarrow \pi^+ \pi^- \eta,$ $D^{*+} \rightarrow \pi^+ D^0, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^- \bar{K}^0, \eta \rightarrow \gamma \gamma, D^0 \rightarrow K_L \pi^+ \pi^-, \pi^0 \rightarrow e^+ e^-,$ $\bar{K}^0 \rightarrow K_L$ $(\Upsilon(4S) \rightarrow e^+ e^- K_L K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- K^+ \gamma \gamma \gamma \gamma \gamma \gamma)$	74	74	1	75
76	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \mu^+ \nu_\mu D^-, \bar{B}^0 \rightarrow \pi^0 \pi^0 \rho^+ \omega \bar{D}^{*-}, D^- \rightarrow \pi^0 \pi^+ \pi^- \pi^-, \rho^+ \rightarrow \pi^0 \pi^+, \omega \rightarrow \pi^0 \pi^+ \pi^-,$ $\bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, \bar{D}^0 \rightarrow \pi^- K_1^+, K_1^+ \rightarrow \rho^0 K^+, \rho^0 \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow \mu^+ \nu_\mu \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- K^+ \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	75	75	1	76
77	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow K^+ \bar{D}^{*-} D^{*0}, \bar{B}^0 \rightarrow \rho^0 \pi^+ \omega \bar{D}^{*-}, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, D^{*0} \rightarrow \pi^0 D^0, \rho^0 \rightarrow \pi^+ \pi^-,$ $\omega \rightarrow \pi^0 \pi^+ \pi^-, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, \bar{D}^0 \rightarrow \pi^0 \pi^- K^+, D^0 \rightarrow \pi^0 \bar{K}^*, \bar{D}^0 \rightarrow \pi^0 K_L \pi^+ \pi^-, \bar{K}^* \rightarrow \pi^0 \bar{K}^0,$ $\bar{K}^0 \rightarrow K_L$ $(\Upsilon(4S) \rightarrow K_L K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- K^+ K^+ \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	76	76	1	77
78	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \rho^+ \Delta^0 \bar{\Sigma}_c^{*-}, \bar{B}^0 \rightarrow \mu^- \bar{\nu}_\mu D^{*+}, \rho^+ \rightarrow \pi^0 \pi^+, \Delta^0 \rightarrow \pi^0 n, \bar{\Sigma}_c^{*-} \rightarrow \pi^0 \bar{\Lambda}_c^-,$ $D^{*+} \rightarrow \pi^+ D^0, \bar{\Lambda}_c^- \rightarrow \pi^0 \pi^- \eta \bar{\Sigma}^0, D^0 \rightarrow \pi^0 \pi^+ \pi^- K_S, \eta \rightarrow \gamma \gamma, \bar{\Sigma}^0 \rightarrow \bar{\Lambda} \gamma, K_S \rightarrow \pi^+ \pi^-,$ $\bar{\Lambda} \rightarrow \pi^0 \bar{n}$ $(\Upsilon(4S) \rightarrow \mu^- \bar{\nu}_\mu \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- n \bar{n} \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	77	77	1	78
79	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow D^- a_1^+ \gamma, \bar{B}^0 \rightarrow \pi^0 \rho^0 \rho^- \eta D^{*+}, D^- \rightarrow e^- \bar{\nu}_e K^0, a_1^+ \rightarrow \pi^0 \rho^+, \rho^0 \rightarrow \pi^+ \pi^-,$ $\rho^- \rightarrow \pi^0 \pi^-, \eta \rightarrow \pi^0 \pi^0 \pi^0, D^{*+} \rightarrow \pi^+ D^0, K^0 \rightarrow K_L, \rho^+ \rightarrow \pi^0 \pi^+, D^0 \rightarrow e^+ \nu_e \pi^0 K^-$ $(\Upsilon(4S) \rightarrow e^+ e^- \nu_e \bar{\nu}_e K_L \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	78	78	1	79
80	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow e^+ \nu_e \bar{D}^{*-}, \bar{B}^0 \rightarrow \bar{K}^0 D^- D^{*+}, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, \bar{K}^0 \rightarrow K_L, D^- \rightarrow \pi^0 \pi^- K_S,$ $D^{*+} \rightarrow \pi^+ D^0, \bar{D}^0 \rightarrow \pi^+ \pi^- K^*, K_S \rightarrow \pi^+ \pi^-, D^0 \rightarrow \pi^+ \pi^- \bar{K}^*, K^* \rightarrow \pi^- K^+, \bar{K}^* \rightarrow \pi^+ K^-$ $(\Upsilon(4S) \rightarrow e^+ \nu_e K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	79	79	1	80
81	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \mu^+ \nu_\mu D_1'^-, \bar{B}^0 \rightarrow \pi^+ \pi^- \rho^- \omega D^+, D_1'^- \rightarrow \pi^0 \bar{D}^{*-}, \rho^- \rightarrow \pi^0 \pi^-, \omega \rightarrow \pi^0 \pi^+ \pi^-,$ $D^+ \rightarrow \pi^+ \pi^+ K^-, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, \pi^0 \rightarrow e^+ e^-, \bar{D}^0 \rightarrow \pi^- \rho^+, \rho^+ \rightarrow \pi^0 \pi^+$ $(\Upsilon(4S) \rightarrow e^+ e^- \mu^+ \nu_\mu \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	80	80	1	81
82	$\Upsilon(4S) \rightarrow \bar{B}^0 \bar{B}^0, \bar{B}^0 \rightarrow e^- \bar{\nu}_e D^+, \bar{B}^0 \rightarrow \pi^+ \pi^+ \pi^- \pi^- \pi^- D^{*+}, D^+ \rightarrow \pi^0 \pi^+ \bar{K}^*, D^{*+} \rightarrow \pi^+ D^0, \bar{K}^* \rightarrow \pi^+ K^-,$ $D^0 \rightarrow \pi^+ \omega K^-, \omega \rightarrow \pi^0 \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow e^- \bar{\nu}_e \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^- K^- \gamma \gamma \gamma \gamma)$	81	81	1	82



index	event tree (event initial-final states)	iEvtTr	iEvtIFSts	nEvts	nCmltEvts
93	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow e^+ \nu_e D^-, \bar{B}^0 \rightarrow \rho^- K^+ K^- D^+, D^- \rightarrow \pi^0 \pi^- K^*, \rho^- \rightarrow \pi^0 \pi^-, D^+ \rightarrow \mu^+ \nu_\mu \pi^+ K^-,$ $K^* \rightarrow \pi^- K^+$ ( $\Upsilon(4S) \rightarrow e^+ \nu_e \mu^+ \nu_\mu \pi^+ \pi^- \pi^- \pi^- K^+ K^+ K^- K^- \gamma \gamma \gamma \gamma$ )	92	92	1	93
94	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \mu^+ \nu_\mu D^-, \bar{B}^0 \rightarrow \pi^0 \bar{p} \Lambda_c^+, D^- \rightarrow \pi^+ \pi^- \pi^- K_S, \Lambda_c^+ \rightarrow \rho^0 \Sigma^{*+}, K_S \rightarrow \pi^0 \pi^0,$ $\rho^0 \rightarrow \pi^+ \pi^-, \Sigma^{*+} \rightarrow \pi^+ \Lambda, \Lambda \rightarrow \pi^- p$ ( $\Upsilon(4S) \rightarrow \mu^+ \nu_\mu \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- p \bar{p} \gamma \gamma \gamma \gamma \gamma$ )	93	93	1	94
95	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^0 \pi^+ \pi^- \omega \omega, \bar{B}^0 \rightarrow \mu^- \bar{\nu}_\mu D^{*+}, \omega \rightarrow \pi^0 \pi^+ \pi^-, \omega \rightarrow \pi^0 \pi^+ \pi^-, D^{*+} \rightarrow \pi^0 D^+,$ $D^+ \rightarrow \pi^0 \pi^+ K_S, K_S \rightarrow \pi^+ \pi^-$ ( $\Upsilon(4S) \rightarrow \mu^- \bar{\nu}_\mu \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma$ )	94	94	1	95
96	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow K_S J/\psi, \bar{B}^0 \rightarrow D^+ D_s^{*-}, K_S \rightarrow \pi^+ \pi^-, J/\psi \rightarrow \pi^0 \pi^+ \pi^+ \pi^+ \pi^- \pi^-, D^+ \rightarrow e^+ \nu_e \bar{K}^0,$ $D_s^{*-} \rightarrow D_s^- \gamma, \bar{K}^0 \rightarrow K_S, D_s^- \rightarrow \pi^- \omega, K_S \rightarrow \pi^+ \pi^-, \omega \rightarrow \pi^0 \pi^+ \pi^-$ ( $\Upsilon(4S) \rightarrow e^+ \nu_e \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- \gamma \gamma \gamma \gamma \gamma$ )	95	95	1	96
97	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \rho^0 \pi^+ \pi^- \bar{D}^{*0}, \bar{B}^0 \rightarrow K^- D^{*+} \bar{D}^{*0}, \rho^0 \rightarrow \pi^+ \pi^-, \bar{D}^{*0} \rightarrow \pi^0 \bar{D}^0, D^{*+} \rightarrow \pi^+ D^0,$ $\bar{D}^{*0} \rightarrow \pi^0 \bar{D}^0, \bar{D}^0 \rightarrow \pi^- K^+, D^0 \rightarrow \eta \eta, \bar{D}^0 \rightarrow \pi^0 \pi^- K^{*+}, \eta \rightarrow \gamma \gamma, \eta \rightarrow \pi^0 \pi^0 \pi^0,$ $K^{*+} \rightarrow \pi^0 K^+$ ( $\Upsilon(4S) \rightarrow \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma$ )	96	96	1	97
98	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^0 \bar{K}^* K^+ \bar{D}^{*-}, \bar{B}^0 \rightarrow \bar{K}^* \bar{D}^0 D^{*0}, \bar{K}^* \rightarrow \pi^+ K^-, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, \bar{K}^* \rightarrow \pi^0 \bar{K}^0,$ $\bar{D}^0 \rightarrow \pi^- \omega K^+, D^{*0} \rightarrow D^0 \gamma, \bar{D}^0 \rightarrow K^+ a_1^-, \bar{K}^0 \rightarrow K_L, \omega \rightarrow \pi^0 \gamma, D^0 \rightarrow \pi^+ K^-,$ $a_1^- \rightarrow \pi^0 \rho^-, \rho^- \rightarrow \pi^0 \pi^-$ ( $\Upsilon(4S) \rightarrow K_L \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ K^+ K^+ K^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma$ )	97	97	1	98
99	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow D^{*+} \bar{D}^{*-} \gamma \gamma, \bar{B}^0 \rightarrow \pi^0 \pi^0 \rho^0 \pi^+ \pi^- \rho^- D^+, D^{*+} \rightarrow \pi^+ D^0, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, \rho^0 \rightarrow \pi^+ \pi^-,$ $\rho^- \rightarrow \pi^0 \pi^-, D^+ \rightarrow \mu^+ \nu_\mu \bar{K}^*, D^0 \rightarrow \pi^0 \pi^+ K^-, \bar{D}^0 \rightarrow \pi^0 \pi^- K^+, \bar{K}^* \rightarrow \pi^+ K^-$ ( $\Upsilon(4S) \rightarrow \mu^+ \nu_\mu \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- K^+ K^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma$ )	98	98	1	99
100	$\Upsilon(4S) \rightarrow \bar{B}^0 \bar{B}^0, \bar{B}^0 \rightarrow \rho^- \bar{n} \Sigma_c^+, \bar{B}^0 \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \pi^- \pi^- D^{*+}, \rho^- \rightarrow \pi^0 \pi^-, \Sigma_c^+ \rightarrow \pi^0 \Lambda_c^+, D^{*+} \rightarrow \pi^+ D^0,$ $\Lambda_c^+ \rightarrow e^+ \nu_e \Sigma^{*0}, D^0 \rightarrow \mu^+ \nu_\mu \pi^- \bar{K}^0, \Sigma^{*0} \rightarrow \pi^0 \Lambda, \bar{K}^0 \rightarrow K_S, \Lambda \rightarrow \pi^- p, K_S \rightarrow \pi^+ \pi^-$ ( $\Upsilon(4S) \rightarrow e^+ \nu_e \mu^+ \nu_\mu \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- \bar{n} p \gamma \gamma \gamma \gamma \gamma \gamma$ )	99	99	1	100
101	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \bar{D}^{*-}, \bar{B}^0 \rightarrow \eta K^* K^{*-} D^+, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, \eta \rightarrow \pi^0 \pi^0 \pi^0, K^* \rightarrow \pi^0 K^0,$ $K^{*-} \rightarrow \pi^- \bar{K}^0, D^+ \rightarrow K_S K^{*+}, \bar{D}^0 \rightarrow e^- \bar{\nu}_e \pi^+, K^0 \rightarrow K_L, \bar{K}^0 \rightarrow K_S, K_S \rightarrow \pi^0 \pi^0,$ $K^{*+} \rightarrow \pi^+ K^0, K_S \rightarrow \pi^+ \pi^-, K^0 \rightarrow K_S, K_S \rightarrow \pi^+ \pi^-$ ( $\Upsilon(4S) \rightarrow e^- \bar{\nu}_e K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma$ )	100	100	1	101
102	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \eta K^* D^0 \bar{D}^0, \bar{B}^0 \rightarrow \rho^- D^{*+}, \eta \rightarrow \pi^0 \pi^0 \pi^0, K^* \rightarrow \pi^- K^+, D^0 \rightarrow \pi^0 \pi^+ \pi^- K_S,$ $\bar{D}^0 \rightarrow \pi^- K^+, \rho^- \rightarrow \pi^0 \pi^-, D^{*+} \rightarrow \pi^0 D^+, K_S \rightarrow \pi^+ \pi^-, D^+ \rightarrow \pi^+ \pi^+ K^-$ ( $\Upsilon(4S) \rightarrow \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- K^+ K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma$ )	101	101	1	102
103	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \mu^+ \nu_\mu D_1^-, \bar{B}^0 \rightarrow \pi^+ \rho^- \bar{K}^* D^0 \bar{D}^0, D_1^- \rightarrow \pi^- \bar{D}^{*0}, \rho^- \rightarrow \pi^0 \pi^-, \bar{K}^* \rightarrow \pi^+ K^-,$ $D^0 \rightarrow \mu^+ \nu_\mu K^-, \bar{D}^0 \rightarrow \mu^- \bar{\nu}_\mu K^+, \bar{D}^{*0} \rightarrow \bar{D}^0 \gamma, \bar{D}^0 \rightarrow \pi^0 \pi^+ \pi^- K_S, K_S \rightarrow \pi^+ \pi^-$ ( $\Upsilon(4S) \rightarrow \mu^+ \mu^+ \mu^- \nu_\mu \nu_\mu \bar{\nu}_\mu \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ K^- K^- \gamma \gamma \gamma \gamma$ )	102	102	1	103



index	event tree (event initial-final states)	iEvtTr	iEvtIFSts	nEvts	nCmltEvts
114	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^+ \eta \bar{D}^{*-}, \bar{B}^0 \rightarrow e^- \bar{\nu}_e D^+, \eta \rightarrow \pi^0 \pi^+ \pi^-, \bar{D}^{*-} \rightarrow \pi^0 D^-, D^+ \rightarrow \rho^+ \bar{K}^*,$ $D^- \rightarrow \pi^0 \pi^- K^*, \rho^+ \rightarrow \pi^0 \pi^+, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, K^* \rightarrow \pi^- K^+, \bar{K}^0 \rightarrow K_L, K_L \rightarrow \pi^0 \pi^0 \pi^0$ $(\Upsilon(4S) \rightarrow e^- \bar{\nu}_e \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- K^+ \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	113	112	1	114
115	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \eta K^0 D^{*0} \bar{D}^{*0}, \bar{B}^0 \rightarrow \pi^0 \pi^- \omega \omega D^+, \eta \rightarrow \gamma \gamma, K^0 \rightarrow K_L, D^{*0} \rightarrow \pi^0 D^0,$ $\bar{D}^{*0} \rightarrow \pi^0 \bar{D}^0, \omega \rightarrow \pi^0 \pi^+ \pi^-, \omega \rightarrow \pi^0 \pi^+ \pi^-, D^+ \rightarrow e^+ \nu_e \bar{K}^0, D^0 \rightarrow \pi^0 \pi^+ K^-, \bar{D}^0 \rightarrow \pi^0 \pi^- K^+,$ $\bar{K}^0 \rightarrow K_S, K_S \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow e^+ \nu_e K_L \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	114	113	1	115
116	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \mu^+ \nu_\mu \pi^- \bar{D}^{*0}, \bar{B}^0 \rightarrow \pi^- \omega D^+, \bar{D}^{*0} \rightarrow \pi^0 \bar{D}^0, \omega \rightarrow \pi^0 \pi^+ \pi^-, D^+ \rightarrow \pi^0 \pi^+ \bar{K}^*,$ $\bar{D}^0 \rightarrow \eta \eta, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, \eta \rightarrow \gamma \gamma, \eta \rightarrow \pi^0 \pi^+ \pi^-, \bar{K}^0 \rightarrow K_S, K_S \rightarrow \pi^0 \pi^0$ $(\Upsilon(4S) \rightarrow \mu^+ \nu_\mu \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	115	114	1	116
117	$\Upsilon(4S) \rightarrow \bar{B}^0 \bar{B}^0, \bar{B}^0 \rightarrow D^+ D_{s1}^-, \bar{B}^0 \rightarrow \mu^- \bar{\nu}_\mu D^+, D^+ \rightarrow \pi^0 \pi^+ \phi, D_{s1}^- \rightarrow \pi^0 D_s^{*-}, D^+ \rightarrow \pi^0 K_L \pi^+,$ $\phi \rightarrow \eta \gamma, D_s^{*-} \rightarrow D_s^- \gamma, \eta \rightarrow \pi^0 \pi^0 \pi^0, D_s^- \rightarrow \tau^- \bar{\nu}_\tau, \tau^- \rightarrow \nu_\tau \pi^-$ $(\Upsilon(4S) \rightarrow \mu^- \bar{\nu}_\mu \nu_\tau \bar{\nu}_\tau K_L \pi^+ \pi^+ \pi^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	116	115	1	117
118	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \omega p \bar{\Lambda}_c^-, \bar{B}^0 \rightarrow \pi^0 \pi^+ \pi^- \pi^- D^{*+}, \omega \rightarrow \pi^0 \pi^+ \pi^-, \bar{\Lambda}_c^- \rightarrow K^0 \bar{p}, D^{*+} \rightarrow \pi^+ D^0,$ $K^0 \rightarrow K_S, D^0 \rightarrow \pi^0 \pi^+ \pi^- K_S, K_S \rightarrow \pi^+ \pi^-, K_S \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- p \bar{p} \gamma \gamma \gamma \gamma \gamma)$	117	116	1	118
119	$\Upsilon(4S) \rightarrow B^0 B^0, B^0 \rightarrow \pi^+ \eta \bar{D}^{*-}, B^0 \rightarrow K^+ \bar{D}^{*-} D^{*0}, \eta \rightarrow \gamma \gamma, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0,$ $D^{*0} \rightarrow D^0 \gamma, \bar{D}^0 \rightarrow \omega K_S, \bar{D}^0 \rightarrow \pi^0 K^*, D^0 \rightarrow \eta K_S, \omega \rightarrow \pi^0 \pi^+ \pi^-, K_S \rightarrow \pi^+ \pi^-,$ $K^* \rightarrow \pi^0 K^0, \eta \rightarrow \pi^0 \pi^0 \pi^0, K_S \rightarrow \pi^0 \pi^0, K^0 \rightarrow K_S, K_S \rightarrow \pi^0 \pi^0$ $(\Upsilon(4S) \rightarrow \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	118	117	1	119
120	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^+ \pi^- K^0 \bar{K}^* K^+ D^-, \bar{B}^0 \rightarrow \pi^+ \pi^- D^+ D_s^-, K^0 \rightarrow K_L, \bar{K}^* \rightarrow \pi^+ K^-, D^- \rightarrow \pi^- K_S,$ $D^+ \rightarrow \pi^0 \pi^+ \pi^+ K^-, D_s^- \rightarrow K^* K^{*-}, K_S \rightarrow \pi^+ \pi^-, K^* \rightarrow \pi^0 K^0, K^{*-} \rightarrow \pi^- \bar{K}^0, K^0 \rightarrow K_S,$ $\bar{K}^0 \rightarrow K_S, K_S \rightarrow \pi^+ \pi^-, K_S \rightarrow \pi^0 \pi^0$ $(\Upsilon(4S) \rightarrow K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- K^+ K^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	119	118	1	120
121	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow D^- \bar{\Delta}^- \Delta^0, \bar{B}^0 \rightarrow \pi^+ \pi^+ \rho^- \bar{K}^0 \eta', D^- \rightarrow \pi^0 K_L \pi^-, \bar{\Delta}^- \rightarrow \pi^+ \bar{n}, \Delta^0 \rightarrow \pi^- p,$ $\rho^- \rightarrow \pi^0 \pi^-, \rho^- \rightarrow \pi^0 \pi^-, \bar{K}^0 \rightarrow K_S, \eta' \rightarrow \pi^+ \pi^- \eta, K_S \rightarrow \pi^+ \pi^-, \eta \rightarrow \pi^0 \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- \bar{n} p \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	120	119	1	121
122	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^0 \rho^+ \omega \omega \bar{D}^{*-}, \bar{B}^0 \rightarrow D^{*+} a_1^-, \rho^+ \rightarrow \pi^0 \pi^+, \omega \rightarrow \pi^0 \pi^+ \pi^-, \omega \rightarrow \pi^0 \pi^+ \pi^-,$ $\bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, D^{*+} \rightarrow \pi^0 D^+, a_1^- \rightarrow \pi^0 \rho^-, \bar{D}^0 \rightarrow \pi^0 \rho^0, D^+ \rightarrow \pi^0 \pi^+ \bar{K}^*, \rho^- \rightarrow \pi^0 \pi^-,$ $\rho^0 \rightarrow \pi^+ \pi^-, \bar{K}^* \rightarrow \pi^+ K^-$ $(\Upsilon(4S) \rightarrow \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	121	120	1	122
123	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow K^+ \bar{D}^{*-} D^{*0}, \bar{B}^0 \rightarrow \bar{K}^0 D^{*0} \bar{D}^{*0}, \bar{D}^{*-} \rightarrow \pi^0 D^-, D^{*0} \rightarrow \pi^0 D^0, \bar{K}^0 \rightarrow K_L,$ $D^{*0} \rightarrow \pi^0 D^0, \bar{D}^{*0} \rightarrow \pi^0 \bar{D}^0, D^- \rightarrow e^- \bar{\nu}_e \pi^- K^+, D^0 \rightarrow \rho^+ K^{*-}, D^0 \rightarrow \pi^+ \pi^+ \pi^- \pi^-, \bar{D}^0 \rightarrow \pi^- K^+,$ $\rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S, K_S \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow e^- \bar{\nu}_e K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- K^+ K^+ K^+ \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	122	121	1	123

index	event tree (event initial-final states)	iEvtTr	iEvtIFSts	nEvs	nCmltEvs
124	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^0 \pi^0 \rho^0 \pi^+ \eta' \bar{D}^{*-}, \bar{B}^0 \rightarrow K^{*-} D^{*+} \bar{D}^{*0}, \rho^0 \rightarrow \pi^+ \pi^-, \eta' \rightarrow \pi^+ \pi^- \eta, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0,$ $K^{*-} \rightarrow \pi^- \bar{K}^0, D^{*+} \rightarrow \pi^+ D^0, \bar{D}^{*0} \rightarrow \pi^0 \bar{D}^0, \eta \rightarrow \gamma \gamma, \bar{D}^0 \rightarrow e^- \bar{\nu}_e K^+, \bar{K}^0 \rightarrow K_S,$ $D^0 \rightarrow e^+ \nu_e \pi^- \bar{K}^0, \pi^0 \rightarrow e^+ e^-, \bar{D}^0 \rightarrow \pi^+ \pi^- K_S, K_S \rightarrow \pi^0 \pi^0, \bar{K}^0 \rightarrow K_L, K_S \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow e^+ e^+ e^- e^- \nu_e \bar{\nu}_e K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- K^+ \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	123	122	1	124
125	$\Upsilon(4S) \rightarrow \bar{B}^0 \bar{B}^0, \bar{B}^0 \rightarrow K^- D^{*+} \bar{D}^{*0}, \bar{B}^0 \rightarrow \pi^0 \rho^- \omega D^+, D^{*+} \rightarrow \pi^0 D^+, \bar{D}^{*0} \rightarrow \pi^0 \bar{D}^0, \rho^- \rightarrow \pi^0 \pi^-,$ $\omega \rightarrow \pi^0 \pi^+ \pi^-, D^+ \rightarrow \pi^+ \pi^+ \pi^+ \pi^- K^-, D^+ \rightarrow \pi^+ \bar{K}_1^0, \bar{D}^0 \rightarrow K^+ a_1^-, \bar{K}_1^0 \rightarrow \pi^0 \bar{K}^*, a_1^- \rightarrow \pi^0 \rho^-,$ $\bar{K}^* \rightarrow \pi^+ K^-, \rho^- \rightarrow \pi^0 \pi^-, \pi^0 \rightarrow e^+ e^-$ $(\Upsilon(4S) \rightarrow e^+ e^- \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ K^- K^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	124	123	1	125
126	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \bar{D}^{*-} \bar{\Delta}^- \Delta^0, \bar{B}^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^- \pi^- D^{*+}, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, \bar{\Delta}^- \rightarrow \pi^+ \bar{n}, \Delta^0 \rightarrow \pi^0 n,$ $D^{*+} \rightarrow \pi^0 D^+, \bar{D}^0 \rightarrow \pi^- K^+, D^+ \rightarrow \pi^0 \pi^+ K_S, K_S \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- K^+ n \bar{n} \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	125	124	1	126
127	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \bar{D}^{*-} D_{s1}^+, \bar{B}^0 \rightarrow \pi^0 \pi^- \eta \omega D^{*+}, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, D_{s1}^+ \rightarrow \pi^0 D_s^{*+}, \eta \rightarrow \gamma \gamma,$ $\omega \rightarrow \pi^0 \pi^+ \pi^-, D^{*+} \rightarrow \pi^+ D^0, \bar{D}^0 \rightarrow e^- \bar{\nu}_e K^{*+}, D_s^{*+} \rightarrow D_s^+ \gamma, D^0 \rightarrow \pi^0 \pi^+ K^{*-}, K^{*+} \rightarrow \pi^+ K^0,$ $D_s^+ \rightarrow \bar{K}^* K^{*+}, K^{*-} \rightarrow \pi^- \bar{K}^0, K^0 \rightarrow K_S, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, K^{*+} \rightarrow \pi^0 K^+, \bar{K}^0 \rightarrow K_S,$ $K_S \rightarrow \pi^+ \pi^-, \bar{K}^0 \rightarrow K_L, K_S \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow e^- \bar{\nu}_e K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- K^+ \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	126	125	1	127
128	$\Upsilon(4S) \rightarrow \bar{B}^0 \bar{B}^0, \bar{B}^0 \rightarrow \mu^- \bar{\nu}_\mu D_1^+, \bar{B}^0 \rightarrow \bar{K}^* K^- D^+, D_1^+ \rightarrow \pi^+ D^{*0}, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, D^+ \rightarrow \pi^0 \pi^+ K_S,$ $D^{*0} \rightarrow D^0 \gamma, \bar{K}^0 \rightarrow K_L, K_S \rightarrow \pi^+ \pi^-, D^0 \rightarrow K_L K^+ K^-$ $(\Upsilon(4S) \rightarrow \mu^- \bar{\nu}_\mu K_L K_L \pi^+ \pi^+ \pi^+ \pi^- K^+ K^- K^- \gamma \gamma \gamma \gamma)$	127	126	1	128
129	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \mu^+ \nu_\mu D^-, \bar{B}^0 \rightarrow \mu^- \bar{\nu}_\mu D^{*+}, D^- \rightarrow \rho^- K^*, D^{*+} \rightarrow \pi^+ D^0, \rho^- \rightarrow \pi^0 \pi^-,$ $K^* \rightarrow \pi^- K^+, D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \pi^0 \rho^+, \rho^+ \rightarrow \pi^0 \pi^+$ $(\Upsilon(4S) \rightarrow \mu^+ \mu^- \nu_\mu \bar{\nu}_\mu \pi^+ \pi^+ \pi^- \pi^- K^+ K^- \gamma \gamma \gamma \gamma)$	128	13	1	129
130	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^+ K^0 K^0 D_s^-, \bar{B}^0 \rightarrow \pi^+ \pi^+ \pi^- \pi^- \pi^- D^{*+}, K^0 \rightarrow K_S, K^0 \rightarrow K_S, D_s^- \rightarrow \pi^0 \pi^- \omega,$ $D^{*+} \rightarrow \pi^+ D^0, K_S \rightarrow \pi^+ \pi^-, K_S \rightarrow \pi^0 \pi^0, \omega \rightarrow \pi^0 \pi^+ \pi^-, D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \rho^0 \pi^+,$ $\rho^0 \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	129	127	1	130
131	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \mu^+ \nu_\mu \bar{D}^{*-}, \bar{B}^0 \rightarrow D^+ a_1^-, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, D^+ \rightarrow K_S K_S K^+, a_1^- \rightarrow \pi^0 \rho^-,$ $\bar{D}^0 \rightarrow K_L \eta', K_S \rightarrow \pi^+ \pi^-, K_S \rightarrow \pi^+ \pi^-, \rho^- \rightarrow \pi^0 \pi^-, \eta' \rightarrow \pi^+ \pi^- \eta, \eta \rightarrow \gamma \gamma$ $(\Upsilon(4S) \rightarrow \mu^+ \nu_\mu K_L \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- K^+ \gamma \gamma \gamma \gamma \gamma)$	130	128	1	131
132	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^0 \rho^0 \pi^+ \pi^- \pi^- \eta D^-, \bar{B}^0 \rightarrow \pi^0 \rho^- \eta D^+, \rho^0 \rightarrow \pi^+ \pi^-, \eta \rightarrow \gamma \gamma, D^- \rightarrow \pi^- \rho^- K^+,$ $\rho^- \rightarrow \pi^0 \pi^-, \eta \rightarrow \gamma \gamma, D^+ \rightarrow \mu^+ \nu_\mu \bar{K}^0, \rho^- \rightarrow \pi^0 \pi^-, \bar{K}^0 \rightarrow K_L$ $(\Upsilon(4S) \rightarrow \mu^+ \nu_\mu K_L \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- K^+ \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	131	129	1	132
133	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 \rho^+ \omega \omega D^-, \bar{B}^0 \rightarrow \bar{K}^* \bar{\Sigma}^{*0} \Xi_c^0, \rho^+ \rightarrow \pi^0 \pi^+, \omega \rightarrow \pi^0 \gamma, \omega \rightarrow \pi^0 \pi^+ \pi^-,$ $D^- \rightarrow \pi^- K_S, \bar{K}^* \rightarrow \pi^+ K^-, \bar{\Sigma}^{*0} \rightarrow \pi^+ \bar{\Sigma}^-, \Xi_c^0 \rightarrow \bar{K}^0 \Sigma^0, \pi^0 \rightarrow e^+ e^-, K_S \rightarrow \pi^+ \pi^-,$ $\bar{\Sigma}^- \rightarrow \pi^- \bar{n}, \bar{K}^0 \rightarrow K_S, \Sigma^0 \rightarrow \Lambda \gamma, K_S \rightarrow \pi^0 \pi^0, \Lambda \rightarrow \pi^- p$ $(\Upsilon(4S) \rightarrow e^+ e^- \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- K^- \bar{n} p \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	132	130	1	133

index	event tree (event initial-final states)	iEvtTr	iEvtIFSts	nEvts	nCmltEvts
134	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \rho^+ D^-, \bar{B}^0 \rightarrow e^- \bar{\nu}_e \pi^+ D^{*0}, \rho^+ \rightarrow \pi^0 \pi^+, D^- \rightarrow \pi^0 \pi^- K^*, D^{*0} \rightarrow \pi^0 D^0,$ $K^* \rightarrow \pi^- K^+, D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \rho^0 \pi^+, \rho^0 \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow e^- \bar{\nu}_e \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- K^+ K^- \gamma \gamma \gamma \gamma \gamma)$	133	131	1	134
135	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \tau^+ \nu_\tau \bar{D}^{*-}, \bar{B}^0 \rightarrow e^- \bar{\nu}_e D^+, \tau^+ \rightarrow \bar{\nu}_\tau \pi^+ \pi^+ \pi^-, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, D^+ \rightarrow \mu^+ \nu_\mu \bar{K}^0,$ $\bar{D}^0 \rightarrow \pi^0 \rho^- K^+, \bar{K}^0 \rightarrow K_L, \rho^- \rightarrow \pi^0 \pi^-$ $(\Upsilon(4S) \rightarrow e^- \bar{\nu}_e \mu^+ \nu_\mu \nu_\tau \bar{\nu}_\tau K_L \pi^+ \pi^+ \pi^- \pi^- \pi^- K^+ \gamma \gamma \gamma \gamma)$	134	132	1	135
136	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^0 \bar{K}^* K^+ D^-, \bar{B}^0 \rightarrow \mu^- \bar{\nu}_\mu D_2^{*+}, \bar{K}^* \rightarrow \pi^+ K^-, D^- \rightarrow e^- \bar{\nu}_e K^0, D_2^{*+} \rightarrow \pi^0 D^{*+},$ $K^0 \rightarrow K_S, D^{*+} \rightarrow \pi^0 D^+, K_S \rightarrow \pi^+ \pi^-, D^+ \rightarrow \pi^0 \pi^+ \bar{K}^*, \bar{K}^* \rightarrow \pi^+ K^-$ $(\Upsilon(4S) \rightarrow e^- \bar{\nu}_e \mu^- \bar{\nu}_\mu \pi^+ \pi^+ \pi^+ \pi^- K^+ K^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	135	133	1	136
137	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^+ D^-, \bar{B}^0 \rightarrow \pi^- \eta D^{*+}, D^- \rightarrow e^- \bar{\nu}_e \pi^- K^+, \eta \rightarrow \pi^0 \pi^0 \pi^0, D^{*+} \rightarrow \pi^+ D^0,$ $D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \pi^0 \rho^+, \rho^+ \rightarrow \pi^0 \pi^+$ $(\Upsilon(4S) \rightarrow e^- \bar{\nu}_e \pi^+ \pi^+ \pi^+ \pi^- \pi^- K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	136	134	1	137
138	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \rho^+ \eta K^0 \bar{K}^* \bar{D}^{*-}, \bar{B}^0 \rightarrow \pi^- \pi^- \rho^+ \omega D^+, \rho^+ \rightarrow \pi^0 \pi^+, \eta \rightarrow \pi^0 \pi^0 \pi^0, K^0 \rightarrow K_S,$ $\bar{K}^* \rightarrow \pi^+ K^-, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, \rho^+ \rightarrow \pi^0 \pi^+, \omega \rightarrow \pi^0 \pi^+ \pi^-, D^+ \rightarrow \pi^+ \bar{K}_1^{*0}, K_S \rightarrow \pi^+ \pi^-,$ $\bar{D}^0 \rightarrow K_L \pi^+ \pi^-, \bar{K}_1^{*0} \rightarrow \pi^+ K^{*-}, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S, K_S \rightarrow \pi^0 \pi^0$ $(\Upsilon(4S) \rightarrow K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	137	135	1	138
139	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^0 \pi^0 \rho^+ D^-, \bar{B}^0 \rightarrow \pi^- \bar{\Delta}^+ \Sigma_c^{*++}, \rho^+ \rightarrow \pi^0 \pi^+, D^- \rightarrow \mu^- \bar{\nu}_\mu K^*, \bar{\Delta}^+ \rightarrow \pi^0 \bar{p},$ $\Sigma_c^{*++} \rightarrow \pi^+ \Lambda_c^+, K^* \rightarrow \pi^0 K^0, \Lambda_c^+ \rightarrow K^+ \Xi^{*0}, K^0 \rightarrow K_S, \Xi^{*0} \rightarrow \pi^+ \Xi^-, K_S \rightarrow \pi^+ \pi^-,$ $\Xi^- \rightarrow \pi^- \Lambda, \Lambda \rightarrow \pi^0 n$ $(\Upsilon(4S) \rightarrow \mu^- \bar{\nu}_\mu \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- K^+ n \bar{p} \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	138	136	1	139
140	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^0 \pi^+ \eta \omega D^-, \bar{B}^0 \rightarrow \tau^- \bar{\nu}_\tau D^{*+}, \eta \rightarrow \gamma \gamma, \omega \rightarrow \pi^0 \pi^+ \pi^-, D^- \rightarrow K_L a_1^-,$ $\tau^- \rightarrow \nu_\tau \pi^0 \pi^0 \pi^-, D^{*+} \rightarrow \pi^0 D^+, a_1^- \rightarrow \rho^0 \pi^-, D^+ \rightarrow \mu^+ \nu_\mu \bar{K}^*, \rho^0 \rightarrow \pi^+ \pi^-, \bar{K}^* \rightarrow \pi^+ K^-$ $(\Upsilon(4S) \rightarrow \mu^+ \nu_\mu \nu_\tau \bar{\nu}_\tau K_L \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	139	137	1	140
141	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \mu^+ \nu_\mu \bar{D}^{*-}, \bar{B}^0 \rightarrow D^{*+} D_{s0}^-, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, D^{*+} \rightarrow \pi^0 D^+, D_{s0}^- \rightarrow \pi^0 D_s^-,$ $\bar{D}^0 \rightarrow e^- \bar{\nu}_e K^{*+}, D^+ \rightarrow e^+ \nu_e \pi^+ K^-, D_s^- \rightarrow K_L \pi^-, K^{*+} \rightarrow \pi^+ K^0, K^0 \rightarrow K_S, K_S \rightarrow \pi^0 \pi^0$ $(\Upsilon(4S) \rightarrow e^+ e^- \nu_e \bar{\nu}_e \mu^+ \nu_\mu K_L \pi^+ \pi^+ \pi^- \pi^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	140	138	1	141
142	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow D^- D_s^{*+}, \bar{B}^0 \rightarrow e^- \bar{\nu}_e D^+, D^- \rightarrow e^- \bar{\nu}_e K^0, D_s^{*+} \rightarrow D_s^+ \gamma, D^+ \rightarrow e^+ \nu_e \bar{K}^0,$ $K^0 \rightarrow K_S, D_s^+ \rightarrow \bar{K}^* K^{*+}, \bar{K}^0 \rightarrow K_S, K_S \rightarrow \pi^+ \pi^-, \bar{K}^* \rightarrow \pi^+ K^-, K^{*+} \rightarrow \pi^0 K^+,$ $K_S \rightarrow \pi^0 \pi^0$ $(\Upsilon(4S) \rightarrow e^+ e^- e^- \nu_e \bar{\nu}_e \pi^+ \pi^+ \pi^- K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	141	139	1	142
143	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \rho^0 \pi^+ \pi^- \rho^+ \bar{D}^{*-}, \bar{B}^0 \rightarrow \pi^0 \pi^+ \pi^- \pi^- D^{*+}, \rho^0 \rightarrow \pi^+ \pi^-, \rho^+ \rightarrow \pi^0 \pi^+, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0,$ $D^{*+} \rightarrow \pi^+ D^0, \bar{D}^0 \rightarrow \pi^0 \pi^+ \pi^- K^*, D^0 \rightarrow \pi^0 \eta K_S, K^* \rightarrow \pi^- K^+, \eta \rightarrow \gamma \gamma, K_S \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- K^+ \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	142	140	1	143
144	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \omega \bar{D}^{*-} D_s^+ \gamma, \bar{B}^0 \rightarrow e^- \bar{\nu}_e D^{*+}, \omega \rightarrow \pi^0 \pi^+ \pi^-, \bar{D}^{*-} \rightarrow \pi^0 D^-, D_s^+ \rightarrow e^+ \nu_e \eta,$ $D^{*+} \rightarrow \pi^+ D^0, D^- \rightarrow e^- \bar{\nu}_e K^*, \eta \rightarrow \gamma \gamma, D^0 \rightarrow e^+ \nu_e K^-, K^* \rightarrow \pi^- K^+$ $(\Upsilon(4S) \rightarrow e^+ e^+ e^- e^- \nu_e \bar{\nu}_e \bar{\nu}_e \pi^+ \pi^+ \pi^- \pi^- K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	143	141	1	144





index	event tree (event initial-final states)	iEvtTr	iEvtIFSts	nEvts	nCmltEvts
155	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^0 \pi^0 \rho^0 \pi^+ \pi^- \rho^+ D^-, \bar{B}^0 \rightarrow \pi^0 \pi^+ K^- D^+ \bar{D}^{*-}, \rho^0 \rightarrow \pi^+ \pi^-, \rho^+ \rightarrow \pi^0 \pi^+, D^- \rightarrow e^- \bar{\nu}_e K^0,$ $D^+ \rightarrow \mu^+ \nu_\mu \pi^+ K^-, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, K^0 \rightarrow K_L, \bar{D}^0 \rightarrow K_L \pi^- K^+, K_L \rightarrow \pi^0 \pi^0 \pi^0$ $(\Upsilon(4S) \rightarrow e^- \bar{\nu}_e \mu^+ \nu_\mu K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ K^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	154	152	1	155
156	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^+ \pi^+ \pi^- \eta D^- \bar{\Sigma}^+ \Sigma^-, \bar{B}^0 \rightarrow \mu^- \bar{\nu}_\mu D^{*+}, \eta \rightarrow \gamma \gamma, D^- \rightarrow \mu^- \bar{\nu}_\mu \pi^- K^+, \bar{\Sigma}^+ \rightarrow \pi^+ \bar{n},$ $\Sigma^- \rightarrow \pi^- n, D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \rho^0 \pi^+, \rho^0 \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow \mu^- \mu^- \bar{\nu}_\mu \bar{\nu}_\mu \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ K^- n \bar{n} \gamma \gamma)$	155	153	1	156
157	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \bar{D}^{*0} \bar{p} \Delta^+, \bar{B}^0 \rightarrow \pi^0 \pi^0 \rho^0 \rho^0 D^{*+}, \bar{D}^{*0} \rightarrow \pi^0 \bar{D}^0, \Delta^+ \rightarrow \pi^+ n, \rho^0 \rightarrow \pi^+ \pi^-,$ $\rho^0 \rightarrow \pi^+ \pi^-, \rho^- \rightarrow \pi^0 \pi^-, D^{*+} \rightarrow \pi^0 D^+, \bar{D}^0 \rightarrow \mu^- \bar{\nu}_\mu K^+, D^+ \rightarrow \pi^+ \pi^+ K^-$ $(\Upsilon(4S) \rightarrow \mu^- \bar{\nu}_\mu \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ K^- n \bar{p} \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	156	154	1	157
158	$\Upsilon(4S) \rightarrow \bar{B}^0 \bar{B}^0, \bar{B}^0 \rightarrow \pi^- D^{*+}, \bar{B}^0 \rightarrow \bar{K}^* J/\psi, D^{*+} \rightarrow \pi^+ D^0, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, J/\psi \rightarrow \rho^+ a_2^-,$ $D^0 \rightarrow \mu^+ \nu_\mu K^-, \bar{K}^0 \rightarrow K_S, \rho^+ \rightarrow \pi^0 \pi^+, a_2^- \rightarrow \bar{K}^0 K^-, K_S \rightarrow \pi^+ \pi^-, \bar{K}^0 \rightarrow K_L$ $(\Upsilon(4S) \rightarrow \mu^+ \nu_\mu K_L \pi^+ \pi^+ \pi^+ \pi^- \pi^- K^- K^- \gamma \gamma \gamma \gamma)$	157	155	1	158
159	$\Upsilon(4S) \rightarrow \bar{B}^0 \bar{B}^0, \bar{B}^0 \rightarrow D^{*+} D_s^{*-}, \bar{B}^0 \rightarrow e^- \bar{\nu}_e \pi^+ D^{*0}, D^{*+} \rightarrow \pi^0 D^+, D_s^{*-} \rightarrow D_s^- \gamma, D^{*0} \rightarrow \pi^0 D^0,$ $D^+ \rightarrow \pi^0 K_L \pi^+, D_s^- \rightarrow K^0 K^{*-}, D^0 \rightarrow \pi^+ \pi^- K^+ K^-, K^0 \rightarrow K_L, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S,$ $K_S \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow e^- \bar{\nu}_e K_L K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma)$	158	156	1	159
160	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^- K^0 D^{*+}, \bar{B}^0 \rightarrow \pi^- \rho^+ \rho^- K^+ K^- D^+, K^0 \rightarrow K_L, D^{*+} \rightarrow \pi^0 D^+, \rho^+ \rightarrow \pi^0 \pi^+,$ $\rho^- \rightarrow \pi^0 \pi^-, D^+ \rightarrow e^+ \nu_e \bar{K}^0, D^+ \rightarrow \mu^+ \nu_\mu \bar{K}^*, \bar{K}^0 \rightarrow K_S, \bar{K}^* \rightarrow \pi^+ K^-, K_S \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow e^+ \nu_e \mu^+ \nu_\mu K_L \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ K^- K^- \gamma \gamma \gamma \gamma \gamma \gamma)$	159	157	1	160
161	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow e^+ \nu_e D_0^{*-}, \bar{B}^0 \rightarrow \pi^0 \pi^+ \pi^- \pi^- \pi^- \rho^+ \omega D^{*+}, D_0^{*-} \rightarrow \pi^- \bar{D}^0, \rho^+ \rightarrow \pi^0 \pi^+, \omega \rightarrow \pi^0 \gamma,$ $\omega \rightarrow \pi^0 \pi^+ \pi^-, D^{*+} \rightarrow \pi^0 D^+, \bar{D}^0 \rightarrow e^- \bar{\nu}_e \rho^+, D^+ \rightarrow \pi^+ \pi^+ K^-, \rho^+ \rightarrow \pi^0 \pi^+$ $(\Upsilon(4S) \rightarrow e^+ e^- \nu_e \bar{\nu}_e \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	160	158	1	161
162	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \omega \bar{K}^0 K^+ \bar{D}^{*-}, \bar{B}^0 \rightarrow K^- D^{*+} \bar{D}^{*0}, \omega \rightarrow \pi^0 \pi^+ \pi^-, \bar{K}^0 \rightarrow K_S, \bar{D}^{*-} \rightarrow \pi^0 D^-,$ $D^{*+} \rightarrow \pi^+ D^0, \bar{D}^{*0} \rightarrow \bar{D}^0 \gamma, K_S \rightarrow \pi^+ \pi^-, D^- \rightarrow \pi^- \pi^- K^+, D^0 \rightarrow \pi^0 \pi^+ \pi^- K_S, \bar{D}^0 \rightarrow \rho^- K^{*+},$ $K_S \rightarrow \pi^0 \pi^0, \rho^- \rightarrow \pi^0 \pi^-, K^{*+} \rightarrow \pi^+ K^0, K^0 \rightarrow K_S, K_S \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- K^+ K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	161	159	1	162
163	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow K^{*+} \bar{D}^{*-} D^{*0}, \bar{B}^0 \rightarrow \pi^0 \pi^0 \pi^+ K^- \bar{D}^0 D^{*0}, K^{*+} \rightarrow \pi^+ K^0, \bar{D}^{*-} \rightarrow \pi^0 D^-, D^{*0} \rightarrow \pi^0 D^0,$ $\bar{D}^0 \rightarrow K_L \pi^+ \pi^-, D^{*0} \rightarrow \pi^0 D^0, K^0 \rightarrow K_S, D^- \rightarrow \mu^- \bar{\nu}_\mu \pi^- K^+, D^0 \rightarrow \pi^0 \rho^0, D^0 \rightarrow \pi^0 \pi^+ K^-,$ $K_S \rightarrow \pi^+ \pi^-, \rho^0 \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow \mu^- \bar{\nu}_\mu K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ K^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	162	160	1	163
164	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^+ \bar{D}^{*-} D^{*0}, \bar{B}^0 \rightarrow \eta D^{*+} D_s^-, \bar{D}^{*-} \rightarrow D^- \gamma, D^{*0} \rightarrow D^0 \gamma, \eta \rightarrow \gamma \gamma,$ $D^{*+} \rightarrow \pi^0 D^+, D_s^- \rightarrow \mu^- \bar{\nu}_\mu \eta', D^- \rightarrow K_S K_S K^-, D^0 \rightarrow e^+ \nu_e \pi^- \bar{K}^0, D^+ \rightarrow \mu^+ \nu_\mu \bar{K}^0, \eta' \rightarrow \pi^0 \pi^0 \eta,$ $K_S \rightarrow \pi^0 \pi^0, K_S \rightarrow \pi^+ \pi^-, \bar{K}^0 \rightarrow K_S, \bar{K}^0 \rightarrow K_S, \eta \rightarrow \gamma \gamma, K_S \rightarrow \pi^+ \pi^-,$ $K_S \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow e^+ \nu_e \mu^+ \mu^- \nu_\mu \bar{\nu}_\mu \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	163	161	1	164

index	event tree (event initial-final states)	iEvtTr	iEvtIFSts	nEvts	nCmltEvts
165	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^+ K^0 \bar{K}^0 \bar{D}^{*-}, \bar{B}^0 \rightarrow \pi^0 \pi^0 \pi^- D^{*+}, K^0 \rightarrow K_L, \bar{K}^0 \rightarrow K_L, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0,$ $D^{*+} \rightarrow \pi^0 D^+, \bar{D}^0 \rightarrow \pi^0 \pi^- K^+, D^+ \rightarrow \pi^0 \pi^+ \phi, \phi \rightarrow K_L K_S, K_S \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow K_L K_L K_L \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	164	162	1	165
166	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^- p \bar{\Xi}_c^{*0}, \bar{B}^0 \rightarrow e^- \bar{\nu}_e D^{*+}, \bar{\Xi}_c^{*0} \rightarrow \pi^0 \bar{\Xi}_c^0, D^{*+} \rightarrow \pi^+ D^0, \bar{\Xi}_c^0 \rightarrow K^0 \bar{\Sigma}^0,$ $D^0 \rightarrow \rho^+ K^{*-}, K^0 \rightarrow K_S, \bar{\Sigma}^0 \rightarrow \bar{\Lambda} \gamma, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^- \bar{K}^0, K_S \rightarrow \pi^0 \pi^0,$ $\bar{\Lambda} \rightarrow \pi^+ \bar{p}, \bar{K}^0 \rightarrow K_S, K_S \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow e^- \bar{\nu}_e \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- p \bar{p} \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	165	163	1	166
167	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow e^+ \nu_e \bar{D}^{*-}, \bar{B}^0 \rightarrow \rho^- D^{*+}, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, \rho^- \rightarrow \pi^0 \pi^-, D^{*+} \rightarrow D^+ \gamma,$ $\bar{D}^0 \rightarrow \pi^+ \rho^-, D^+ \rightarrow \pi^+ \pi^+ K^-, \rho^- \rightarrow \pi^0 \pi^-$ $(\Upsilon(4S) \rightarrow e^+ \nu_e \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- K^- \gamma \gamma \gamma \gamma)$	166	164	1	167
168	$\Upsilon(4S) \rightarrow B^0 B^0, B^0 \rightarrow K^{*+} \bar{D}^{*-} D^0, B^0 \rightarrow \pi^0 \pi^0 \pi^+ D^-, K^{*+} \rightarrow \pi^+ K^0, \bar{D}^{*-} \rightarrow \pi^0 D^-, D^0 \rightarrow \rho^+ K^{*-},$ $D^- \rightarrow \pi^- K_1^{*0}, K^0 \rightarrow K_S, D^- \rightarrow \pi^- K_S, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^- \bar{K}^0, K_1^{*0} \rightarrow \pi^- K^{*+},$ $K_S \rightarrow \pi^0 \pi^0, K_S \rightarrow \pi^+ \pi^-, \bar{K}^0 \rightarrow K_S, K^{*+} \rightarrow \pi^+ K^0, K_S \rightarrow \pi^+ \pi^-, K^0 \rightarrow K_L$ $(\Upsilon(4S) \rightarrow K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	167	165	1	168
169	$\Upsilon(4S) \rightarrow B^0 B^0, B^0 \rightarrow K^{*+} \bar{D}^{*-} D^{*0}, B^0 \rightarrow \pi^0 \eta \bar{K}^0 K^+ D^-, K^{*+} \rightarrow \pi^+ K^0, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, D^{*0} \rightarrow D^0 \gamma,$ $\eta \rightarrow \pi^0 \pi^0 \pi^0, \bar{K}^0 \rightarrow K_S, D^- \rightarrow \mu^- \bar{\nu}_\mu \eta, K^0 \rightarrow K_L, \bar{D}^0 \rightarrow \pi^+ \rho^-, D^0 \rightarrow \pi^0 \pi^+ K^-,$ $K_S \rightarrow \pi^+ \pi^-, \eta \rightarrow \pi^0 \pi^+ \pi^-, \rho^- \rightarrow \pi^0 \pi^-, \pi^0 \rightarrow e^+ e^-$ $(\Upsilon(4S) \rightarrow e^+ e^- \mu^- \bar{\nu}_\mu K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	168	166	1	169
170	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \tau^+ \nu_\tau D_2^{*-}, \bar{B}^0 \rightarrow \rho^0 \pi^- \rho^+ \rho^- \eta \omega D^+, \tau^+ \rightarrow \bar{\nu}_\tau \pi^0 \pi^+, D_2^{*-} \rightarrow \pi^- \bar{D}^0, \rho^0 \rightarrow \pi^+ \pi^-,$ $\rho^+ \rightarrow \pi^0 \pi^+, \rho^- \rightarrow \pi^0 \pi^-, \eta \rightarrow \pi^0 \pi^0 \pi^0, \omega \rightarrow \pi^0 \pi^+ \pi^-, D^+ \rightarrow e^+ \nu_e \pi^+ K^-, \bar{D}^0 \rightarrow K_L \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow e^+ \nu_e \nu_\tau \bar{\nu}_\tau K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	169	167	1	170
171	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \bar{K}^* K^{*+} D^-, \bar{B}^0 \rightarrow K^- D^+ \bar{D}^{*0}, \bar{K}^* \rightarrow \pi^+ K^-, K^{*+} \rightarrow \pi^+ K^0, D^- \rightarrow \pi^0 K_L \pi^-,$ $D^+ \rightarrow e^+ \nu_e \bar{K}^0, \bar{D}^{*0} \rightarrow \bar{D}^0 \gamma, K^0 \rightarrow K_S, K_L \rightarrow e^+ \nu_e \pi^-, \bar{K}^0 \rightarrow K_S, \bar{D}^0 \rightarrow \pi^0 \pi^- K^+,$ $K_S \rightarrow \pi^+ \pi^-, K_S \rightarrow \pi^0 \pi^0$ $(\Upsilon(4S) \rightarrow e^+ e^+ \nu_e \nu_e \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ K^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	170	168	1	171
172	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^0 \pi^0 \rho^0 \pi^+ D^-, \bar{B}^0 \rightarrow \pi^+ \rho^- \rho^- K^0 \bar{K}^0 D^{*+}, \rho^0 \rightarrow \pi^+ \pi^-, D^- \rightarrow \mu^- \bar{\nu}_\mu \pi^- K^+, \rho^- \rightarrow \pi^0 \pi^-,$ $\rho^- \rightarrow \pi^0 \pi^-, K^0 \rightarrow K_L, \bar{K}^0 \rightarrow K_S, D^{*+} \rightarrow \pi^+ D^0, K_S \rightarrow \pi^0 \pi^0, D^0 \rightarrow \pi^+ \pi^- \bar{K}^*,$ $\bar{K}^* \rightarrow \pi^+ K^-$ $(\Upsilon(4S) \rightarrow \mu^- \bar{\nu}_\mu K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	171	169	1	172
173	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^0 \eta K^0 D^+ \bar{D}^{*-}, \bar{B}^0 \rightarrow \rho^0 D^{*+} n \bar{p}, \eta \rightarrow \pi^0 \pi^0 \pi^0, K^0 \rightarrow K_L, D^+ \rightarrow K_S a_1^+,$ $\bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, \rho^0 \rightarrow \pi^+ \pi^-, D^{*+} \rightarrow \pi^+ D^0, K_S \rightarrow \pi^0 \pi^0, a_1^+ \rightarrow \pi^0 \rho^+, \bar{D}^0 \rightarrow \eta \eta',$ $D^0 \rightarrow \pi^- K_S K^+, \rho^+ \rightarrow \pi^0 \pi^+, \eta \rightarrow \gamma \gamma, \eta' \rightarrow \pi^0 \pi^0 \eta, K_S \rightarrow \pi^+ \pi^-, \eta \rightarrow \pi^0 \pi^0 \pi^0$ $(\Upsilon(4S) \rightarrow K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- K^+ n \bar{p} \gamma)$	172	170	1	173
174	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^0 \eta \bar{K}^0 K^+ D^-, \bar{B}^0 \rightarrow \pi^- \rho^- D^{*+} n \bar{p}, \eta \rightarrow \pi^0 \pi^0 \pi^0, \bar{K}^0 \rightarrow K_L, D^- \rightarrow e^- \bar{\nu}_e \pi^- K^+,$ $\rho^- \rightarrow \pi^0 \pi^-, D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^+ \pi^- K_S, K_S \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow e^- \bar{\nu}_e K_L \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- K^+ K^+ n \bar{p} \gamma)$	173	171	1	174

index	event tree (event initial-final states)	iEvtTr	iEvtIFSts	nEvts	nCmltEvts
175	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \rho^0 n \bar{\Sigma}_c^{*0}, \bar{B}^0 \rightarrow \pi^- \pi^- \rho^+ D^+, \rho^0 \rightarrow \pi^+ \pi^-, \bar{\Sigma}_c^{*0} \rightarrow \pi^+ \bar{\Lambda}_c^-, \rho^+ \rightarrow \pi^0 \pi^+,$ $D^+ \rightarrow \pi^+ \bar{K}_1'^0, \bar{\Lambda}_c^- \rightarrow \pi^- \bar{n}, \bar{K}_1'^0 \rightarrow \pi^+ K^{*-}, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_S, K_S \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- n \bar{n} \gamma \gamma)$	174	172	1	175
176	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow e^+ \nu_e \bar{D}^{*-}, \bar{B}^0 \rightarrow e^- \bar{\nu}_e D^+, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, D^+ \rightarrow \mu^+ \nu_\mu \bar{K}^0, \bar{D}^0 \rightarrow \pi^0 \pi^- K^+,$ $\bar{K}^0 \rightarrow K_S, K_S \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow e^+ e^- \nu_e \bar{\nu}_e \mu^+ \nu_\mu \pi^+ \pi^- \pi^- \pi^- K^+ \gamma \gamma)$	175	173	1	176
177	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow e^+ \nu_e \bar{D}^{*-}, \bar{B}^0 \rightarrow e^- \bar{\nu}_e D^{*+}, \bar{D}^{*-} \rightarrow \pi^0 D^-, D^{*+} \rightarrow \pi^0 D^+, D^- \rightarrow e^- \bar{\nu}_e K^0,$ $D^+ \rightarrow \pi^+ K_S, K^0 \rightarrow K_S, K_S \rightarrow \pi^+ \pi^-, K_S \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow e^+ e^- e^- \nu_e \bar{\nu}_e \pi^+ \pi^+ \pi^+ \pi^- \pi^- \gamma \gamma \gamma \gamma)$	176	174	1	177
178	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \mu^+ \nu_\mu D^-, \bar{B}^0 \rightarrow \bar{K}^* \phi \eta_c, D^- \rightarrow K_L a_1^-, \bar{K}^* \rightarrow \pi^+ K^-, \phi \rightarrow K_L K_S,$ $\eta_c \rightarrow \pi^0 \pi^+ \pi^- \pi^- \rho^+ \omega, a_1^- \rightarrow \pi^0 \rho^-, K_S \rightarrow \pi^0 \pi^0, \rho^+ \rightarrow \pi^0 \pi^+, \omega \rightarrow \pi^0 \pi^+ \pi^-, \rho^- \rightarrow \pi^0 \pi^-$ $(\Upsilon(4S) \rightarrow \mu^+ \nu_\mu K_L K_L \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	177	175	1	178
179	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \rho^0 \rho^0 \pi^+ D^-, \bar{B}^0 \rightarrow \rho^- \omega \bar{K}^* D_s^+, \rho^0 \rightarrow \pi^+ \pi^-, \rho^0 \rightarrow \pi^+ \pi^-, D^- \rightarrow \pi^- \pi^- K^+,$ $\rho^- \rightarrow \pi^0 \pi^-, \omega \rightarrow \pi^0 \pi^+ \pi^-, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, D_s^+ \rightarrow \pi^+ \phi, \bar{K}^0 \rightarrow K_L, \phi \rightarrow \pi^0 \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- K^+ \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	178	176	1	179
180	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow K^{*+} \bar{D}^{*-} D^{*0}, \bar{B}^0 \rightarrow e^- \bar{\nu}_e D^{*+}, K^{*+} \rightarrow \pi^+ K^0, \bar{D}^{*-} \rightarrow \pi^0 D^-, D^{*0} \rightarrow D^0 \gamma,$ $D^{*+} \rightarrow \pi^0 D^+, K^0 \rightarrow K_S, D^- \rightarrow \mu^- \bar{\nu}_\mu \pi^- K^+, D^0 \rightarrow \omega K_S, D^+ \rightarrow \mu^+ \nu_\mu \pi^+ K^-, K_S \rightarrow \pi^+ \pi^-,$ $\omega \rightarrow \pi^0 \pi^+ \pi^-, K_S \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow e^- \bar{\nu}_e \mu^+ \mu^- \nu_\mu \bar{\nu}_\mu \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	179	177	1	180
181	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \rho^- \bar{D}^0 D_s^{*+}, \bar{B}^0 \rightarrow D^+ D_s^-, \rho^- \rightarrow \pi^0 \pi^-, \bar{D}^0 \rightarrow \mu^- \bar{\nu}_\mu \pi^0 K^+, D_s^{*+} \rightarrow D_s^+ \gamma,$ $D^+ \rightarrow \mu^+ \nu_\mu \bar{K}^*, D_s^- \rightarrow \rho^- \eta, D_s^+ \rightarrow \pi^+ \pi^+ \pi^- \omega, \bar{K}^* \rightarrow \pi^+ K^-, \rho^- \rightarrow \pi^0 \pi^-, \eta \rightarrow \pi^0 \pi^0 \pi^0,$ $\omega \rightarrow \pi^0 \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow \mu^+ \mu^- \nu_\mu \bar{\nu}_\mu \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	180	178	1	181
182	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^0 \pi^0 \bar{K}^0 K^+ \bar{D}^{*-}, \bar{B}^0 \rightarrow \mu^- \bar{\nu}_\mu D^{*+}, \bar{K}^0 \rightarrow K_L, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, D^{*+} \rightarrow \pi^+ D^0,$ $K_L \rightarrow e^+ \nu_e \pi^-, \bar{D}^0 \rightarrow \mu^- \bar{\nu}_\mu K^+, D^0 \rightarrow \pi^0 \pi^+ K^-$ $(\Upsilon(4S) \rightarrow e^+ \nu_e \mu^- \mu^- \bar{\nu}_\mu \bar{\nu}_\mu \pi^+ \pi^+ \pi^- \pi^- K^+ K^+ K^- \gamma \gamma \gamma \gamma \gamma)$	181	179	1	182
183	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^0 \Sigma^0 \Xi_c^0, \bar{B}^0 \rightarrow \rho^- D^{*+}, \Sigma^0 \rightarrow \Lambda \gamma, \Xi_c^0 \rightarrow \pi^- K^0 \bar{\Sigma}^+, \rho^- \rightarrow \pi^0 \pi^-,$ $D^{*+} \rightarrow D^+ \gamma, \Lambda \rightarrow \pi^0 n, K^0 \rightarrow K_L, \bar{\Sigma}^+ \rightarrow \pi^+ \bar{n}, D^+ \rightarrow \pi^0 \pi^+ K_S, K_S \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow K_L \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- n \bar{n} \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	182	180	1	183
184	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \bar{D}^{*-}, \bar{B}^0 \rightarrow D^{*+} \Delta^0 \bar{\Delta}^+, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, D^{*+} \rightarrow \pi^0 D^+, \Delta^0 \rightarrow \pi^0 n,$ $\bar{\Delta}^+ \rightarrow \pi^0 \bar{p}, \bar{D}^0 \rightarrow \rho^- K^{*+}, D^+ \rightarrow \pi^0 K_L \pi^+, \rho^- \rightarrow \pi^0 \pi^-, K^{*+} \rightarrow \pi^+ K^0, K^0 \rightarrow K_L,$ $K_L \rightarrow \pi^0 \pi^0 \pi^0$ $(\Upsilon(4S) \rightarrow K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- n \bar{p} \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	183	181	1	184
185	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^0 \pi^0 \pi^0 \pi^0 \pi^+ \pi^-, \bar{B}^0 \rightarrow \tau^- \bar{\nu}_\tau D_1^+, \tau^- \rightarrow \mu^- \bar{\nu}_\mu \nu_\tau, D_1^+ \rightarrow \pi^0 D^{*+}, D^{*+} \rightarrow \pi^+ D^0,$ $D^0 \rightarrow K^- a_1^+, a_1^+ \rightarrow \rho^0 \pi^+, \rho^0 \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow \mu^- \bar{\nu}_\mu \nu_\tau \bar{\nu}_\tau \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	184	182	1	185

index	event tree (event initial-final states)	iEvtTr	iEvtIFSts	nEvts	nCmltEvts
186	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^0 \pi^+ \pi^- \omega \bar{K}^* K^+ \bar{D}^{*-}, \bar{B}^0 \rightarrow \mu^- \bar{\nu}_\mu D^{*+}, \omega \rightarrow \pi^0 \pi^+ \pi^-, \bar{K}^* \rightarrow \pi^+ K^-, \bar{D}^{*-} \rightarrow \pi^0 D^-,$ $D^{*+} \rightarrow \pi^0 D^+, D^- \rightarrow \mu^- \bar{\nu}_\mu K^*, D^+ \rightarrow \mu^+ \nu_\mu \pi^+ K^-, K^* \rightarrow \pi^0 K^0, K^0 \rightarrow K_S, K_S \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow \mu^+ \mu^- \mu^- \nu_\mu \bar{\nu}_\mu \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- K^+ K^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	185	183	1	186
187	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \bar{D}^{*-} D_s^{*+}, \bar{B}^0 \rightarrow \pi^+ \pi^+ \pi^- \pi^- \bar{D}^{*0}, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, D_s^{*+} \rightarrow D_s^+ \gamma, \bar{D}^{*0} \rightarrow \bar{D}^0 \gamma,$ $\bar{D}^0 \rightarrow \pi^- K^+, D_s^+ \rightarrow \rho^+ \phi, \bar{D}^0 \rightarrow \pi^+ \pi^- K_S, \rho^+ \rightarrow \pi^0 \pi^+, \phi \rightarrow K^+ K^-, K_S \rightarrow \pi^0 \pi^0$ $(\Upsilon(4S) \rightarrow \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- K^+ K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	186	184	1	187
188	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow D^- D_s^{*+}, \bar{B}^0 \rightarrow \pi^0 \pi^+ \omega K^- D^0, D^- \rightarrow K_L a_1^-, D_s^{*+} \rightarrow D_s^+ \gamma, \omega \rightarrow \pi^0 \pi^+ \pi^-,$ $D^0 \rightarrow \rho^+ K^{*-}, K_L \rightarrow e^- \nu_e \pi^+, a_1^- \rightarrow \rho^0 \pi^-, D_s^+ \rightarrow \rho^+ \eta, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^- \bar{K}^0,$ $\rho^0 \rightarrow \pi^+ \pi^-, \rho^+ \rightarrow \pi^0 \pi^+, \eta \rightarrow \gamma \gamma, \bar{K}^0 \rightarrow K_L$ $(\Upsilon(4S) \rightarrow e^- \nu_e K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	187	185	1	188
189	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^- K^+ D^{*0}, \bar{B}^0 \rightarrow \mu^- \bar{\nu}_\mu D^{*+}, D^{*0} \rightarrow \pi^0 D^0, D^{*+} \rightarrow \pi^+ D^0, D^0 \rightarrow \pi^0 \pi^+ \pi^- \bar{K}^*,$ $D^0 \rightarrow \pi^0 \pi^+ K^-, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, \bar{K}^0 \rightarrow K_L, K_L \rightarrow \mu^- \nu_\mu \pi^+$ $(\Upsilon(4S) \rightarrow \mu^- \mu^- \nu_\mu \bar{\nu}_\mu \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	188	186	1	189
190	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^0 \pi^- \pi^- \rho^+ \rho^+ \eta, \bar{B}^0 \rightarrow \rho^0 \rho^0 D^0, \rho^+ \rightarrow \pi^0 \pi^+, \rho^+ \rightarrow \pi^0 \pi^+, \eta \rightarrow \pi^0 \pi^+ \pi^-,$ $\rho^0 \rightarrow \pi^+ \pi^-, \rho^0 \rightarrow \pi^+ \pi^-, D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	189	187	1	190
191	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^+ n \bar{\Xi}'_c, \bar{B}^0 \rightarrow \pi^0 \pi^- \omega \omega D^+, \bar{\Xi}'_c \rightarrow \bar{\Xi}_c^- \gamma, \omega \rightarrow \pi^0 \pi^+ \pi^-, \omega \rightarrow \pi^0 \pi^+ \pi^-,$ $D^+ \rightarrow K_S K^{*+}, \bar{\Xi}_c^- \rightarrow \pi^0 \pi^- \bar{\Xi}^0, K_S \rightarrow \pi^+ \pi^-, K^{*+} \rightarrow \pi^+ K^0, \bar{\Xi}^0 \rightarrow \pi^0 \bar{\Lambda}, K^0 \rightarrow K_L,$ $\bar{\Lambda} \rightarrow \pi^0 \bar{n}$ $(\Upsilon(4S) \rightarrow K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- n \bar{n} \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	190	188	1	191
192	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \rho^+ \bar{D}^{*-}, \bar{B}^0 \rightarrow \rho^- D_1'^+, \rho^+ \rightarrow \pi^0 \pi^+, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, \rho^- \rightarrow \pi^0 \pi^-,$ $D_1'^+ \rightarrow \pi^0 D^{*+}, \bar{D}^0 \rightarrow \pi^+ \pi^- K_S, D^{*+} \rightarrow \pi^+ D^0, K_S \rightarrow \pi^0 \pi^0, D^0 \rightarrow \pi^0 \pi^0 \bar{K}^*, \bar{K}^* \rightarrow \pi^0 \bar{K}^0,$ $\bar{K}^0 \rightarrow K_L$ $(\Upsilon(4S) \rightarrow K_L \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	191	189	1	192
193	$\Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^+ \pi^- D^- D_s^+, \bar{B}^0 \rightarrow \pi^0 \pi^+ \pi^- \rho^- D^+, D^- \rightarrow K^* a_1^-, D_s^+ \rightarrow \rho^+ \eta', \rho^- \rightarrow \pi^0 \pi^-,$ $D^+ \rightarrow e^+ \nu_e \bar{K}^0, K^* \rightarrow \pi^0 K^0, a_1^- \rightarrow \pi^0 \rho^-, \rho^+ \rightarrow \pi^0 \pi^+, \eta' \rightarrow \pi^0 \pi^0 \eta, \bar{K}^0 \rightarrow K_L,$ $K^0 \rightarrow K_S, \rho^- \rightarrow \pi^0 \pi^-, \eta \rightarrow \pi^0 \pi^+ \pi^-, K_S \rightarrow \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow e^+ \nu_e K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	192	190	1	193
194	$\Upsilon(4S) \rightarrow B^0 B^0, B^0 \rightarrow \rho^- \bar{D}^0 D_s^+, B^0 \rightarrow \pi^- \rho^+ \rho^+ \eta \bar{D}^{*-}, \rho^- \rightarrow \pi^0 \pi^-, \bar{D}^0 \rightarrow K_S \eta', D_s^+ \rightarrow \pi^+ f_0(980),$ $\rho^+ \rightarrow \pi^0 \pi^+, \rho^+ \rightarrow \pi^0 \pi^+, \eta \rightarrow \pi^0 \pi^0 \pi^0, \bar{D}^{*-} \rightarrow \pi^0 D^-, K_S \rightarrow \pi^0 \pi^0, \eta' \rightarrow \omega \gamma,$ $f_0(980) \rightarrow \pi^0 \pi^0, D^- \rightarrow \mu^- \bar{\nu}_\mu \pi^- K^+, \omega \rightarrow \pi^0 \pi^+ \pi^-$ $(\Upsilon(4S) \rightarrow \mu^- \bar{\nu}_\mu \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	193	191	1	194
195	$\Upsilon(4S) \rightarrow B^0 B^0, B^0 \rightarrow \mu^+ \nu_\mu D_1'^-, B^0 \rightarrow \pi^0 \pi^0 \rho^0 \pi^+ \omega D^-, D_1'^- \rightarrow \pi^0 \bar{D}^{*-}, \rho^0 \rightarrow \pi^+ \pi^-, \omega \rightarrow \pi^0 \pi^+ \pi^-,$ $D^- \rightarrow \pi^- \pi^- K^+, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, \bar{D}^0 \rightarrow \pi^+ \pi^+ \pi^- \pi^-$ $(\Upsilon(4S) \rightarrow \mu^+ \nu_\mu \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- K^+ \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$	194	192	1	195



Table 2: Event initial-final states.

index	event initial-final states	iEvtIFSts	nEvts	nCmltEvts
1	$e^+e^- \rightarrow \mu^+\mu^-\nu_\mu\bar{\nu}_\mu\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma\gamma\gamma\gamma\gamma$	13	3	3
2	$e^+e^- \rightarrow K_L\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^+K^+K^-K^-\gamma\gamma\gamma\gamma$	1	1	4
3	$e^+e^- \rightarrow e^-\bar{\nu}_e\mu^-\bar{\nu}_\mu K_L\pi^+\pi^+\pi^+\pi^-\pi^-K^+K^+K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	2	1	5
4	$e^+e^- \rightarrow K_L\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	3	1	6
5	$e^+e^- \rightarrow e^+e^+e^-\nu_e\nu_e\bar{\nu}_e K_L\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\gamma\gamma$	4	1	7
6	$e^+e^- \rightarrow e^-e^-\bar{\nu}_e\bar{\nu}_e\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^+K^+\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	5	1	8
7	$e^+e^- \rightarrow \mu^+\mu^+\nu_\mu\nu_\mu K_L\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-K^+\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	6	1	9
8	$e^+e^- \rightarrow e^-\bar{\nu}_e\nu_\tau\bar{\nu}_\tau\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma\gamma\gamma\gamma$	7	1	10
9	$e^+e^- \rightarrow e^-\bar{\nu}_e\mu^+\nu_\mu\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^-\bar{n}p\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	8	1	11
10	$e^+e^- \rightarrow \mu^+\nu_\mu\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	9	1	12
11	$e^+e^- \rightarrow e^+\nu_e K_L\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	10	1	13
12	$e^+e^- \rightarrow \pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-n\bar{n}\bar{n}p\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	11	1	14
13	$e^+e^- \rightarrow e^+\nu_e\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^+K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	12	1	15
14	$e^+e^- \rightarrow \mu^-\bar{\nu}_\mu\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^+K^-\gamma\gamma\gamma\gamma\gamma$	0	1	16
15	$e^+e^- \rightarrow e^+\nu_e\mu^-\bar{\nu}_\mu K_L\pi^+\pi^+\pi^+\pi^-K^+K^-K^-K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	14	1	17
16	$e^+e^- \rightarrow e^-\bar{\nu}_e K_L\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	15	1	18
17	$e^+e^- \rightarrow \pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^+\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	16	1	19
18	$e^+e^- \rightarrow \mu^-\bar{\nu}_\mu K_L\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	17	1	20
19	$e^+e^- \rightarrow e^-\bar{\nu}_e K_L\pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	18	1	21
20	$e^+e^- \rightarrow K_L K_L K_L\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	19	1	22
21	$e^+e^- \rightarrow e^+\nu_e\mu^-\mu^-\bar{\nu}_\mu\bar{\nu}_\mu K_L K_L\pi^+\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	20	1	23
22	$e^+e^- \rightarrow \pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^+K^-\gamma\gamma\gamma\gamma$	21	1	24
23	$e^+e^- \rightarrow e^+e^-\nu_e\nu_e\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^+\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	22	1	25
24	$e^+e^- \rightarrow e^+\nu_e\mu^+\mu^-\nu_\mu\bar{\nu}_\mu\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+\gamma\gamma\gamma$	23	1	26
25	$e^+e^- \rightarrow \mu^-\bar{\nu}_\mu\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^+n\bar{n}\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	24	1	27
26	$e^+e^- \rightarrow K_L K_L K_L\pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	25	1	28
27	$e^+e^- \rightarrow e^-\bar{\nu}_e K_L\pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^-K^-\gamma\gamma\gamma\gamma\gamma$	26	1	29
28	$e^+e^- \rightarrow \mu^-\nu_\mu K_L K_L\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	27	1	30
29	$e^+e^- \rightarrow e^+e^-\nu_e\bar{\nu}_e\pi^+\pi^+\pi^+\pi^-\pi^-K^-K^-\gamma\gamma$	28	1	31
30	$e^+e^- \rightarrow \mu^+\mu^-\nu_\mu\bar{\nu}_\mu\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma\gamma\gamma\gamma$	29	1	32
31	$e^+e^- \rightarrow \mu^-\bar{\nu}_\mu\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^+K^+K^-\bar{n}p\gamma\gamma$	30	1	33
32	$e^+e^- \rightarrow \mu^+\nu_\mu\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^-K^-n\bar{n}\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	31	1	34

index	event initial-final states	iEvtIFSts	nEvts	nCmltEvts
33	$e^+e^- \rightarrow e^+\nu_e\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	32	1	35
34	$e^+e^- \rightarrow K_L\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\bar{n}p\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	33	1	36
35	$e^+e^- \rightarrow e^-\bar{\nu}_e\mu^-\bar{\nu}_\mu\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+n\bar{n}\gamma\gamma\gamma\gamma\gamma$	34	1	37
36	$e^+e^- \rightarrow K_L\pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^+K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	35	1	38
37	$e^+e^- \rightarrow K_LK_L\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-p\bar{p}\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	36	1	39
38	$e^+e^- \rightarrow e^-\bar{\nu}_eK_L\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	37	1	40
39	$e^+e^- \rightarrow e^-\bar{\nu}_eK_LK_L\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	38	1	41
40	$e^+e^- \rightarrow e^+\nu_e\mu^-\nu_\mu\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^+K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	39	1	42
41	$e^+e^- \rightarrow e^+e^-\mu^+\nu_\mu K_L\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^+K^-\gamma\gamma\gamma\gamma\gamma\gamma$	40	1	43
42	$e^+e^- \rightarrow K_L\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^+K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	41	1	44
43	$e^+e^- \rightarrow \mu^+\nu_\mu K_LK_L\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+\gamma\gamma\gamma\gamma\gamma\gamma$	42	1	45
44	$e^+e^- \rightarrow \mu^+\nu_\mu K_L\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	43	1	46
45	$e^+e^- \rightarrow K_L\pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-K^+K^+\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	44	1	47
46	$e^+e^- \rightarrow e^+\nu_e\mu^+\mu^-\nu_\mu\bar{\nu}_\mu\pi^+\pi^-\pi^-\pi^-K^+K^+K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	45	1	48
47	$e^+e^- \rightarrow \mu^+\nu_\mu K_LK_L\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	46	1	49
48	$e^+e^- \rightarrow e^+e^+\nu_e\nu_e\mu^-\bar{\nu}_\mu\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^-\gamma\gamma\gamma\gamma\gamma\gamma$	47	1	50
49	$e^+e^- \rightarrow e^+\nu_e\mu^+\mu^-\nu_\mu\bar{\nu}_\mu\nu_\tau\bar{\nu}_\tau\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^-\bar{n}p\gamma\gamma\gamma\gamma$	48	1	51
50	$e^+e^- \rightarrow \mu^-\bar{\nu}_\mu K_LK_L\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^+\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	49	1	52
51	$e^+e^- \rightarrow \mu^-\bar{\nu}_\mu\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^+K^-\bar{n}p\gamma\gamma\gamma\gamma\gamma$	50	1	53
52	$e^+e^- \rightarrow \mu^-\bar{\nu}_\mu K_LK_L\pi^+\pi^+\pi^+\pi^-\pi^-K^+K^+K^-\gamma\gamma\gamma\gamma$	51	1	54
53	$e^+e^- \rightarrow e^-\bar{\nu}_e\mu^+\nu_\mu\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^+K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	52	1	55
54	$e^+e^- \rightarrow \pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	53	1	56
55	$e^+e^- \rightarrow \pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^-\bar{n}\bar{n}\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	54	1	57
56	$e^+e^- \rightarrow \pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-K^+K^+p\bar{p}\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	55	1	58
57	$e^+e^- \rightarrow \pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^+K^+K^+K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	56	1	59
58	$e^+e^- \rightarrow K_LK_LK_L\pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-K^-\gamma\gamma\gamma\gamma\gamma\gamma$	57	1	60
59	$e^+e^- \rightarrow e^+e^+e^-\nu_e\nu_e\bar{\nu}_e\pi^+\pi^+\pi^+\pi^-\pi^-K^+K^+$	58	1	61
60	$e^+e^- \rightarrow e^+e^-\nu_e\bar{\nu}_e\mu^-\bar{\nu}_\mu K_LK_L\pi^+\pi^+\pi^-\pi^-K^+K^+K^-\gamma\gamma\gamma\gamma$	59	1	62
61	$e^+e^- \rightarrow e^-\bar{\nu}_e\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+n\bar{n}p\bar{p}\gamma\gamma\gamma\gamma\gamma$	60	1	63
62	$e^+e^- \rightarrow e^+e^-\nu_e\bar{\nu}_e\mu^-\bar{\nu}_\mu\pi^+\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma\gamma\gamma\gamma$	61	1	64
63	$e^+e^- \rightarrow \pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^+K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	62	1	65
64	$e^+e^- \rightarrow e^+\nu_e K_L\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	63	1	66



index	event initial-final states	iEvtIFSts	nEvts	nCmItEvts
65	$e^+e^- \rightarrow e^+e^+e^-e^-\mu^-\bar{\nu}_\mu\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^-\gamma\gamma\gamma\gamma\gamma$	64	1	67
66	$e^+e^- \rightarrow e^+e^+\nu_e\nu_e\nu_\tau\bar{\nu}_\tau K_L\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	65	1	68
67	$e^+e^- \rightarrow e^+\nu_e\mu^+\nu_\mu\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^+K^-K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	66	1	69
68	$e^+e^- \rightarrow e^+\nu_e\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-K^+K^-\gamma\gamma\gamma\gamma\gamma$	67	1	70
69	$e^+e^- \rightarrow \pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^+K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	68	1	71
70	$e^+e^- \rightarrow e^-\bar{\nu}_e\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^+K^-\gamma\gamma\gamma\gamma\gamma$	69	1	72
71	$e^+e^- \rightarrow \mu^+\mu^+\nu_\mu\nu_\mu\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^-\bar{n}p\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	70	1	73
72	$e^+e^- \rightarrow e^+\nu_e\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-K^+\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	71	1	74
73	$e^+e^- \rightarrow e^+\nu_e\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-K^+\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	72	1	75
74	$e^+e^- \rightarrow e^+e^-\nu_e\bar{\nu}_e\mu^+\nu_\mu\nu_\tau\bar{\nu}_\tau\pi^+\pi^-\pi^-K^+K^-\gamma\gamma$	73	1	76
75	$e^+e^- \rightarrow e^+e^-K_LK_L\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-K^+\gamma\gamma\gamma\gamma\gamma$	74	1	77
76	$e^+e^- \rightarrow \mu^+\nu_\mu\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-K^+\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	75	1	78
77	$e^+e^- \rightarrow K_LK_L\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-K^+K^+\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	76	1	79
78	$e^+e^- \rightarrow \mu^-\bar{\nu}_\mu\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-n\bar{n}\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	77	1	80
79	$e^+e^- \rightarrow e^+e^-\nu_e\bar{\nu}_eK_L\pi^+\pi^+\pi^+\pi^-\pi^-K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	78	1	81
80	$e^+e^- \rightarrow e^+\nu_eK_L\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-K^+K^-\gamma\gamma$	79	1	82
81	$e^+e^- \rightarrow e^+e^-\mu^+\nu_\mu\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-K^-\gamma\gamma\gamma\gamma\gamma$	80	1	83
82	$e^+e^- \rightarrow e^-\bar{\nu}_e\pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^-K^-\gamma\gamma\gamma\gamma$	81	1	84
83	$e^+e^- \rightarrow \nu_\tau\bar{\nu}_\tau K_L\pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^-\gamma\gamma$	82	1	85
84	$e^+e^- \rightarrow \pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-K^+K^+K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	83	1	86
85	$e^+e^- \rightarrow \mu^+\nu_\mu\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^-\gamma\gamma\gamma\gamma\gamma$	84	1	87
86	$e^+e^- \rightarrow e^-\bar{\nu}_eK_L\pi^+\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	85	1	88
87	$e^+e^- \rightarrow e^+e^-\nu_e\bar{\nu}_eK_L\pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	86	1	89
88	$e^+e^- \rightarrow \mu^+\mu^+\nu_\mu\nu_\mu K_L\pi^+\pi^+\pi^-\pi^-\pi^-K^-\gamma\gamma\gamma\gamma\gamma\gamma$	87	1	90
89	$e^+e^- \rightarrow \pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	88	1	91
90	$e^+e^- \rightarrow \nu_\tau\bar{\nu}_\tau\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^+K^+K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	89	1	92
91	$e^+e^- \rightarrow K_L\pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	90	1	93
92	$e^+e^- \rightarrow K_LK_L\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^+K^-K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	91	1	94
93	$e^+e^- \rightarrow e^+\nu_e\mu^+\nu_\mu\pi^+\pi^-\pi^-\pi^-K^+K^+K^-K^-\gamma\gamma\gamma\gamma$	92	1	95
94	$e^+e^- \rightarrow \mu^+\nu_\mu\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-p\bar{p}\gamma\gamma\gamma\gamma\gamma$	93	1	96
95	$e^+e^- \rightarrow \mu^-\bar{\nu}_\mu\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$	94	1	97
96	$e^+e^- \rightarrow e^+\nu_e\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-\gamma\gamma\gamma\gamma\gamma$	95	1	98







