

Topology Analysis ^{*}

(v1.5)

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^{*}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 for their efforts in helping me test the program.

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| index | event tree (event initial-final states) | iEvtTr | iEvtIFSts | nEvts | nCcEvts | nTotEvts | nCmltEvts |
|-------|---|--------|-----------|-------|---------|----------|-----------|
| 18 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow K^*D^-D^{*+}, \bar{B}^0 \rightarrow \pi^0\eta\bar{K}^0K^-D_s^+, K^* \rightarrow \pi^0K^0,$ $D^- \rightarrow \pi^-\pi^-K^+, D^{*+} \rightarrow \pi^+D^0, \eta \rightarrow \gamma\gamma, \bar{K}^0 \rightarrow K_L, D_s^+ \rightarrow \mu^+\nu_\mu\phi,$ $K^0 \rightarrow K_S, D^0 \rightarrow \pi^0\pi^+K^{*-}, \phi \rightarrow K^+K^-, K_S \rightarrow \pi^0\pi^0, K^{*-} \rightarrow \pi^-\bar{K}^0,$ $\bar{K}^0 \rightarrow K_L$ $(e^+e^- \rightarrow \mu^+\nu_\mu K_L K_L \pi^+\pi^-\pi^-\pi^-K^+K^+K^-K^- \gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma)$ | 17 | 17 | 1 | 0 | 1 | 18 |
| 19 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \bar{D}^{*-}D_s^{*+}, \bar{B}^0 \rightarrow e^-\bar{\nu}_eD^{*+}, D^{*-} \rightarrow \pi^-\bar{D}^0,$ $D_s^{*+} \rightarrow D_s^+\gamma, D^{*+} \rightarrow \pi^+D^0, \bar{D}^0 \rightarrow \pi^0\pi^+\pi^-K_S, D_s^+ \rightarrow \rho^+\eta, D^0 \rightarrow \pi^+\eta K^-,$ $K_S \rightarrow \pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+, \eta \rightarrow \pi^0\pi^0\pi^0, \eta \rightarrow \pi^0\pi^0\pi^0$ $(e^+e^- \rightarrow e^-\bar{\nu}_e\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^- \gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma)$ | 18 | 18 | 1 | 0 | 1 | 19 |
| 20 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \mu^+\nu_\mu D_2^{*-}, \bar{B}^0 \rightarrow \pi^0\pi^+\pi^+\pi^-\rho^-D^{*0}, D_2^{*-} \rightarrow \pi^-\bar{D}^{*0},$ $\rho^- \rightarrow \pi^0\pi^-, \bar{D}^{*0} \rightarrow \pi^0\bar{D}^0, \bar{D}^{*0} \rightarrow \pi^0\bar{D}^0, \bar{D}^0 \rightarrow K^+a_1^-, \bar{D}^0 \rightarrow \pi^0K_L\pi^+\pi^-,$ $a_1^- \rightarrow \rho^0\pi^-, \rho^0 \rightarrow \pi^+\pi^-$ $(e^+e^- \rightarrow \mu^+\nu_\mu K_L\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^+ \gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma)$ | 19 | 19 | 1 | 0 | 1 | 20 |
| 21 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \mu^-\bar{\nu}_\mu D^{*+}, \bar{B}^0 \rightarrow \pi^0\bar{K}^*K^+K^-, D^{*+} \rightarrow \pi^+D^0,$ $\bar{K}^* \rightarrow \pi^0\bar{K}^0, D^0 \rightarrow \pi^0K_L, \bar{K}^0 \rightarrow K_L$ $(e^+e^- \rightarrow \mu^-\bar{\nu}_\mu K_L K_L \pi^+K^+K^- \gamma\gamma\gamma\gamma\gamma)$ | 20 | 20 | 1 | 0 | 1 | 21 |
| 22 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \pi^+\pi^+\omega K^0K^{*-}D^{*-}, \bar{B}^0 \rightarrow e^-\bar{\nu}_eD^{*+}, \omega \rightarrow \pi^0\pi^+\pi^-,$ $K^0 \rightarrow K_S, K^{*-} \rightarrow \pi^0K^-, \bar{D}^{*-} \rightarrow \pi^0D^-, D^{*+} \rightarrow \pi^0D^+, K_S \rightarrow \pi^+\pi^-,$ $D^- \rightarrow \pi^-\pi^-K^+, D^+ \rightarrow K_L a_1^+, K_L \rightarrow \mu^+\nu_\mu\pi^-, a_1^+ \rightarrow \pi^+f_0(600)$ $(e^+e^- \rightarrow e^-\bar{\nu}_e\mu^+\nu_\mu\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^+K^-f_0(600)\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma)$ | 21 | 21 | 1 | 0 | 1 | 22 |
| 23 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \bar{D}^{*-}D_s^{*+}, \bar{B}^0 \rightarrow \pi^0\pi^0\rho^-\eta\omega D^{*+}, D^{*-} \rightarrow \pi^0D^-,$ $D_s^{*+} \rightarrow D_s^+\gamma, \rho^- \rightarrow \pi^0\pi^-, \eta \rightarrow \pi^0\pi^0\pi^0, \omega \rightarrow \pi^0\pi^+\pi^-, D^{*+} \rightarrow \pi^+D^0,$ $D^- \rightarrow \pi^-K_S, D_s^+ \rightarrow \rho^+\eta', D^0 \rightarrow K^-a_1^+, K_S \rightarrow \pi^0\pi^0, \rho^+ \rightarrow \pi^0\pi^+,$ $\eta' \rightarrow \rho^0\gamma, a_1^+ \rightarrow \pi^+\pi^+\pi^-, \rho^0 \rightarrow \pi^+\pi^-$ $(e^+e^- \rightarrow \pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^- \gamma)$ | 22 | 22 | 1 | 0 | 1 | 23 |
| 24 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow K^*D^+\bar{D}^{*-}, \bar{B}^0 \rightarrow \pi^+\pi^-\rho^-\omega K^{*+}, K^* \rightarrow \pi^-K^+,$ $D^+ \rightarrow \pi^0K_L\pi^+, \bar{D}^{*-} \rightarrow \pi^-\bar{D}^0, \rho^- \rightarrow \pi^0\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-, K^{*+} \rightarrow \pi^0K^+,$ $\bar{D}^0 \rightarrow K^+a_1^-, a_1^- \rightarrow \rho^0\pi^-, \rho^0 \rightarrow \pi^+\pi^-$ $(e^+e^- \rightarrow K_L\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^+K^+K^+ \gamma\gamma\gamma\gamma\gamma\gamma\gamma)$ | 23 | 23 | 1 | 0 | 1 | 24 |
| 25 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \pi^0\rho^0\pi^-\rho^+\rho^+\eta D^-, \bar{B}^0 \rightarrow \pi^+\bar{K}^*D^{*-}D^0, \rho^0 \rightarrow \pi^+\pi^-,$ $\rho^+ \rightarrow \pi^0\pi^+, \rho^+ \rightarrow \pi^0\pi^+, \eta \rightarrow \pi^0\pi^+\pi^-, D^- \rightarrow \pi^-\pi^-K^+, \bar{K}^* \rightarrow \pi^+K^-,$ $\bar{D}^{*-} \rightarrow \pi^-\bar{D}^0, D^0 \rightarrow e^+\nu_e\pi^0K^-, \pi^0 \rightarrow e^+e^-, \bar{D}^0 \rightarrow \mu^-\bar{\nu}_\mu K^{*+}, K^{*+} \rightarrow \pi^+K^0,$ $K^0 \rightarrow K_S, K_S \rightarrow \pi^+\pi^-$ $(e^+e^- \rightarrow e^+e^+e^-\nu_e\mu^-\bar{\nu}_\mu\pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^+K^-K^- \gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma)$ | 24 | 24 | 1 | 0 | 1 | 25 |
| 26 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow K^0\bar{D}^0D^{*0}, \bar{B}^0 \rightarrow \pi^0\pi^-\omega D^+, K^0 \rightarrow K_L,$ $\bar{D}^0 \rightarrow K^+a_1^-, D^{*0} \rightarrow D^0\gamma, \omega \rightarrow \pi^0\pi^+\pi^-, D^+ \rightarrow \pi^+K^0\bar{K}^*, a_1^- \rightarrow \rho^0\pi^-,$ $D^0 \rightarrow e^+\nu_e K^{*-}, K^0 \rightarrow K_L, \bar{K}^* \rightarrow \pi^+K^-, \rho^0 \rightarrow \pi^+\pi^-, K^{*-} \rightarrow \pi^0K^-$ $(e^+e^- \rightarrow e^+\nu_e K_L K_L \pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^+K^-K^- \gamma\gamma\gamma\gamma\gamma\gamma\gamma)$ | 25 | 25 | 1 | 0 | 1 | 26 |

| index | event tree (event initial-final states) | iEvtTr | iEvtIFSts | nEvts | nCcEvts | nTotEvts | nCmltEvts |
|-------|--|--------|-----------|-------|---------|----------|-----------|
| 47 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \pi^0\pi^+\pi^-\rho^-\eta\eta\bar{K}^0K^+D^-, \bar{B}^0 \rightarrow \pi^0\rho^0\pi^-D^{*+}, \rho^- \rightarrow \pi^0\pi^-,$ $\eta \rightarrow \gamma\gamma, \eta \rightarrow \pi^0\pi^0\pi^0, \bar{K}^0 \rightarrow K_L, D^- \rightarrow \pi^-K_S, \rho^0 \rightarrow \pi^+\pi^-,$ $D^{*+} \rightarrow \pi^0D^+, K_S \rightarrow \pi^+\pi^-, D^+ \rightarrow \pi^0K_L\pi^+$ $(e^+e^- \rightarrow K_LK_L\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^+\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma)$ | 46 | 46 | 1 | 0 | 1 | 47 |
| 48 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \rho^0\rho^+D^{*-}, \bar{B}^0 \rightarrow \pi^+K^-D^+D^-, \rho^0 \rightarrow \pi^+\pi^-,$ $\rho^+ \rightarrow \pi^0\pi^+, \bar{D}^{*-} \rightarrow \pi^-\bar{D}^0, D^+ \rightarrow \pi^0\pi^+\bar{K}^*, D^- \rightarrow \mu^-\bar{\nu}_\mu K^0, \bar{D}^0 \rightarrow \mu^-\bar{\nu}_\mu K^+,$ $\bar{K}^* \rightarrow \pi^0\bar{K}^0, K^0 \rightarrow K_S, \bar{K}^0 \rightarrow K_L, K_S \rightarrow \pi^+\pi^-$ $(e^+e^- \rightarrow \mu^-\mu^-\bar{\nu}_\mu\bar{\nu}_\mu K_L\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^-\gamma\gamma\gamma\gamma\gamma)$ | 47 | 47 | 1 | 0 | 1 | 48 |
| 49 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \rho^0\rho^+D^-, \bar{B}^0 \rightarrow \mu^-\bar{\nu}_\mu D^+, \rho^0 \rightarrow \pi^+\pi^-,$ $\rho^+ \rightarrow \pi^0\pi^+, D^- \rightarrow \mu^-\bar{\nu}_\mu K^*, D^+ \rightarrow e^+\nu_e\bar{K}^*, K^* \rightarrow \pi^0K^0, \bar{K}^* \rightarrow \pi^0\bar{K}^0,$ $K^0 \rightarrow K_L, \bar{K}^0 \rightarrow K_S, K_S \rightarrow \pi^0\pi^0$ $(e^+e^- \rightarrow e^+\nu_e\mu^-\mu^-\bar{\nu}_\mu\bar{\nu}_\mu K_L\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^+\gamma\gamma\gamma\gamma\gamma\gamma\gamma)$ | 48 | 48 | 1 | 0 | 1 | 49 |
| 50 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \pi^+\pi^-\rho^+\eta D^-, \bar{B}^0 \rightarrow \mu^-\bar{\nu}_\mu D^{*+}, \rho^+ \rightarrow \pi^0\pi^+,$ $\eta \rightarrow \pi^0\pi^0\pi^0, D^- \rightarrow K_S K^-, D^{*+} \rightarrow \pi^+D^0, \pi^0 \rightarrow e^+e^-, K_S \rightarrow \pi^+\pi^-,$ $D^0 \rightarrow \pi^0\pi^+\pi^-\bar{K}^*, \bar{K}^* \rightarrow \pi^0\bar{K}^0, \bar{K}^0 \rightarrow K_L$ $(e^+e^- \rightarrow e^+e^-\mu^-\bar{\nu}_\mu K_L\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma)$ | 49 | 49 | 1 | 0 | 1 | 50 |
| 51 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow e^+\nu_e\eta D^-, \bar{B}^0 \rightarrow \pi^0\pi^+\pi^+\pi^-D^{*-}, \eta \rightarrow \pi^+\pi^-,$ $D^- \rightarrow K_L a_1^-, \bar{D}^{*-} \rightarrow \pi^-\bar{D}^0, a_1^- \rightarrow \pi^-f_0(600), \bar{D}^0 \rightarrow \mu^-\bar{\nu}_\mu K^+$ $(e^+e^- \rightarrow e^+\nu_e\mu^-\bar{\nu}_\mu K_L\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+f_0(600)\gamma\gamma)$ | 50 | 50 | 1 | 0 | 1 | 51 |
| 52 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \pi^0\pi^+\pi^+\rho^-D^-, \bar{B}^0 \rightarrow e^-\bar{\nu}_e D^+, \rho^- \rightarrow \pi^0\pi^-,$ $D^- \rightarrow \pi^0\pi^+\pi^-\pi^-K^0, D^+ \rightarrow \pi^+\pi^+K^-, K^0 \rightarrow K_L$ $(e^+e^- \rightarrow e^-\bar{\nu}_e K_L\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^-\gamma\gamma\gamma\gamma\gamma)$ | 51 | 51 | 1 | 0 | 1 | 52 |
| 53 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \rho^0\pi^+\pi^+\pi^-D^-, \bar{B}^0 \rightarrow \rho^+\rho^-D^{*0}, \rho^0 \rightarrow \pi^+\pi^-,$ $\omega \rightarrow \pi^0\pi^+\pi^-, D^- \rightarrow \pi^-K_1^{'0}, \rho^+ \rightarrow \pi^0\pi^+, \rho^- \rightarrow \pi^0\pi^-, D^{*0} \rightarrow D^0\gamma,$ $K_1^{'0} \rightarrow \pi^-K^{*+}, D^0 \rightarrow e^+\nu_e K^{*-}, K^{*+} \rightarrow \pi^0K^+, K^{*-} \rightarrow \pi^-\bar{K}^0, \bar{K}^0 \rightarrow K_L$ $(e^+e^- \rightarrow e^+\nu_e K_L\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^+\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma)$ | 52 | 52 | 1 | 0 | 1 | 53 |
| 54 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \pi^-\bar{D}^0 D_s^+, \bar{B}^0 \rightarrow D^{*+} D_s^{*-}, \bar{D}^0 \rightarrow \rho^- K^{*+},$ $D_s^+ \rightarrow \rho^+\eta, D^{*+} \rightarrow \pi^+D^0, D_s^{*-} \rightarrow D_s^-\gamma, \rho^- \rightarrow \pi^0\pi^-, K^{*+} \rightarrow \pi^0K^+,$ $\rho^+ \rightarrow \pi^0\pi^+, \eta \rightarrow \gamma\gamma, D^0 \rightarrow K_S K^+ K^-, D_s^- \rightarrow \pi^-\eta', K_S \rightarrow \pi^0\pi^0,$ $\eta' \rightarrow \pi^+\pi^-\eta, \eta \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \rightarrow \pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^+K^+K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma)$ | 53 | 53 | 1 | 0 | 1 | 54 |
| 55 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \bar{D}^{*-} a_1^+, \bar{B}^0 \rightarrow \pi^0\rho^0\rho^0 D^+, \bar{D}^{*-} \rightarrow \pi^-\bar{D}^0,$ $a_1^+ \rightarrow \pi^+K^0\bar{K}^0, \rho^0 \rightarrow \pi^+\pi^-, \rho^0 \rightarrow \pi^+\pi^-, \rho^- \rightarrow \pi^0\pi^-, D^+ \rightarrow \pi^0\pi^+K_S,$ $\bar{D}^0 \rightarrow K^+ a_1^-, K^0 \rightarrow K_S, \bar{K}^0 \rightarrow K_S, K_S \rightarrow \pi^0\pi^0, a_1^- \rightarrow \rho^0\pi^-,$ $K_S \rightarrow \pi^+\pi^-, K_S \rightarrow \pi^0\pi^0, \rho^0 \rightarrow \pi^+\pi^-$ $(e^+e^- \rightarrow \pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-K^+\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma)$ | 54 | 54 | 1 | 0 | 1 | 55 |

| index | event tree (event initial-final states) | iEvtTr | iEvtIFSts | nEvts | nCcEvts | nTotEvts | nCmltEvts |
|-------|---|--------|-----------|-------|---------|----------|-----------|
| 65 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \rho^0 \pi^+ K^- K^{*-} \bar{D}^{*-}, \bar{B}^0 \rightarrow \pi^0 \pi^0 \rho^0 \pi^- D^+, \rho^0 \rightarrow \pi^+ \pi^-,$ $K^{*-} \rightarrow \pi^+ K^0, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, \rho^0 \rightarrow \pi^+ \pi^-, \rho^0 \rightarrow \pi^+ \pi^-, D^+ \rightarrow e^+ \nu_e \bar{K}^0,$ $K^0 \rightarrow K_S, \bar{D}^0 \rightarrow K_L \eta', \bar{K}^0 \rightarrow K_S, K_S \rightarrow \pi^+ \pi^-, \eta' \rightarrow \pi^+ \pi^- \eta,$ $K_S \rightarrow \pi^+ \pi^-, \eta \rightarrow \gamma \gamma$ $(e^+e^- \rightarrow e^+ \nu_e K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- K^- \gamma \gamma \gamma \gamma \gamma)$ | 64 | 64 | 1 | 0 | 1 | 65 |
| 66 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow e^+ \nu_e D^-, \bar{B}^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^- \pi^- D^{*+} p \bar{p}, D^- \rightarrow \pi^+ \pi^- \pi^- K_S,$ $D^{*+} \rightarrow \pi^+ D^0, K_S \rightarrow \pi^0 \pi^0, D^0 \rightarrow \pi^0 \pi^+ \pi^- \bar{K}^*, \bar{K}^* \rightarrow \pi^+ K^-$ $(e^+e^- \rightarrow e^+ \nu_e \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- K^- p \bar{p} \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$ | 65 | 65 | 1 | 0 | 1 | 66 |
| 67 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \mu^+ \nu_\mu D_0^{*-}, \bar{B}^0 \rightarrow \tau^- \bar{\nu}_\tau D^{*+}, D_0^{*-} \rightarrow \pi^- \bar{D}^0,$ $\tau^- \rightarrow \nu_\tau \pi^0 \pi^-, D^{*+} \rightarrow \pi^+ D^0, \bar{D}^0 \rightarrow \pi^+ \pi^- K^*, D^0 \rightarrow \pi^0 \pi^0 \bar{K}^*, K^* \rightarrow \pi^- K^+,$ $\bar{K}^* \rightarrow \pi^+ K^-$ $(e^+e^- \rightarrow \mu^+ \nu_\mu \nu_\tau \bar{\nu}_\tau \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ K^- \gamma \gamma \gamma \gamma \gamma)$ | 66 | 66 | 1 | 0 | 1 | 67 |
| 68 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^+ \omega \omega \bar{D}^{*-}, \bar{B}^0 \rightarrow \eta D^+ D_s^{*-}, \omega \rightarrow \pi^0 \gamma,$ $\omega \rightarrow \pi^0 \pi^+ \pi^-, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, \eta \rightarrow \gamma \gamma, D^+ \rightarrow K_L \pi^+, D_s^{*-} \rightarrow D_s^- \gamma,$ $\bar{D}^0 \rightarrow \pi^- \eta K^+, D_s^- \rightarrow K^0 K^{*-}, \eta \rightarrow \pi^0 \pi^0 \pi^0, K^0 \rightarrow K_L, K^{*-} \rightarrow \pi^0 K^-$ $(e^+e^- \rightarrow K_L K_L \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$ | 67 | 67 | 1 | 0 | 1 | 68 |
| 69 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow e^- \bar{\nu}_e D^+, \bar{B}^0 \rightarrow \rho^0 \rho^- \eta D^{*+}, D^+ \rightarrow \pi^0 \pi^+ K_S,$ $\rho^0 \rightarrow \pi^+ \pi^-, \rho^- \rightarrow \pi^0 \pi^-, \eta \rightarrow \gamma \gamma, D^{*+} \rightarrow \pi^+ D^0, K_S \rightarrow \pi^+ \pi^-,$ $D^0 \rightarrow \omega \bar{K}^*, \omega \rightarrow \pi^+ \pi^-, \bar{K}^* \rightarrow \pi^+ K^-$ $(e^+e^- \rightarrow e^- \bar{\nu}_e \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^- \gamma \gamma \gamma \gamma \gamma)$ | 68 | 68 | 1 | 0 | 1 | 69 |
| 70 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \rho^+ D^-, \bar{B}^0 \rightarrow \rho^- D^{*+}, \rho^+ \rightarrow \pi^0 \pi^+,$ $D^- \rightarrow \pi^0 \pi^- \phi, \rho^- \rightarrow \pi^0 \pi^-, D^{*+} \rightarrow \pi^+ D^0, \phi \rightarrow K^+ K^-, D^0 \rightarrow e^+ \nu_e \pi^-$ $(e^+e^- \rightarrow e^+ \nu_e \pi^+ \pi^+ \pi^- \pi^- \pi^- K^+ K^- \gamma \gamma \gamma \gamma \gamma)$ | 69 | 69 | 1 | 0 | 1 | 70 |
| 71 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^- K^+ D^0 \bar{D}^0, \bar{B}^0 \rightarrow K^{*-} D^+, D^0 \rightarrow \rho^+ K^{*-},$ $\bar{D}^0 \rightarrow \rho^0 \rho^0, K^{*-} \rightarrow \pi^- \bar{K}^0, D^+ \rightarrow e^+ \nu_e \bar{K}^*, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^- \bar{K}^0,$ $\rho^0 \rightarrow \pi^+ \pi^-, \rho^0 \rightarrow \pi^+ \pi^-, \bar{K}^0 \rightarrow K_L, \bar{K}^* \rightarrow \pi^+ K^-, \bar{K}^0 \rightarrow K_L$ $(e^+e^- \rightarrow e^+ \nu_e K_L K_L \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- K^+ K^- \gamma \gamma)$ | 70 | 70 | 1 | 0 | 1 | 71 |
| 72 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^0 \pi^0 \pi^+ \rho^- \rho^- D^-, \bar{B}^0 \rightarrow e^- \bar{\nu}_e D^+, \rho^+ \rightarrow \pi^0 \pi^+,$ $\rho^- \rightarrow \pi^0 \pi^-, D^- \rightarrow e^- \bar{\nu}_e \pi^- K^+, D^+ \rightarrow \pi^0 \pi^+ \pi^+ K^-$ $(e^+e^- \rightarrow e^- \bar{\nu}_e e^- \bar{\nu}_e \pi^+ \pi^+ \pi^+ \pi^- \pi^- K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$ | 71 | 71 | 1 | 0 | 1 | 72 |
| 73 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow K^* n \bar{\Sigma}_c^{*0}, \bar{B}^0 \rightarrow \pi^- D^+, K^* \rightarrow \pi^- K^+,$ $\bar{\Sigma}_c^{*0} \rightarrow \pi^+ \bar{\Lambda}_c^-, D^+ \rightarrow \pi^0 \pi^+ \bar{K}^*, \bar{\Lambda}_c^- \rightarrow \pi^0 \pi^- K^+ \bar{p}, \bar{K}^* \rightarrow \pi^+ K^-$ $(e^+e^- \rightarrow \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- K^+ K^+ K^- \eta \bar{p} \gamma \gamma \gamma \gamma)$ | 72 | 72 | 1 | 0 | 1 | 73 |
| 74 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow e^+ \nu_e \bar{D}^{*-}, \bar{B}^0 \rightarrow \pi^- \pi^- D^{*+} \bar{n} \Delta^+, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0,$ $D^{*+} \rightarrow \pi^+ D^0, \Delta^+ \rightarrow \pi^0 p, \bar{D}^0 \rightarrow e^- \bar{\nu}_e \pi^+ K^0, D^0 \rightarrow K^- a_1^+, K^0 \rightarrow K_L,$ $a_1^+ \rightarrow \pi^+ f_0(600)$ $(e^+e^- \rightarrow e^+ e^- \nu_e \bar{\nu}_e K_L \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- K^- \bar{n} p f_0(600) \gamma \gamma)$ | 73 | 73 | 1 | 0 | 1 | 74 |

| index | event tree (event initial-final states) | iEvtTr | iEvtIFSts | nEvts | nCcEvts | nTotEvts | nCmltEvts |
|-------|---|--------|-----------|-------|---------|----------|-----------|
| 84 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \pi^+K^0D^-, \bar{B}^0 \rightarrow \pi^+\pi^+\pi^-\pi^-\pi^-D^{*+}, K^0 \rightarrow K_S,$ $D^- \rightarrow \pi^-K^+K^-, D^{*+} \rightarrow \pi^+D^0, K_S \rightarrow \pi^0\pi^0, D^0 \rightarrow \rho^+K^{*-}, \rho^+ \rightarrow \pi^0\pi^+,$ $K^{*-} \rightarrow \pi^0K^-$ $(e^+e^- \rightarrow \pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^-K^-\gamma\gamma\gamma\gamma\gamma\gamma)$ | 83 | 82 | 1 | 0 | 1 | 84 |
| 85 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \pi^0\pi^+\rho^-\bar{D}^{*0}, \bar{B}^0 \rightarrow e^-\bar{\nu}_e\eta D^+, \rho^- \rightarrow \pi^0\pi^-,$ $\bar{D}^{*0} \rightarrow \pi^0\bar{D}^0, \eta \rightarrow \pi^0\pi^+\pi^-, D^+ \rightarrow \mu^+\nu_\mu\bar{K}^0, \bar{D}^0 \rightarrow K_S\eta', \bar{K}^0 \rightarrow K_L,$ $K_S \rightarrow \pi^0\pi^0, \eta' \rightarrow \pi^+\pi^-\eta, \eta \rightarrow \pi^0\pi^0\pi^0$ $(e^+e^- \rightarrow e^-\bar{\nu}_e\mu^+\nu_\mu K_L\pi^+\pi^+\pi^-\pi^-\pi^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma)$ | 84 | 83 | 1 | 0 | 1 | 85 |
| 86 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \eta'D^+\bar{D}^{*-}, \bar{B}^0 \rightarrow \omega\bar{D}^{*-}\bar{n}p, \eta' \rightarrow \pi^0\pi^0\eta,$ $D^+ \rightarrow \pi^+\phi, \bar{D}^{*-} \rightarrow \pi^-\bar{D}^0, \omega \rightarrow \pi^0\pi^+\pi^-, \bar{D}^{*-} \rightarrow \pi^-\bar{D}^0, \eta \rightarrow \pi^0\pi^+\pi^-,$ $\phi \rightarrow K^+K^-, \bar{D}^0 \rightarrow e^-\bar{\nu}_e\rho^+, \bar{D}^0 \rightarrow e^-\bar{\nu}_eK^+, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \rightarrow e^-\bar{\nu}_e\bar{\nu}_e\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+K^+K^-\bar{n}p\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma)$ | 85 | 84 | 1 | 0 | 1 | 86 |
| 87 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \pi^+\pi^-\rho^+D^-, \bar{B}^0 \rightarrow e^-\bar{\nu}_eD_2^{*+}, \rho^+ \rightarrow \pi^0\pi^+,$ $D^- \rightarrow \mu^-\bar{\nu}_\mu K^*, D_2^{*+} \rightarrow \pi^+D^0, K^* \rightarrow \pi^-K^+, D^0 \rightarrow K_L\omega, \omega \rightarrow \pi^0\pi^+\pi^-$ $(e^+e^- \rightarrow e^-\bar{\nu}_e\mu^-\bar{\nu}_\mu K_L\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^+\gamma\gamma\gamma)$ | 86 | 85 | 1 | 0 | 1 | 87 |
| 88 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \rho^0\pi^+\eta D^-, \bar{B}^0 \rightarrow \pi^-\rho^+K^0K^{*-}D^+, \rho^0 \rightarrow \pi^+\pi^-,$ $\eta \rightarrow \gamma\gamma, D^- \rightarrow \pi^-\pi^-K^+, \rho^+ \rightarrow \pi^0\pi^+, K^0 \rightarrow K_L, K^{*-} \rightarrow \pi^0K^-,$ $D^+ \rightarrow \rho^0\pi^+, K_L \rightarrow \mu^+\nu_\mu\pi^-, \rho^0 \rightarrow \pi^+\pi^-$ $(e^+e^- \rightarrow \mu^+\nu_\mu\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-K^+K^-\gamma\gamma\gamma\gamma\gamma)$ | 87 | 86 | 1 | 0 | 1 | 88 |
| 89 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \rho^0p\bar{\Sigma}_c^{*-}, \bar{B}^0 \rightarrow \mu^-\bar{\nu}_\mu D_0^{*+}, \rho^0 \rightarrow \pi^+\pi^-,$ $\bar{\Sigma}_c^{*-} \rightarrow \pi^0\bar{\Lambda}_c^-, D_0^{*+} \rightarrow \pi^+D^0, \bar{\Lambda}_c^- \rightarrow K^+\bar{\Delta}^{++}, D^0 \rightarrow \pi^+\pi^-\bar{K}^*, \bar{\Delta}^{++} \rightarrow \pi^-\bar{p},$ $\bar{K}^* \rightarrow \pi^+K^-$ $(e^+e^- \rightarrow \mu^-\bar{\nu}_\mu\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-p\bar{p}\gamma\gamma)$ | 88 | 87 | 1 | 0 | 1 | 89 |
| 90 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \mu^+\nu_\mu\bar{D}^{*-}, \bar{B}^0 \rightarrow \pi^-\pi^-D^+\bar{n}p, \bar{D}^{*-} \rightarrow \pi^0D^-,$ $D^+ \rightarrow K_Sa_1^+, D^- \rightarrow \pi^0\pi^0\pi^-\pi^-K^+, K_S \rightarrow \pi^0\pi^0, a_1^+ \rightarrow \pi^+f_0(600)$ $(e^+e^- \rightarrow \mu^+\nu_\mu\pi^+\pi^-\pi^-\pi^-\pi^-K^+\bar{n}pf_0(600)\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma)$ | 89 | 88 | 1 | 0 | 1 | 90 |
| 91 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \pi^0\pi^+\pi^-\rho^+D^-, \bar{B}^0 \rightarrow \mu^-\bar{\nu}_\mu D^{*+}, \rho^+ \rightarrow \pi^0\pi^+,$ $D^- \rightarrow \mu^-\bar{\nu}_\mu\pi^-K^+, D^{*+} \rightarrow \pi^0D^+, D^+ \rightarrow \pi^+\pi^+K^-$ $(e^+e^- \rightarrow \mu^-\mu^-\bar{\nu}_\mu\bar{\nu}_\mu\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-K^+K^-\gamma\gamma\gamma\gamma\gamma)$ | 90 | 89 | 1 | 0 | 1 | 91 |
| 92 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \pi^-K^{*+}J/\psi, \bar{B}^0 \rightarrow \pi^0\pi^+K^-\eta_c(2S), K^{*+} \rightarrow \pi^0K^+,$ $J/\psi \rightarrow e^+e^-, \pi^0 \rightarrow e^+e^-, \eta_c(2S) \rightarrow \eta\Sigma^+\bar{\Sigma}^-, \eta \rightarrow \pi^0\pi^0\pi^0, \Sigma^+ \rightarrow \pi^+n,$ $\bar{\Sigma}^- \rightarrow \pi^0\bar{p}$ $(e^+e^- \rightarrow e^+e^+e^-e^-\pi^+\pi^+\pi^-K^+K^-\bar{n}p\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma)$ | 91 | 90 | 1 | 0 | 1 | 92 |
| 93 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, \bar{B}^0 \rightarrow \bar{K}^0\psi', B^0 \rightarrow \pi^-\rho^+\rho^-D^+, \bar{K}^0 \rightarrow K_S,$ $\psi' \rightarrow \pi^0\pi^0J/\psi, \rho^+ \rightarrow \pi^0\pi^+, \rho^- \rightarrow \pi^0\pi^-, D^+ \rightarrow \bar{K}^*a_1^+, K_S \rightarrow \pi^+\pi^-,$ $J/\psi \rightarrow \mu^+\mu^-, \bar{K}^* \rightarrow \pi^+K^-, a_1^+ \rightarrow \pi^+f_0(600)$ $(e^+e^- \rightarrow \mu^+\mu^-\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^-f_0(600)\gamma\gamma\gamma\gamma\gamma\gamma\gamma)$ | 92 | 91 | 1 | 0 | 1 | 93 |

| index | event tree (event initial-final states) | iEvtTr | iEvtIFSts | nEvts | nCcEvts | nTotEvts | nCmltEvts |
|-------|--|--------|-----------|-------|---------|----------|-----------|
| 94 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \rho^0\rho^+\bar{D}^{*-}, \bar{B}^0 \rightarrow \pi^-K^0D^+, \rho^0 \rightarrow \pi^+\pi^-,$ $\rho^+ \rightarrow \pi^0\pi^+, \bar{D}^{*-} \rightarrow \pi^-\bar{D}^0, K^0 \rightarrow K_L, D^+ \rightarrow K_L a_1^+, \bar{D}^0 \rightarrow \pi^-K^+,$ $a_1^+ \rightarrow \pi^+f_0(600)$ $(e^+e^- \rightarrow K_L K_L \pi^+\pi^+\pi^-\pi^-\pi^-\pi^- K^+ f_0(600)\gamma\gamma)$ | 93 | 92 | 1 | 0 | 1 | 94 |
| 95 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \rho^+\omega D^-, \bar{B}^0 \rightarrow \pi^0\omega K^0 K^- D^+, \rho^+ \rightarrow \pi^0\pi^+,$ $\omega \rightarrow \pi^0\pi^+\pi^-, D^- \rightarrow \pi^-\pi^-K^+, \pi^0 \rightarrow e^+e^-, \omega \rightarrow \pi^0\pi^+\pi^-, K^0 \rightarrow K_S,$ $D^+ \rightarrow \mu^+\nu_\mu \bar{K}^*, K_S \rightarrow \pi^+\pi^-, \bar{K}^* \rightarrow \pi^+K^-$ $(e^+e^- \rightarrow e^+e^- \mu^+\nu_\mu \pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^- K^+ K^- K^- \gamma\gamma\gamma\gamma\gamma\gamma)$ | 94 | 93 | 1 | 0 | 1 | 95 |
| 96 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow e^+\nu_e \bar{D}^{*-}, \bar{B}^0 \rightarrow e^-\bar{\nu}_e D^{*+}, \bar{D}^{*-} \rightarrow \pi^-\bar{D}^0,$ $D^{*+} \rightarrow \pi^+D^0, \bar{D}^0 \rightarrow K^+a_1^-, D^0 \rightarrow \pi^0\pi^+K^-, a_1^- \rightarrow \pi^-f_0(600)$ $(e^+e^- \rightarrow e^+e^- \nu_e \bar{\nu}_e \pi^+\pi^+\pi^-\pi^-\pi^- K^+ K^- f_0(600)\gamma\gamma)$ | 95 | 94 | 1 | 0 | 1 | 96 |
| 97 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow K^{*+}\bar{D}^{*-}, \bar{B}^0 \rightarrow \pi^0\pi^- D^{*+}\Delta^+\Delta^+, K^{*+} \rightarrow \pi^+K^0,$ $\bar{D}^{*-} \rightarrow \pi^-\bar{D}^0, D^{*+} \rightarrow \pi^+D^0, \Delta^+ \rightarrow \pi^+n, \bar{\Delta}^+ \rightarrow \pi^0\bar{p}, K^0 \rightarrow K_L,$ $\bar{D}^0 \rightarrow \pi^0\pi^-K^+, D^0 \rightarrow \pi^+\pi^-K_S, K_S \rightarrow \pi^+\pi^-$ $(e^+e^- \rightarrow K_L \pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^- K^+ n \bar{p} \gamma\gamma\gamma\gamma\gamma\gamma)$ | 96 | 95 | 1 | 0 | 1 | 97 |
| 98 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow D_2^{*-}D_s^{*+}, \bar{B}^0 \rightarrow \pi^+\pi^-D^+D_s^-, D_2^{*-} \rightarrow \pi^0\bar{D}^{*-},$ $D_s^{*+} \rightarrow D_s^+\gamma, D^+ \rightarrow \pi^+\bar{K}_1^{'0}, D_s^- \rightarrow e^-\bar{\nu}_e\eta', \bar{D}^{*-} \rightarrow \pi^-\bar{D}^0, D_s^+ \rightarrow \pi^+\phi,$ $\bar{K}_1^{'0} \rightarrow \pi^+K^{*-}, \eta' \rightarrow \pi^0\pi^0\eta, \bar{D}^0 \rightarrow \pi^-\omega K^+, \phi \rightarrow \pi^-\rho^+, K^{*-} \rightarrow \pi^-\bar{K}^0,$ $\eta \rightarrow \pi^0\pi^+\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+, \bar{K}^0 \rightarrow K_S, K_S \rightarrow \pi^0\pi^0$ $(e^+e^- \rightarrow e^-\bar{\nu}_e \pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^- K^+ \gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma)$ | 97 | 96 | 1 | 0 | 1 | 98 |
| 99 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow K_L\eta_c, \bar{B}^0 \rightarrow \pi^-\pi^-\rho^+D^{*+}, \eta_c \rightarrow \pi^0K^0\bar{K}^0\bar{K}^0K^*,$ $\rho^+ \rightarrow \pi^0\pi^+, D^{*+} \rightarrow \pi^0D^+, K^0 \rightarrow K_S, \bar{K}^0 \rightarrow K_L, \bar{K}^0 \rightarrow K_S,$ $K^* \rightarrow \pi^-K^+, D^+ \rightarrow \pi^0\pi^+K_S, K_S \rightarrow \pi^0\pi^0, K_S \rightarrow \pi^+\pi^-, K_S \rightarrow \pi^+\pi^-$ $(e^+e^- \rightarrow K_L K_L \pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^- K^+ \gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma)$ | 98 | 97 | 1 | 0 | 1 | 99 |
| 100 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \pi^0\pi^0\rho^0\pi^+\bar{D}^{*-}, \bar{B}^0 \rightarrow K^*K^-D^+, \rho^0 \rightarrow \pi^+\pi^-,$ $\bar{D}^{*-} \rightarrow \pi^-\bar{D}^0, K^* \rightarrow \pi^0K^0, D^+ \rightarrow \pi^+\pi^+K^-, \bar{D}^0 \rightarrow \pi^-\rho^+, K^0 \rightarrow K_S,$ $\rho^+ \rightarrow \pi^0\pi^+, K_S \rightarrow \pi^0\pi^0$ $(e^+e^- \rightarrow \pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^- K^- K^- \gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma)$ | 99 | 98 | 1 | 0 | 1 | 100 |
| 101 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \pi^0\pi^+\rho^-\eta\bar{D}^0, \bar{B}^0 \rightarrow \pi^-\rho^+\rho^-D^+, \rho^- \rightarrow \pi^0\pi^-,$ $\eta \rightarrow \pi^0\pi^+\pi^-, \bar{D}^0 \rightarrow \pi^0\pi^+\pi^-K_S, \rho^+ \rightarrow \pi^0\pi^+, \rho^- \rightarrow \pi^0\pi^-, D^+ \rightarrow e^+\nu_e\bar{K}^0,$ $\pi^0 \rightarrow e^+e^-, K_S \rightarrow \pi^+\pi^-, \bar{K}^0 \rightarrow K_S, K_S \rightarrow \pi^0\pi^0$ $(e^+e^- \rightarrow e^+e^+e^-\nu_e\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^- \gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma)$ | 100 | 99 | 1 | 0 | 1 | 101 |
| 102 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \pi^0\pi^0\eta\omega\bar{D}^0, \bar{B}^0 \rightarrow \pi^+\pi^-D^+D_s^-, \eta \rightarrow \pi^+\pi^-,$ $\omega \rightarrow \pi^0\pi^+\pi^-, \bar{D}^0 \rightarrow \pi^0\pi^-K^+, D^+ \rightarrow \pi^0\pi^+K_S, D_s^- \rightarrow e^-\bar{\nu}_e\eta, K_S \rightarrow \pi^+\pi^-,$ $\eta \rightarrow \pi^+\pi^-$ $(e^+e^- \rightarrow e^-\bar{\nu}_e \pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^- K^+ \gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma)$ | 101 | 100 | 1 | 0 | 1 | 102 |

| index | event tree (event initial-final states) | iEvtTr | iEvtIFSts | nEvts | nCcEvts | nTotEvts | nCmltEvts |
|-------|--|--------|-----------|-------|---------|----------|-----------|
| 131 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \eta K^0 K^+ \bar{D}^{*-}, \bar{B}^0 \rightarrow \rho^- \eta D^+, \eta \rightarrow \pi^0 \pi^+ \pi^-,$ $\bar{K}^0 \rightarrow K_S, \bar{D}^{*-} \rightarrow \pi^0 D^-, \rho^- \rightarrow \pi^0 \pi^-, \eta \rightarrow \gamma\gamma, D^+ \rightarrow \pi^0 \pi^0 \pi^+,$ $K_S \rightarrow \pi^0 \pi^0, D^- \rightarrow K_L a_1^-, a_1^- \rightarrow \rho^0 \pi^-, \rho^0 \rightarrow \pi^+ \pi^-$ $(e^+e^- \rightarrow K_L \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$ | 130 | 129 | 1 | 0 | 1 | 131 |
| 132 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow \bar{B}^0 B^0, \bar{B}^0 \rightarrow \rho^- D^+, \bar{B}^0 \rightarrow \rho^0 \pi^- \omega D^+, \rho^- \rightarrow \pi^0 \pi^-,$ $D^+ \rightarrow e^+ \nu_e \pi^+ K^-, \rho^0 \rightarrow \pi^+ \pi^-, \omega \rightarrow \pi^0 \pi^+ \pi^-, D^+ \rightarrow \pi^+ \pi^+ K^-$ $(e^+e^- \rightarrow e^+ \nu_e \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^- K^- \gamma \gamma \gamma \gamma)$ | 131 | 130 | 1 | 0 | 1 | 132 |
| 133 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \bar{D}^{*-} D_s^+, \bar{B}^0 \rightarrow e^+ \nu_e D_2^{*-}, \bar{D}^{*-} \rightarrow \pi^0 D^-,$ $D_s^+ \rightarrow \mu^+ \nu_\mu \phi, D_2^{*-} \rightarrow \pi^- \bar{D}^{*0}, D^- \rightarrow e^- \bar{\nu}_e \pi^- K^+, \phi \rightarrow K^+ K^-, \bar{D}^{*0} \rightarrow \bar{D}^0 \gamma,$ $\bar{D}^0 \rightarrow K^+ a_1^-, a_1^- \rightarrow \rho^0 \pi^-, \rho^0 \rightarrow \pi^+ \pi^-$ $(e^+e^- \rightarrow e^+ e^- \nu_e \bar{\nu}_e \mu^+ \nu_\mu \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ K^+ K^+ K^- \gamma \gamma \gamma \gamma)$ | 132 | 131 | 1 | 0 | 1 | 133 |
| 134 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^+ \pi^- \rho^+ \bar{D}^{*-}, \bar{B}^0 \rightarrow D_2^{*+} \bar{D}_s^-, \rho^+ \rightarrow \pi^0 \pi^+,$ $\bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, D_2^{*+} \rightarrow \pi^+ D^0, D_s^- \rightarrow \tau^- \bar{\nu}_\tau, \bar{D}^0 \rightarrow \pi^0 K_L \pi^+ \pi^-, D^0 \rightarrow \rho^+ K^{*-},$ $\tau^- \rightarrow \nu_\tau \pi^0 \pi^-, \rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^- \bar{K}^0, \bar{K}^0 \rightarrow K_L$ $(e^+e^- \rightarrow \nu_\tau \bar{\nu}_\tau K_L K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$ | 133 | 132 | 1 | 0 | 1 | 134 |
| 135 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^0 \omega K^+ D_s^{*-}, \bar{B}^0 \rightarrow \mu^- \bar{\nu}_\mu D^{*+}, \omega \rightarrow \pi^0 \pi^+ \pi^-,$ $D_s^{*-} \rightarrow D_s^- \gamma, D^{*+} \rightarrow \pi^+ D^0, D_s^- \rightarrow \rho^- \eta', D^0 \rightarrow \pi^+ \pi^+ \pi^- K^-, \rho^- \rightarrow \pi^0 \pi^-,$ $\eta' \rightarrow \rho^0 \gamma, \rho^0 \rightarrow \pi^+ \pi^-$ $(e^+e^- \rightarrow \mu^- \bar{\nu}_\mu \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$ | 134 | 133 | 1 | 0 | 1 | 135 |
| 136 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow D_s^{*+} D_1'^-, \bar{B}^0 \rightarrow \rho^0 \pi^- D^{*+}, D_s^{*+} \rightarrow D_s^+ \gamma,$ $D_1'^- \rightarrow \pi^- \bar{D}^{*0}, \rho^0 \rightarrow \pi^+ \pi^-, D^{*+} \rightarrow \pi^+ D^0, D_s^+ \rightarrow K_L \pi^+ \pi^- K^+, \bar{D}^{*0} \rightarrow \bar{D}^0 \gamma,$ $D^0 \rightarrow K^- a_1^+, \bar{D}^0 \rightarrow \pi^0 \pi^+ \pi^- K^*, a_1^+ \rightarrow \pi^+ f_0(600), K^* \rightarrow \pi^- K^+$ $(e^+e^- \rightarrow K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- K^+ K^+ K^- f_0(600) \gamma \gamma \gamma \gamma)$ | 135 | 134 | 1 | 0 | 1 | 136 |
| 137 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \rho^0 \pi^- \rho^+ K^0 D^-, \bar{B}^0 \rightarrow \pi^0 \rho^0 \pi^- \eta \omega D^+, \rho^0 \rightarrow \pi^+ \pi^-,$ $\rho^+ \rightarrow \pi^0 \pi^+, \rho^+ \rightarrow \pi^0 \pi^+, K^0 \rightarrow K_S, D^- \rightarrow K_L \pi^+ \pi^- K^-, \pi^0 \rightarrow e^+ e^-,$ $\rho^0 \rightarrow \pi^+ \pi^-, \eta \rightarrow \pi^+ \pi^-, \omega \rightarrow \pi^0 \pi^+ \pi^-, D^+ \rightarrow K_L a_1^+, K_S \rightarrow \pi^+ \pi^-,$ $a_1^+ \rightarrow \pi^0 \rho^+, \rho^+ \rightarrow \pi^0 \pi^+$ $(e^+e^- \rightarrow e^+ e^- K_L K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$ | 136 | 135 | 1 | 0 | 1 | 137 |
| 138 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^0 \pi^0 K^+ D_s^{*-}, \bar{B}^0 \rightarrow D^{*0} n \bar{n}, D_s^{*-} \rightarrow D_s^- \gamma,$ $D^{*0} \rightarrow \pi^0 D^0, D_s^- \rightarrow \rho^- \eta', D^0 \rightarrow \pi^+ K^-, \rho^- \rightarrow \pi^0 \pi^-, \eta' \rightarrow \rho^0 \gamma,$ $\rho^0 \rightarrow \pi^+ \pi^-$ $(e^+e^- \rightarrow \pi^+ \pi^+ \pi^- \pi^- K^+ K^- n \bar{n} \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$ | 137 | 136 | 1 | 0 | 1 | 138 |
| 139 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow e^+ \nu_e D^-, \bar{B}^0 \rightarrow K^+ \Delta^+ \bar{\Sigma}_c^{*-}, D^- \rightarrow K_L \pi^+ \pi^- K^-,$ $\Delta^+ \rightarrow \pi^0 p, \bar{\Sigma}_c^{*-} \rightarrow \pi^- \bar{\Lambda}_c^-, \bar{\Lambda}_c^- \rightarrow \pi^0 \pi^- \bar{\Delta}^0, \bar{\Delta}^0 \rightarrow \pi^+ \bar{p}$ $(e^+e^- \rightarrow e^+ \nu_e K_L \pi^+ \pi^+ \pi^- \pi^- \pi^- K^+ K^- p \bar{p} \gamma \gamma \gamma \gamma)$ | 138 | 137 | 1 | 0 | 1 | 139 |

| index | event tree (event initial-final states) | iEvtTr | iEvtIFSts | nEvts | nCcEvts | nTotEvts | nCmltEvts |
|-------|--|--------|-----------|-------|---------|----------|-----------|
| 140 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \rho^+ \rho^+ \rho^- \eta \bar{D}^{*-}, \bar{B}^0 \rightarrow \pi^0 \pi^+ \pi^+ \pi^- \pi^- \bar{K}^0 K^* K^+ K^{*-}, \rho^+ \rightarrow \pi^0 \pi^+,$ $\rho^+ \rightarrow \pi^0 \pi^+, \rho^- \rightarrow \pi^0 \pi^-, \eta \rightarrow \pi^0 \pi^+ \pi^-, \bar{D}^{*-} \rightarrow \pi^0 D^-, \bar{K}^0 \rightarrow K_S,$ $K^* \rightarrow \pi^- K^+, K^{*-} \rightarrow \pi^- \bar{K}^0, D^- \rightarrow e^- \bar{\nu}_e K^*, K_S \rightarrow \pi^+ \pi^-, \bar{K}^0 \rightarrow K_S,$ $K^* \rightarrow \pi^- K^+, K_S \rightarrow \pi^+ \pi^-$ $(e^+e^- \rightarrow e^- \bar{\nu}_e \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- K^+ K^+ K^+ \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$ | 139 | 138 | 1 | 0 | 1 | 140 |
| 141 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \mu^+ \nu_\mu \bar{D}^{*-}, \bar{B}^0 \rightarrow \pi^0 \rho^0 \pi^- D^+, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0,$ $\rho^0 \rightarrow \pi^+ \pi^-, D^+ \rightarrow \pi^0 \pi^+ \bar{K}^*, \bar{D}^0 \rightarrow e^- \bar{\nu}_e K^+, \bar{K}^* \rightarrow \pi^0 \bar{K}^0, \bar{K}^0 \rightarrow K_S,$ $K_S \rightarrow \pi^+ \pi^-$ $(e^+e^- \rightarrow e^- \bar{\nu}_e \mu^+ \nu_\mu \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- K^+ \gamma \gamma \gamma \gamma \gamma)$ | 140 | 139 | 1 | 0 | 1 | 141 |
| 142 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow D^- D_s^{*+} \gamma, \bar{B}^0 \rightarrow \pi^+ \pi^- \rho^- D^+, D^- \rightarrow \pi^0 \pi^- K^+ K^-,$ $D_s^{*+} \rightarrow D_s^+ \gamma, \rho^- \rightarrow \pi^0 \pi^-, D^+ \rightarrow \mu^+ \nu_\mu \bar{K}^*, D_s^+ \rightarrow \bar{K}^* K^{*+}, \bar{K}^* \rightarrow \pi^+ K^-,$ $\bar{K}^* \rightarrow \pi^+ K^-, K^{*+} \rightarrow \pi^0 K^+$ $(e^+e^- \rightarrow \mu^+ \nu_\mu \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- K^+ K^+ K^- K^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$ | 141 | 140 | 1 | 0 | 1 | 142 |
| 143 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \rho^+ n \bar{\Sigma}_c^-, \bar{B}^0 \rightarrow D^{*+} D_{s1}^{\prime-}, \rho^+ \rightarrow \pi^0 \pi^+,$ $\bar{\Sigma}_c^- \rightarrow \pi^0 \bar{\Lambda}_c^-, D^{*+} \rightarrow \pi^+ D^0, D_{s1}^{\prime-} \rightarrow \pi^0 D_s^{*-}, \bar{\Lambda}_c^- \rightarrow \bar{K}^* \bar{\Sigma}^-, D^0 \rightarrow \pi^0 \pi^+ K^-,$ $D_s^{*-} \rightarrow D_s^- \gamma, \bar{K}^* \rightarrow \pi^+ K^-, \bar{\Sigma}^- \rightarrow \pi^- \bar{n}, D_s^- \rightarrow K^* K^-, K^* \rightarrow \pi^- K^+$ $(e^+e^- \rightarrow \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- K^+ K^- K^- K^- n \bar{n} \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$ | 142 | 141 | 1 | 0 | 1 | 143 |
| 144 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow \bar{B}^0 \bar{B}^0, \bar{B}^0 \rightarrow \mu^- \bar{\nu}_\mu D^+, \bar{B}^0 \rightarrow \bar{K}^* K^- D^{*+}, D^+ \rightarrow K_S K^{*+},$ $\bar{K}^* \rightarrow \pi^+ K^-, D^{*+} \rightarrow \pi^0 D^+, K_S \rightarrow \pi^+ \pi^-, K^{*+} \rightarrow \pi^0 K^+, D^+ \rightarrow \pi^0 \pi^0 \pi^+$ $(e^+e^- \rightarrow \mu^- \bar{\nu}_\mu \pi^+ \pi^+ \pi^+ \pi^- K^+ K^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$ | 143 | 142 | 1 | 0 | 1 | 144 |
| 145 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^+ \pi^+ \pi^- \omega \bar{D}^{*-}, \bar{B}^0 \rightarrow \pi^0 \pi^+ \pi^- \pi^- D^{*+}, \omega \rightarrow \pi^0 \pi^+ \pi^-,$ $\bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, D^{*+} \rightarrow \pi^+ D^0, \bar{D}^0 \rightarrow e^- \bar{\nu}_e \pi^+ K^0, D^0 \rightarrow \rho^+ K^{*-}, K^0 \rightarrow K_S,$ $\rho^+ \rightarrow \pi^0 \pi^+, K^{*-} \rightarrow \pi^- \bar{K}^0, K_S \rightarrow \pi^+ \pi^-, \bar{K}^0 \rightarrow K_L$ $(e^+e^- \rightarrow e^- \bar{\nu}_e K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$ | 144 | 143 | 1 | 0 | 1 | 145 |
| 146 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \pi^+ K^0 K^* \bar{D}^{*-}, \bar{B}^0 \rightarrow \pi^+ K^- D^- D^{*+}, K^0 \rightarrow K_L,$ $\bar{K}^* \rightarrow \pi^+ K^-, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, D^- \rightarrow K_S a_1^-, D^{*+} \rightarrow \pi^+ D^0, \bar{D}^0 \rightarrow K_S \eta',$ $K_S \rightarrow \pi^+ \pi^-, a_1^- \rightarrow \rho^0 \pi^-, D^0 \rightarrow \pi^0 \pi^0 \pi^+ \pi^-, K_S \rightarrow \pi^+ \pi^-, \eta' \rightarrow \rho^0 \gamma,$ $\rho^0 \rightarrow \pi^+ \pi^-, \rho^0 \rightarrow \pi^+ \pi^-$ $(e^+e^- \rightarrow K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- K^- K^- \gamma \gamma \gamma \gamma \gamma)$ | 145 | 144 | 1 | 0 | 1 | 146 |
| 147 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow \bar{B}^0 \bar{B}^0, \bar{B}^0 \rightarrow \rho^- D_2^{*+}, \bar{B}^0 \rightarrow \rho^0 \pi^+ K^{*-} \eta_c, \rho^- \rightarrow \pi^0 \pi^-,$ $D_2^{*+} \rightarrow \pi^+ D^0, \rho^0 \rightarrow \pi^+ \pi^-, K^{*-} \rightarrow \pi^- \bar{K}^0, \eta_c \rightarrow \pi^0 \pi^+ \pi^- \omega, D^0 \rightarrow \pi^+ \omega K^-,$ $\bar{K}^0 \rightarrow K_L, \omega \rightarrow \pi^0 \pi^+ \pi^-, \omega \rightarrow \pi^0 \pi^+ \pi^-$ $(e^+e^- \rightarrow K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$ | 146 | 145 | 1 | 0 | 1 | 147 |
| 148 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0 \bar{B}^0, B^0 \rightarrow \rho^0 \pi^+ \pi^+ \rho^- D^-, \bar{B}^0 \rightarrow D_s^{*-} D_1^+, \rho^0 \rightarrow \pi^+ \pi^-,$ $\rho^- \rightarrow \pi^0 \pi^-, D^- \rightarrow \mu^- \bar{\nu}_\mu K^0, D_s^{*-} \rightarrow D_s^- \gamma, D_1^+ \rightarrow \pi^+ D^{*0}, K^0 \rightarrow K_S,$ $D_s^- \rightarrow \pi^+ \pi^- K_S K^-, D^{*0} \rightarrow D^0 \gamma, K_S \rightarrow \pi^+ \pi^-, K_S \rightarrow \pi^+ \pi^-, D^0 \rightarrow \pi^+ \omega K^-,$ $\omega \rightarrow \pi^0 \pi^+ \pi^-$ $(e^+e^- \rightarrow \mu^- \bar{\nu}_\mu \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- K^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$ | 147 | 146 | 1 | 0 | 1 | 148 |

| index | event tree (event initial-final states) | iEvtTr | iEvtIFSts | nEvts | nCcEvts | nTotEvts | nCmltEvts |
|-------|--|--------|-----------|-------|---------|----------|-----------|
| 149 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \pi^0\rho^0\pi^+D^-, \bar{B}^0 \rightarrow \pi^+\pi^-\pi^-D^+, \rho^0 \rightarrow \pi^+\pi^-,$ $D^- \rightarrow \pi^-K_1^{\prime 0}, D^+ \rightarrow K_S a_1^+, K_1^{\prime 0} \rightarrow \pi^-K^{*+}, K_S \rightarrow \pi^+\pi^-, a_1^+ \rightarrow \pi^0\rho^+,$ $K^{*+} \rightarrow \pi^0K^+, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \rightarrow \pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^+\gamma\gamma\gamma\gamma\gamma\gamma\gamma)$ | 148 | 147 | 1 | 0 | 1 | 149 |
| 150 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \tau^+\nu_\tau D_0^{*-}, \bar{B}^0 \rightarrow \pi^0\omega K^*K^-D^+, \tau^+ \rightarrow \mu^+\nu_\mu\bar{\nu}_\tau,$ $D_0^{*-} \rightarrow \pi^-\bar{D}^0, \omega \rightarrow \pi^0\pi^+\pi^-, K^* \rightarrow \pi^0K^0, D^+ \rightarrow \pi^+\pi^+K^-, \bar{D}^0 \rightarrow \pi^0\pi^-K^+,$ $K^0 \rightarrow K_L$ $(e^+e^- \rightarrow \mu^+\nu_\mu\bar{\nu}_\tau K_L\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma)$ | 149 | 148 | 1 | 0 | 1 | 150 |
| 151 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow e^+\nu_e\pi^+\pi^-\bar{D}^{*-}, \bar{B}^0 \rightarrow e^-\bar{\nu}_eD^{*+}, \bar{D}^{*-} \rightarrow \pi^-\bar{D}^0,$ $D^{*+} \rightarrow \pi^0D^+, \bar{D}^0 \rightarrow \pi^-K^+, D^+ \rightarrow \mu^+\nu_\mu\pi^+K^-$ $(e^+e^- \rightarrow e^+e^-\nu_e\bar{\nu}_e\mu^+\nu_\mu\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma\gamma)$ | 150 | 149 | 1 | 0 | 1 | 151 |
| 152 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \rho^0\bar{D}^{*-}\bar{\Sigma}^0\Sigma^+, \bar{B}^0 \rightarrow \eta\bar{K}^0J/\psi, \rho^0 \rightarrow \pi^+\pi^-,$ $\bar{D}^{*-} \rightarrow \pi^0D^-, \bar{\Sigma}^0 \rightarrow \bar{\Lambda}\gamma, \Sigma^+ \rightarrow \pi^+n, \eta \rightarrow \pi^0\pi^0\pi^0, \bar{K}^0 \rightarrow K_L,$ $J/\psi \rightarrow \pi^-\eta K_S K^+, D^- \rightarrow \mu^-\bar{\nu}_\mu K^0, \bar{\Lambda} \rightarrow \pi^+\bar{p}, K_L \rightarrow e^-\nu_e\pi^+, \eta \rightarrow \pi^0\pi^+\pi^-,$ $K_S \rightarrow \pi^+\pi^-, K^0 \rightarrow K_S, K_S \rightarrow \pi^0\pi^0$ $(e^+e^- \rightarrow e^-\nu_e\mu^-\bar{\nu}_\mu\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^+n\bar{p}\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma)$ | 151 | 150 | 1 | 0 | 1 | 152 |
| 153 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \rho^0\rho^0\rho^0\rho^+\bar{D}^{*-}, \bar{B}^0 \rightarrow e^-\bar{\nu}_eD^{*+}, \rho^0 \rightarrow \pi^+\pi^-,$ $\rho^0 \rightarrow \pi^+\pi^-, \rho^0 \rightarrow \pi^+\pi^-, \rho^+ \rightarrow \pi^0\pi^+, \bar{D}^{*-} \rightarrow \pi^-\bar{D}^0, D^{*+} \rightarrow D^+\gamma,$ $\bar{D}^0 \rightarrow \rho^-K^{*+}, D^+ \rightarrow K_S K^{*+}, \rho^- \rightarrow \pi^0\pi^-, K^{*+} \rightarrow \pi^0K^+, K_S \rightarrow \pi^+\pi^-,$ $K^{*+} \rightarrow \pi^+K^0, K^0 \rightarrow K_L, K_L \rightarrow \mu^-\nu_\mu\pi^+$ $(e^+e^- \rightarrow e^-\bar{\nu}_e\mu^-\nu_\mu\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-K^+\gamma\gamma\gamma\gamma\gamma\gamma\gamma)$ | 152 | 151 | 1 | 0 | 1 | 153 |
| 154 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow K^{*+}D^-, \bar{B}^0 \rightarrow \pi^+K^-\chi_{c1}, K^{*+} \rightarrow \pi^0K^+,$ $D^- \rightarrow \pi^-K_1^{\prime 0}, \chi_{c1} \rightarrow \pi^-\eta\eta\bar{K}^0K^+, K_1^{\prime 0} \rightarrow \pi^-K^{*+}, \eta \rightarrow \gamma\gamma, \eta \rightarrow \pi^0\pi^0\pi^0,$ $\bar{K}^0 \rightarrow K_S, K^{*+} \rightarrow \pi^0K^+, K_S \rightarrow \pi^+\pi^-$ $(e^+e^- \rightarrow \pi^+\pi^+\pi^-\pi^-\pi^-K^+K^+K^+K^+K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma)$ | 153 | 152 | 1 | 0 | 1 | 154 |
| 155 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow K^{*+}D^-D^0, \bar{B}^0 \rightarrow e^-\bar{\nu}_eD_2^{*+}, K^{*+} \rightarrow \pi^0K^+,$ $D^- \rightarrow \pi^0\pi^-K_S, D^0 \rightarrow \pi^0\pi^0\pi^+\pi^-, D_2^{*+} \rightarrow \pi^+D^0, K_S \rightarrow \pi^+\pi^-, D^0 \rightarrow \pi^0\pi^+K^{*-},$ $K^{*-} \rightarrow \pi^0K^-$ $(e^+e^- \rightarrow e^-\bar{\nu}_e\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma)$ | 154 | 153 | 1 | 0 | 1 | 155 |
| 156 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \rho^+D^-, \bar{B}^0 \rightarrow \pi^-\pi^-\rho^+D^{*+}, \rho^+ \rightarrow \pi^0\pi^+,$ $D^- \rightarrow \rho^-K^*, \rho^+ \rightarrow \pi^0\pi^+, D^{*+} \rightarrow \pi^+D^0, \rho^- \rightarrow \pi^0\pi^-, K^* \rightarrow \pi^-K^+,$ $D^0 \rightarrow \pi^0\pi^0\bar{K}^*, \bar{K}^* \rightarrow \pi^+K^-$ $(e^+e^- \rightarrow \pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-K^+K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma)$ | 155 | 154 | 1 | 0 | 1 | 156 |
| 157 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow e^+\nu_e\bar{D}^{*-}, \bar{B}^0 \rightarrow \pi^0\rho^0\rho^-D^{*+}\gamma, \bar{D}^{*-} \rightarrow \pi^-\bar{D}^0,$ $\rho^0 \rightarrow \pi^+\pi^-, \rho^- \rightarrow \pi^0\pi^-, D^{*+} \rightarrow \pi^+D^0, \bar{D}^0 \rightarrow \pi^0\pi^-K^+, D^0 \rightarrow e^+\nu_e\rho^-,$ $\rho^- \rightarrow \pi^0\pi^-$ $(e^+e^- \rightarrow e^+e^+\nu_e\nu_e\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-K^+\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma)$ | 156 | 155 | 1 | 0 | 1 | 157 |

| index | event tree (event initial-final states) | iEvtTr | iEvtIFSts | nEvts | nCcEvts | nTotEvts | nCmltEvts |
|-------|--|--------|-----------|-------|---------|----------|-----------|
| 167 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \rho^-p\bar{\Sigma}_c^0, \bar{B}^0 \rightarrow \tau^-\bar{\nu}_\tau D^{*+}, \rho^- \rightarrow \pi^0\pi^-,$ $\bar{\Sigma}_c^0 \rightarrow \pi^+\bar{\Lambda}_c^-, \tau^- \rightarrow \nu_\tau\pi^0\pi^-, D^{*+} \rightarrow \pi^+D^0, \bar{\Lambda}_c^- \rightarrow \pi^-\eta\bar{\Lambda}, D^0 \rightarrow K_S\phi,$ $\eta \rightarrow e^+e^-, \bar{\Lambda} \rightarrow \pi^0\bar{n}, K_S \rightarrow \pi^+\pi^-, \phi \rightarrow K^+K^-$ $(e^+e^- \rightarrow e^+e^-\nu_\tau\bar{\nu}_\tau\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^+K^+K^-\bar{n}p\gamma\gamma\gamma\gamma\gamma)$ | 166 | 165 | 1 | 0 | 1 | 167 |
| 168 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow \bar{B}^0\bar{B}^0, \bar{B}^0 \rightarrow \pi^+K^{*-}J/\psi, \bar{B}^0 \rightarrow \bar{K}^0\bar{D}^{*0}\bar{D}^{*0}, K^{*-} \rightarrow \pi^-K^0,$ $J/\psi \rightarrow K^*\bar{K}^*\gamma, \bar{K}^0 \rightarrow K_L, D^{*0} \rightarrow D^0\gamma, \bar{D}^{*0} \rightarrow \bar{D}^0\gamma, \bar{K}^0 \rightarrow K_L,$ $K^* \rightarrow \pi^-K^+, \bar{K}^* \rightarrow \pi^+K^-, D^0 \rightarrow \pi^0\pi^+K^-, \bar{D}^0 \rightarrow \pi^0\pi^+\pi^-K^*, K^* \rightarrow \pi^-K^+$ $(e^+e^- \rightarrow K_LK_L\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^+K^+K^+K^-K^-\gamma\gamma\gamma\gamma\gamma\gamma)$ | 167 | 166 | 1 | 0 | 1 | 168 |
| 169 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \pi^-K^{*+}D^0\bar{D}^{*0}, \bar{B}^0 \rightarrow \pi^0\pi^+\pi^-\pi^-D^{*+}, K^{*+} \rightarrow \pi^+K^0,$ $D^0 \rightarrow K^-a_1^+, \bar{D}^{*0} \rightarrow \pi^0\bar{D}^0, D^{*+} \rightarrow \pi^+D^0, K^0 \rightarrow K_S, a_1^+ \rightarrow \pi^+\pi^+\pi^-,$ $\bar{D}^0 \rightarrow \rho^-K^{*+}, D^0 \rightarrow \pi^+K^-, K_S \rightarrow \pi^+\pi^-, \rho^- \rightarrow \pi^0\pi^-, K^{*+} \rightarrow \pi^0K^+$ $(e^+e^- \rightarrow \pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-\pi^+K^+K^-K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma)$ | 168 | 167 | 1 | 0 | 1 | 169 |
| 170 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \mu^+\nu_\mu D^-, \bar{B}^0 \rightarrow \pi^+\pi^+\pi^-\pi^-\pi^-\eta K^+K^+D_s^{*-}, D^- \rightarrow \mu^-\bar{\nu}_\mu K^0,$ $\eta \rightarrow \pi^0\pi^+\pi^-, D_s^{*-} \rightarrow D_s^-\gamma, K^0 \rightarrow K_L, D_s^- \rightarrow \pi^0\pi^+\pi^+\pi^-\pi^-\pi^-$ $(e^+e^- \rightarrow \mu^+\mu^-\nu_\mu\bar{\nu}_\mu K_L\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-\pi^+K^+K^+\gamma\gamma\gamma\gamma\gamma)$ | 169 | 168 | 1 | 0 | 1 | 170 |
| 171 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \pi^0\bar{K}^0D^-\Delta^0\Sigma^+, \bar{B}^0 \rightarrow \pi^0\pi^+\pi^+\pi^-\rho^-\bar{D}^0, \bar{K}^0 \rightarrow K_L,$ $D^- \rightarrow \pi^0\pi^-K_S, \Delta^0 \rightarrow \pi^0n, \bar{\Sigma}^+ \rightarrow \pi^+\bar{n}, \rho^- \rightarrow \pi^0\pi^-, \bar{D}^0 \rightarrow \pi^- \rho^+,$ $K_S \rightarrow \pi^0\pi^0, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \rightarrow K_L\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-\pi^+K^+K^+\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma)$ | 170 | 169 | 1 | 0 | 1 | 171 |
| 172 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \mu^+\nu_\mu \bar{D}^{*-}, \bar{B}^0 \rightarrow \pi^+\rho^-\rho^-\omega D^{*+}, \bar{D}^{*-} \rightarrow \pi^-\bar{D}^0,$ $\rho^- \rightarrow \pi^0\pi^-, \rho^- \rightarrow \pi^0\pi^-, \omega \rightarrow \pi^0\pi^+\pi^-, D^{*+} \rightarrow \pi^0D^+, \bar{D}^0 \rightarrow \pi^0\pi^+\pi^-K_S,$ $D^+ \rightarrow K_S K^{*+}, K_S \rightarrow \pi^+\pi^-, K_S \rightarrow \pi^0\pi^0, K^{*+} \rightarrow \pi^0K^+$ $(e^+e^- \rightarrow \mu^+\nu_\mu\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-\pi^+K^+\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma)$ | 171 | 170 | 1 | 0 | 1 | 172 |
| 173 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \bar{D}^{*-}D_{s1}^+, \bar{B}^0 \rightarrow \pi^0\pi^+\pi^+K^-D^-, \bar{D}^{*-} \rightarrow \pi^-\bar{D}^0,$ $D_{s1}^+ \rightarrow \pi^0D_s^{*+}, D^- \rightarrow K_S K^{*-}, \bar{D}^0 \rightarrow \omega K_S, D_s^{*+} \rightarrow D_s^+\gamma, K_S \rightarrow \pi^0\pi^0,$ $K^{*-} \rightarrow \pi^-\bar{K}^0, \omega \rightarrow \pi^0\pi^+\pi^-, K_S \rightarrow \pi^+\pi^-, D_s^+ \rightarrow \rho^+\phi, \bar{K}^0 \rightarrow K_S,$ $\rho^+ \rightarrow \pi^0\pi^+, \phi \rightarrow K^+K^-, K_S \rightarrow \pi^0\pi^0$ $(e^+e^- \rightarrow \pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-\pi^+K^+K^-K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma)$ | 172 | 171 | 1 | 0 | 1 | 173 |
| 174 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow K^*D^-D^{*+}, \bar{B}^0 \rightarrow \rho^0\rho^-\eta D^{*+}, K^* \rightarrow \pi^-K^+,$ $D^- \rightarrow \mu^-\bar{\nu}_\mu K^0, D^{*+} \rightarrow \pi^+D^0, \rho^0 \rightarrow \pi^+\pi^-, \rho^- \rightarrow \pi^0\pi^-, \eta \rightarrow \pi^0\pi^+\pi^-,$ $D^{*+} \rightarrow \pi^+D^0, K^0 \rightarrow K_S, D^0 \rightarrow K^-a_1^+, D^0 \rightarrow \pi^0\rho^+K^-, K_S \rightarrow \pi^+\pi^-,$ $a_1^+ \rightarrow \pi^0\rho^+, \rho^+ \rightarrow \pi^0\pi^+, \rho^+ \rightarrow \pi^0\pi^+$ $(e^+e^- \rightarrow \mu^-\bar{\nu}_\mu\pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-\pi^-\pi^+K^+K^-K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma)$ | 173 | 172 | 1 | 0 | 1 | 174 |
| 175 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow \bar{B}^0\bar{B}^0, \bar{B}^0 \rightarrow \rho^-\omega D^+\gamma, \bar{B}^0 \rightarrow \pi^0\pi^0\pi^+K^0K^0K^-K^-D^{*+}, \rho^- \rightarrow \pi^0\pi^-,$ $\omega \rightarrow \pi^0\pi^+\pi^-, D^+ \rightarrow \pi^0\pi^+\bar{K}^*, K^0 \rightarrow K_L, K^0 \rightarrow K_L, D^{*+} \rightarrow \pi^+D^0,$ $\bar{K}^* \rightarrow \pi^+K^-, D^0 \rightarrow \pi^+\pi^+\pi^-\pi^-$ $(e^+e^- \rightarrow K_LK_L\pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-\pi^+K^-K^-K^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma)$ | 174 | 173 | 1 | 0 | 1 | 175 |

| index | event tree (event initial-final states) | iEvtTr | iEvtIFSts | nEvts | nCcEvts | nTotEvts | nCmltEvts |
|-------|---|--------|-----------|-------|---------|----------|-----------|
| 195 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow J/\psi K_1^0, \bar{B}^0 \rightarrow \pi^0 D^+ D_s^{*-}, J/\psi \rightarrow \pi^0 \eta \eta,$ $K_1^0 \rightarrow \pi^+ \pi^- K^0, D^+ \rightarrow e^+ \nu_e K^0, D_s^{*-} \rightarrow D_s^- \gamma, \eta \rightarrow \gamma \gamma, \eta \rightarrow \gamma \gamma,$ $K^0 \rightarrow K_S, \bar{K}^0 \rightarrow K_S, D_s^- \rightarrow \rho^- \eta, K_S \rightarrow \pi^0 \pi^0, K_S \rightarrow \pi^+ \pi^-,$ $\rho^- \rightarrow \pi^0 \pi^-, \eta \rightarrow \pi^0 \pi^0 \pi^0$ $(e^+e^- \rightarrow e^+ \nu_e \pi^+ \pi^+ \pi^- \pi^- \pi^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$ | 194 | 193 | 1 | 0 | 1 | 195 |
| 196 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow K^* D^+ D^-, B^0 \rightarrow \bar{D}^{*-} \Delta^- \Delta^0, K^* \rightarrow \pi^0 K^0,$ $D^+ \rightarrow \pi^+ \bar{K}_1^{\prime 0}, D^- \rightarrow e^- \bar{\nu}_e K_2^{*0}, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, \bar{\Delta}^- \rightarrow \pi^+ \bar{n}, \Delta^0 \rightarrow \pi^0 n,$ $K^0 \rightarrow K_L, \bar{K}_1^{\prime 0} \rightarrow \pi^+ K^{*-}, K_2^{*0} \rightarrow \pi^0 K^0, \bar{D}^0 \rightarrow e^- \bar{\nu}_e \pi^+ K^0, K^{*-} \rightarrow \pi^0 K^-,$ $K^0 \rightarrow K_S, K^0 \rightarrow K_L, K_S \rightarrow \pi^+ \pi^-$ $(e^+e^- \rightarrow e^- e^- \bar{\nu}_e \bar{\nu}_e K_L K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- K^- n \bar{n} \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$ | 195 | 194 | 1 | 0 | 1 | 196 |
| 197 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \pi^0 \pi^- \eta \bar{D}^{*0} D_s^{*+}, \bar{B}^0 \rightarrow D^{*0} \Delta^0 \bar{\Delta}^0, \eta \rightarrow \gamma \gamma,$ $\bar{D}^{*0} \rightarrow \bar{D}^0 \gamma, D_s^{*+} \rightarrow D_s^+ \gamma, D^{*0} \rightarrow \pi^0 D^0, \Delta^0 \rightarrow \pi^0 n, \bar{\Delta}^0 \rightarrow \pi^0 \bar{n},$ $\bar{D}^0 \rightarrow \pi^0 \pi^- K^+, D_s^+ \rightarrow \mu^+ \nu_\mu, D^0 \rightarrow e^+ \nu_e \pi^- \bar{K}^0, \pi^0 \rightarrow e^+ e^-, \bar{K}^0 \rightarrow K_S,$ $K_S \rightarrow \pi^0 \pi^0$ $(e^+e^- \rightarrow e^+ e^+ e^- \nu_e \mu^+ \nu_\mu \pi^- \pi^- \pi^- K^+ n \bar{n} \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$ | 196 | 195 | 1 | 0 | 1 | 197 |
| 198 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \rho^0 \pi^+ \omega \bar{D}^{*-}, \bar{B}^0 \rightarrow D^0 n \bar{n}, \rho^0 \rightarrow \pi^+ \pi^-,$ $\omega \rightarrow \pi^0 \pi^+ \pi^-, \bar{D}^{*-} \rightarrow \pi^- \bar{D}^0, D^0 \rightarrow K_L \eta, \bar{D}^0 \rightarrow \pi^0 \pi^- K^+, \eta \rightarrow \gamma \gamma$ $(e^+e^- \rightarrow K_L \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ n \bar{n} \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$ | 197 | 196 | 1 | 0 | 1 | 198 |
| 199 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \mu^+ \nu_\mu \bar{D}^{*-}, B^0 \rightarrow \rho^0 \pi^+ \pi^- \rho^+ \omega \bar{D}^{*-}, \bar{D}^{*-} \rightarrow \pi^0 D^-,$ $\rho^0 \rightarrow \pi^+ \pi^-, \rho^+ \rightarrow \pi^0 \pi^+, \omega \rightarrow \pi^0 \pi^+ \pi^-, \bar{D}^{*-} \rightarrow \pi^0 D^-, D^- \rightarrow e^- \bar{\nu}_e \pi^- K^+,$ $D^- \rightarrow \pi^0 \pi^- K^*, K^* \rightarrow \pi^- K^+$ $(e^+e^- \rightarrow e^- \bar{\nu}_e \mu^+ \nu_\mu \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- K^+ K^+ \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma)$ | 198 | 197 | 1 | 0 | 1 | 199 |
| 200 | $e^+e^- \rightarrow \Upsilon(4S), \Upsilon(4S) \rightarrow B^0\bar{B}^0, B^0 \rightarrow \pi^+ \pi^+ \pi^+ \pi^- \pi^- D^-, \bar{B}^0 \rightarrow e^- \bar{\nu}_e \pi^+ D^0, D^- \rightarrow \mu^- \bar{\nu}_\mu K_1^0,$ $D^0 \rightarrow \pi^+ \pi^- K_S, K_1^0 \rightarrow \pi^+ \pi^- K^0, K_S \rightarrow \pi^+ \pi^-, K^0 \rightarrow K_S, K_S \rightarrow \pi^+ \pi^-$ $(e^+e^- \rightarrow e^- \bar{\nu}_e \mu^- \bar{\nu}_\mu \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^-)$ | 199 | 198 | 1 | 0 | 1 | 200 |

Table 2: Event initial-final states.

[illegible]

| index | event initial-final states | iEvtIFSts | nEvts | nCcEvts | nTotEvts | nCmltEvts |
|-------|---|-----------|-------|---------|----------|-----------|
| 81 | $e^+e^- \rightarrow \mu^- \bar{\nu}_\mu \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ K^- K^- \gamma \gamma \gamma \gamma$ | 80 | 1 | 0 | 1 | 82 |
| 82 | $e^+e^- \rightarrow \mu^- \bar{\nu}_\mu \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- K^+ K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma$ | 81 | 1 | 0 | 1 | 83 |
| 83 | $e^+e^- \rightarrow \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ K^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma$ | 82 | 1 | 0 | 1 | 84 |
| 84 | $e^+e^- \rightarrow e^- \bar{\nu}_e \mu^+ \nu_\mu K_L \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma$ | 83 | 1 | 0 | 1 | 85 |
| 85 | $e^+e^- \rightarrow e^- e^- \bar{\nu}_e \nu_e \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ K^+ K^- \bar{n} p \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma$ | 84 | 1 | 0 | 1 | 86 |
| 86 | $e^+e^- \rightarrow e^- \bar{\nu}_e \mu^- \bar{\nu}_\mu K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- K^+ \gamma \gamma \gamma \gamma$ | 85 | 1 | 0 | 1 | 87 |
| 87 | $e^+e^- \rightarrow \mu^+ \nu_\mu \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- K^+ K^- \gamma \gamma \gamma \gamma \gamma$ | 86 | 1 | 0 | 1 | 88 |
| 88 | $e^+e^- \rightarrow \mu^- \bar{\nu}_\mu \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- K^+ K^- p \bar{p} \gamma \gamma$ | 87 | 1 | 0 | 1 | 89 |
| 89 | $e^+e^- \rightarrow \mu^+ \nu_\mu \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ \bar{n} p f_0(600) \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma$ | 88 | 1 | 0 | 1 | 90 |
| 90 | $e^+e^- \rightarrow \mu^- \mu^- \bar{\nu}_\mu \bar{\nu}_\mu \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- K^+ K^- \gamma \gamma \gamma \gamma \gamma$ | 89 | 1 | 0 | 1 | 91 |
| 91 | $e^+e^- \rightarrow e^+ e^+ e^- e^- \pi^+ \pi^+ \pi^- K^+ K^- n \bar{p} \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma$ | 90 | 1 | 0 | 1 | 92 |
| 92 | $e^+e^- \rightarrow \mu^+ \mu^- \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- K^- f_0(600) \gamma \gamma \gamma \gamma \gamma \gamma \gamma$ | 91 | 1 | 0 | 1 | 93 |
| 93 | $e^+e^- \rightarrow K_L K_L \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ f_0(600) \gamma \gamma$ | 92 | 1 | 0 | 1 | 94 |
| 94 | $e^+e^- \rightarrow e^+ e^- \mu^+ \nu_\mu \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ K^- K^- \gamma \gamma \gamma \gamma \gamma$ | 93 | 1 | 0 | 1 | 95 |
| 95 | $e^+e^- \rightarrow e^+ e^- \nu_e \bar{\nu}_e \pi^+ \pi^+ \pi^- \pi^- K^+ K^- f_0(600) \gamma \gamma$ | 94 | 1 | — | 1 | 96 |
| 96 | $e^+e^- \rightarrow K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- K^+ n \bar{p} \gamma \gamma \gamma \gamma \gamma$ | 95 | 1 | 0 | 1 | 97 |
| 97 | $e^+e^- \rightarrow e^- \bar{\nu}_e \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- K^+ \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma$ | 96 | 1 | 0 | 1 | 98 |
| 98 | $e^+e^- \rightarrow K_L K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- K^+ \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma$ | 97 | 1 | 0 | 1 | 99 |
| 99 | $e^+e^- \rightarrow \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma$ | 98 | 1 | 0 | 1 | 100 |
| 100 | $e^+e^- \rightarrow e^+ e^+ e^- \nu_e \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma$ | 99 | 1 | 0 | 1 | 101 |
| 101 | $e^+e^- \rightarrow e^- \bar{\nu}_e \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- K^+ \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma$ | 100 | 1 | 0 | 1 | 102 |
| 102 | $e^+e^- \rightarrow \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma$ | 101 | 1 | — | 1 | 103 |
| 103 | $e^+e^- \rightarrow \mu^+ \nu_\mu \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma$ | 102 | 1 | 0 | 1 | 104 |
| 104 | $e^+e^- \rightarrow e^- \bar{\nu}_e \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \pi^- K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma$ | 103 | 1 | 0 | 1 | 105 |
| 105 | $e^+e^- \rightarrow e^- \bar{\nu}_e K_L \pi^+ \pi^+ \pi^+ \pi^- \pi^- K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma$ | 104 | 1 | 0 | 1 | 106 |
| 106 | $e^+e^- \rightarrow e^+ e^- \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- \gamma \gamma \gamma \gamma$ | 105 | 1 | — | 1 | 107 |
| 107 | $e^+e^- \rightarrow e^+ e^- \mu^- \nu_\mu \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- K^+ \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma$ | 106 | 1 | 0 | 1 | 108 |
| 108 | $e^+e^- \rightarrow \mu^- \bar{\nu}_\mu \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ \gamma \gamma \gamma \gamma \gamma \gamma \gamma$ | 107 | 1 | 0 | 1 | 109 |
| 109 | $e^+e^- \rightarrow K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^- p \bar{p} \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma$ | 108 | 1 | 0 | 1 | 110 |
| 110 | $e^+e^- \rightarrow \mu^- \bar{\nu}_\mu K_L \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- p \bar{p} \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma$ | 109 | 1 | 0 | 1 | 111 |
| 111 | $e^+e^- \rightarrow e^+ \nu_e \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma$ | 110 | 1 | 0 | 1 | 112 |
| 112 | $e^+e^- \rightarrow e^+ \nu_e \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ n \bar{n} \gamma \gamma \gamma \gamma \gamma$ | 111 | 1 | 0 | 1 | 113 |
| 113 | $e^+e^- \rightarrow K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- K^+ K^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma$ | 112 | 1 | 0 | 1 | 114 |
| 114 | $e^+e^- \rightarrow e^- \bar{\nu}_e K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma$ | 113 | 1 | 0 | 1 | 115 |
| 115 | $e^+e^- \rightarrow \mu^- \bar{\nu}_\mu \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma$ | 114 | 1 | 0 | 1 | 116 |
| 116 | $e^+e^- \rightarrow e^+ \nu_e K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- K^+ K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma$ | 115 | 1 | 0 | 1 | 117 |
| 117 | $e^+e^- \rightarrow e^+ \nu_e \pi^+ \pi^- \pi^- \pi^- K^+ K^+ K^- \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma$ | 116 | 1 | 0 | 1 | 118 |
| 118 | $e^+e^- \rightarrow e^- \bar{\nu}_e \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- K^+ K^+ \gamma \gamma \gamma \gamma \gamma \gamma \gamma \gamma$ | 117 | 1 | 0 | 1 | 119 |
| 119 | $e^+e^- \rightarrow \mu^- \bar{\nu}_\mu K_L \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^- \pi^- K^+ K^+ K^- \gamma \gamma$ | 118 | 1 | 0 | 1 | 120 |
| 120 | $e^+e^- \rightarrow e^- \bar{\nu}_e \mu^- \bar{\nu}_\mu K_L \pi^+ \pi^+ \pi^+ \pi^- K^- \gamma \gamma \gamma \gamma$ | 119 | 1 | 0 | 1 | 121 |

| index | event initial-final states | iEvtIFSts | nEvts | nCcEvts | nTotEvts | nCmltEvts |
|-------|--|-----------|-------|---------|----------|-----------|
| 121 | $e^+e^- \rightarrow \mu^+\nu_\mu K_L \pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^- K^+ \gamma\gamma\gamma\gamma\gamma$ | 120 | 1 | 0 | 1 | 122 |
| 122 | $e^+e^- \rightarrow e^-e^-\bar{\nu}_e\bar{\nu}_e\mu^+\nu_\mu\pi^+\pi^+\pi^- K^+K^- \gamma\gamma\gamma$ | 121 | 1 | 0 | 1 | 123 |
| 123 | $e^+e^- \rightarrow e^-\bar{\nu}_e\nu_\tau\bar{\nu}_\tau K_L \pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\gamma\gamma\gamma\gamma\gamma\gamma\gamma$ | 122 | 1 | 0 | 1 | 124 |
| 124 | $e^+e^- \rightarrow e^+e^-\mu^-\bar{\nu}_\mu K_L K_L \pi^+\pi^+\pi^-\pi^- K^+ \gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$ | 123 | 1 | 0 | 1 | 125 |
| 125 | $e^+e^- \rightarrow e^+\nu_e\mu^+\mu^-\nu_\mu\bar{\nu}_\mu\pi^+\pi^+\pi^-\pi^- K^- \gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$ | 124 | 1 | 0 | 1 | 126 |
| 126 | $e^+e^- \rightarrow e^+e^-\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^- K^+ \gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$ | 125 | 1 | 0 | 1 | 127 |
| 127 | $e^+e^- \rightarrow e^+e^-e^-\nu_e\bar{\nu}_e K_L \pi^+\pi^+\pi^+\pi^-\pi^- K^- K^- \gamma\gamma\gamma$ | 126 | 1 | 0 | 1 | 128 |
| 128 | $e^+e^- \rightarrow e^+e^-\nu_e\bar{\nu}_e\nu_\tau\bar{\nu}_\tau\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^- \gamma\gamma\gamma$ | 127 | 1 | — | 1 | 129 |
| 129 | $e^+e^- \rightarrow e^+e^-e^-\nu_e\nu_e\bar{\nu}_e\pi^+\pi^+\pi^-\pi^- K^+ \gamma\gamma\gamma\gamma\gamma\gamma\gamma$ | 128 | 1 | 0 | 1 | 130 |
| 130 | $e^+e^- \rightarrow K_L \pi^+\pi^+\pi^+\pi^-\pi^-\pi^- K^+ \gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$ | 129 | 1 | 0 | 1 | 131 |
| 131 | $e^+e^- \rightarrow e^+\nu_e\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^- K^- K^- \gamma\gamma\gamma$ | 130 | 1 | 0 | 1 | 132 |
| 132 | $e^+e^- \rightarrow e^+e^-\nu_e\bar{\nu}_e\mu^+\nu_\mu\pi^+\pi^-\pi^-\pi^- K^+K^+K^- \gamma\gamma$ | 131 | 1 | 0 | 1 | 133 |
| 133 | $e^+e^- \rightarrow \nu_\tau\bar{\nu}_\tau K_L K_L \pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^- \gamma\gamma\gamma\gamma\gamma\gamma\gamma$ | 132 | 1 | — | 1 | 134 |
| 134 | $e^+e^- \rightarrow \mu^-\bar{\nu}_\mu\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^- K^+K^- \gamma\gamma\gamma\gamma\gamma\gamma\gamma$ | 133 | 1 | 0 | 1 | 135 |
| 135 | $e^+e^- \rightarrow K_L \pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^- K^+K^+K^- f_0(600) \gamma\gamma\gamma$ | 134 | 1 | 0 | 1 | 136 |
| 136 | $e^+e^- \rightarrow e^+e^- K_L K_L \pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^- K^- \gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$ | 135 | 1 | 0 | 1 | 137 |
| 137 | $e^+e^- \rightarrow \pi^+\pi^+\pi^-\pi^- K^+K^- n\bar{n} \gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$ | 136 | 1 | — | 1 | 138 |
| 138 | $e^+e^- \rightarrow e^+\nu_e K_L \pi^+\pi^+\pi^-\pi^- K^+K^- p\bar{p} \gamma\gamma\gamma$ | 137 | 1 | 0 | 1 | 139 |
| 139 | $e^+e^- \rightarrow e^-\bar{\nu}_e\pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-\pi^- K^+K^+K^+ \gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$ | 138 | 1 | 0 | 1 | 140 |
| 140 | $e^+e^- \rightarrow e^-\bar{\nu}_e\mu^+\nu_\mu\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^- K^+ \gamma\gamma\gamma\gamma\gamma$ | 139 | 1 | 0 | 1 | 141 |
| 141 | $e^+e^- \rightarrow \mu^+\nu_\mu\pi^+\pi^+\pi^+\pi^-\pi^-\pi^- K^+K^+K^- K^- \gamma\gamma\gamma\gamma\gamma\gamma\gamma$ | 140 | 1 | 0 | 1 | 142 |
| 142 | $e^+e^- \rightarrow \pi^+\pi^+\pi^+\pi^+\pi^-\pi^- K^+K^- K^- K^- n\bar{n} \gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$ | 141 | 1 | 0 | 1 | 143 |
| 143 | $e^+e^- \rightarrow \mu^-\bar{\nu}_\mu\pi^+\pi^+\pi^+\pi^- K^+K^- K^- \gamma\gamma\gamma\gamma\gamma\gamma\gamma$ | 142 | 1 | 0 | 1 | 144 |
| 144 | $e^+e^- \rightarrow e^-\bar{\nu}_e K_L \pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^- \gamma\gamma\gamma\gamma\gamma$ | 143 | 1 | 0 | 1 | 145 |
| 145 | $e^+e^- \rightarrow K_L \pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^- K^- K^- \gamma\gamma\gamma\gamma$ | 144 | 1 | 0 | 1 | 146 |
| 146 | $e^+e^- \rightarrow K_L \pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^- K^- \gamma\gamma\gamma\gamma\gamma\gamma\gamma$ | 145 | 1 | 0 | 1 | 147 |
| 147 | $e^+e^- \rightarrow \mu^-\bar{\nu}_\mu\pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^- K^- K^- \gamma\gamma\gamma\gamma\gamma$ | 146 | 1 | 0 | 1 | 148 |
| 148 | $e^+e^- \rightarrow \pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^- K^+ \gamma\gamma\gamma\gamma\gamma\gamma\gamma$ | 147 | 1 | 0 | 1 | 149 |
| 149 | $e^+e^- \rightarrow \mu^+\nu_\mu\nu_\tau\bar{\nu}_\tau K_L \pi^+\pi^+\pi^+\pi^-\pi^-\pi^- K^+K^- K^- \gamma\gamma\gamma\gamma\gamma\gamma\gamma$ | 148 | 1 | 0 | 1 | 150 |
| 150 | $e^+e^- \rightarrow e^+e^-\nu_e\bar{\nu}_e\mu^+\nu_\mu\pi^+\pi^+\pi^-\pi^- K^+K^- \gamma\gamma$ | 149 | 1 | 0 | 1 | 151 |
| 151 | $e^+e^- \rightarrow e^-\nu_e\mu^-\bar{\nu}_\mu\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^- K^+ n\bar{p} \gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$ | 150 | 1 | 0 | 1 | 152 |
| 152 | $e^+e^- \rightarrow e^-\bar{\nu}_e\mu^+\nu_\mu\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^- K^+ \gamma\gamma\gamma\gamma\gamma\gamma\gamma$ | 151 | 1 | 0 | 1 | 153 |
| 153 | $e^+e^- \rightarrow \pi^+\pi^+\pi^+\pi^-\pi^-\pi^- K^+K^+K^+K^- \gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$ | 152 | 1 | 0 | 1 | 154 |
| 154 | $e^+e^- \rightarrow e^-\bar{\nu}_e\pi^+\pi^+\pi^+\pi^+\pi^-\pi^- K^+K^- \gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$ | 153 | 1 | 0 | 1 | 155 |
| 155 | $e^+e^- \rightarrow \pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^- K^+K^- \gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$ | 154 | 1 | — | 1 | 156 |
| 156 | $e^+e^- \rightarrow e^+e^+\nu_e\nu_e\pi^+\pi^+\pi^-\pi^-\pi^-\pi^- K^+ \gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma$ | 155 | 1 | 0 | 1 | 157 |
| 157 | $e^+e^- \rightarrow \mu^-\bar{\nu}_\mu\pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^- K^+K^+ \gamma\gamma\gamma\gamma\gamma\gamma\gamma$ | 156 | 1 | 0 | 1 | 158 |
| 158 | $e^+e^- \rightarrow e^-\bar{\nu}_e\mu^+\nu_\mu\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^- K^+ f_0(600) \gamma\gamma\gamma\gamma$ | 157 | 1 | 0 | 1 | 159 |
| 159 | $e^+e^- \rightarrow e^+e^-\nu_e\bar{\nu}_e\mu^+\nu_\mu\pi^+\pi^-\pi^- \gamma\gamma\gamma\gamma\gamma\gamma\gamma$ | 158 | 1 | 0 | 1 | 160 |
| 160 | $e^+e^- \rightarrow K_L \pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^- K^+K^+ K^- f_0(600) \gamma\gamma$ | 159 | 1 | 0 | 1 | 161 |

Table 3: Signal particles.

| index | signal particle | iSigP | nPs | nCcPs | nTotPs | nCmltPs |
|-------|-----------------|-------|-----|-------|--------|---------|
| 1 | π^+ | 3 | 824 | 841 | 1665 | 1665 |
| 2 | π^0 | 2 | 887 | — | 887 | 2552 |
| 3 | D^0 | 1 | 98 | 104 | 202 | 2754 |
| 4 | J/ψ | 0 | 8 | — | 8 | 2762 |