### 1 By process

#### 1.1 $HH \rightarrow HH$

#### 1.2 $HH \rightarrow HHH$

#### 1.3 $HH \rightarrow H\tau^+\tau^-$

#### 1.4 $HH \rightarrow Hb\bar{b}$

#### 1.5 $HH \rightarrow Ht\bar{t}$

		interf	erence		square			
	mod1	mod2	1 - mod2/mod1	mod1	mod2	$1 - \mathtt{mod}2/\mathtt{mod}1$		
ctp	$3.449 \cdot 10^{-5}$	$3.449 \cdot 10^{-5}$	0	$2.149 \cdot 10^{-5}$	$2.149 \cdot 10^{-5}$	0		
ctpI	$2.398 \cdot 10^{-5}$	$2.398 \cdot 10^{-5}$	0	$4.187 \cdot 10^{-5}$	$4.187\cdot10^{-5}$	0		
sm	0	0	0	$5.805 \cdot 10^{-6}$	$5.805 \cdot 10^{-6}$	0		
1.6	$HH \rightarrow Hzz$							

#### 1.7 $HH \to W^+W^-$

### 1.8 $HH \rightarrow W^+W^-\gamma$

#### $HH \to W^+ \bar{t} b$ 1.9

interference square 1 - mod2/mod11 - mod2/mod1mod2 mod1 mod1mod2

cbW	$-1.176 \cdot 10^{-6}$	$-1.176 \cdot 10^{-6}$	0	$1.346 \cdot 10^{-5}$	$1.346 \cdot 10^{-5}$	0
cbWI	$9.196 \cdot 10^{-7}$	$9.196 \cdot 10^{-7}$	0	$1.346 \cdot 10^{-5}$	$1.346 \cdot 10^{-5}$	0
cpQ3	$1.846 \cdot 10^{-5}$	$1.846 \cdot 10^{-5}$	0	$3.446 \cdot 10^{-5}$	$3.446 \cdot 10^{-5}$	0
cptbI	$-2.918 \cdot 10^{-7}$	$-2.918 \cdot 10^{-7}$	0	$2.402 \cdot 10^{-6}$	$2.402 \cdot 10^{-6}$	0
ctWI	$5.961 \cdot 10^{-6}$	$5.961 \cdot 10^{-6}$	0	$2.238 \cdot 10^{-6}$	$2.238 \cdot 10^{-6}$	0
ctp	$1.764 \cdot 10^{-5}$	$1.764 \cdot 10^{-5}$	0	$5.558 \cdot 10^{-6}$	$5.558 \cdot 10^{-6}$	0
ctpI	$7.674 \cdot 10^{-6}$	$7.674 \cdot 10^{-6}$	$1.303 \cdot 10^{-8}$	$9.878 \cdot 10^{-6}$	$9.878 \cdot 10^{-6}$	$1.012 \cdot 10^{-8}$
sm	0	0	0	0.0001377	0.0001377	0

## 1.10 $HH \rightarrow W^+ e^- \bar{\nu}_e$

			interference		square		
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	
sm	0	0	0	$1.145 \cdot 10^{-7}$	$1.145 \cdot 10^{-7}$	$8.734 \cdot 10^{-8}$	

## 1.11 $HH \rightarrow W^- u \bar{d}$

			interference	square		
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$
$\mathtt{sm}$	0	0	0	$1.107 \cdot 10^{-6}$	$1.107 \cdot 10^{-6}$	$9.033 \cdot 10^{-8}$

# **1.12** $HH \rightarrow z\bar{b}b$

		interfer	ence		square			
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$		
cbW	$2.367 \cdot 10^{-7}$	$2.367 \cdot 10^{-7}$	0	$5.43 \cdot 10^{-6}$	$5.43 \cdot 10^{-6}$	0		
cbWI	$-3.295 \cdot 10^{-8}$	$-3.295 \cdot 10^{-8}$	$3.035 \cdot 10^{-8}$	$5.422 \cdot 10^{-6}$	$5.422 \cdot 10^{-6}$	0		
cpQ3	$1.636 \cdot 10^{-6}$	$1.636 \cdot 10^{-6}$	0	$5.587 \cdot 10^{-6}$	$5.587 \cdot 10^{-6}$	0		

#### 1.13 $HH \rightarrow z\nu_e\bar{\nu}_e$

#### 1.14 $HH \rightarrow zc\bar{c}$

#### 1.15 $HH \rightarrow zd\bar{d}$

#### **1.16** $HH \rightarrow ze^{+}e^{-}$

## 1.17 $HH \rightarrow zt\bar{t}$

		interfer	ence	square			
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	
cpQM	$2.828 \cdot 10^{-5}$	$2.828 \cdot 10^{-5}$	0	$2.942 \cdot 10^{-5}$	$2.942 \cdot 10^{-5}$	0	
cpt	$-3.477 \cdot 10^{-5}$	$-3.477 \cdot 10^{-5}$	0	$2.752 \cdot 10^{-5}$	$2.752 \cdot 10^{-5}$	0	
ctWI	$-2.015 \cdot 10^{-13}$	0	1	$7.154 \cdot 10^{-18}$	0	1	
ctZ	$2.295 \cdot 10^{-6}$	$2.295 \cdot 10^{-6}$	$5.664 \cdot 10^{-7}$	$3.342 \cdot 10^{-5}$	$3.342 \cdot 10^{-5}$	$1.107 \cdot 10^{-6}$	
ctZI	$-6.854 \cdot 10^{-7}$	$-6.854 \cdot 10^{-7}$	$5.69 \cdot 10^{-7}$	$3.839 \cdot 10^{-5}$	$3.839 \cdot 10^{-5}$	$1.094 \cdot 10^{-6}$	
ctp	$5.436 \cdot 10^{-6}$	$5.436 \cdot 10^{-6}$	0	$3.137 \cdot 10^{-6}$	$3.137 \cdot 10^{-6}$	0	
ctpI	$4.373 \cdot 10^{-7}$	$4.373 \cdot 10^{-7}$	0	$3.224 \cdot 10^{-6}$	$3.224 \cdot 10^{-6}$	0	
sm	0	0	0	$1.378 \cdot 10^{-5}$	$1.378 \cdot 10^{-5}$	0	

## 1.18 $HH \rightarrow zz$

	interference				square			
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1 - \mathtt{mod}2/\mathtt{mod}1$		
sm	0	0	0	0.07641	0.07641	0		

## **1.19** $HW^+ \rightarrow \gamma t \bar{b}$

		interfer	ence		square			
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1 - \mathtt{mod}2/\mathtt{mod}1$		
cbW	$-2.009 \cdot 10^{-6}$	$-2.009 \cdot 10^{-6}$	0	$1.602 \cdot 10^{-5}$	$1.602 \cdot 10^{-5}$	$-6.243 \cdot 10^{-8}$		
cbWI	$2.122 \cdot 10^{-6}$	$2.122 \cdot 10^{-6}$	0	$1.602 \cdot 10^{-5}$	$1.602 \cdot 10^{-5}$	0		
cpQ3	$-1.286 \cdot 10^{-6}$	$-1.286 \cdot 10^{-6}$	0	$1.251 \cdot 10^{-6}$	$1.251 \cdot 10^{-6}$	0		
cptbI	$1.891 \cdot 10^{-10}$	$1.891 \cdot 10^{-10}$	0	$6.997 \cdot 10^{-8}$	$6.997 \cdot 10^{-8}$	$-1.429 \cdot 10^{-8}$		
ctWI	$1.159 \cdot 10^{-7}$	$1.159 \cdot 10^{-7}$	$9.488 \cdot 10^{-7}$	$1.202 \cdot 10^{-5}$	$1.202 \cdot 10^{-5}$	$1.248 \cdot 10^{-6}$		
ctZ	$2.574 \cdot 10^{-7}$	$2.574 \cdot 10^{-7}$	$5.829 \cdot 10^{-7}$	$4.429 \cdot 10^{-6}$	$4.429 \cdot 10^{-6}$	$1.129 \cdot 10^{-6}$		

ctZI	$3.144 \cdot 10^{-6}$	$3.144 \cdot 10^{-6}$	$5.725 \cdot 10^{-7}$	$1.44 \cdot 10^{-5}$	$1.44 \cdot 10^{-5}$	$1.111 \cdot 10^{-6}$
ctp	$2.134 \cdot 10^{-7}$	$2.134 \cdot 10^{-7}$	$-4.686 \cdot 10^{-8}$	$6.836 \cdot 10^{-8}$	$6.836 \cdot 10^{-8}$	$-1.463 \cdot 10^{-8}$
ctpI	$-5.57 \cdot 10^{-8}$	$-5.57 \cdot 10^{-8}$	$1.795 \cdot 10^{-8}$	$8.477 \cdot 10^{-8}$	$8.477 \cdot 10^{-8}$	$-1.18 \cdot 10^{-8}$
sm	0	0	0	$1.849 \cdot 10^{-7}$	$1.849 \cdot 10^{-7}$	$-5.407 \cdot 10^{-8}$

# 1.20 $HW^+ \rightarrow \gamma u \bar{d}$

			interference	square		
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	$\mathtt{mod1} \hspace{1cm} \mathtt{mod2} \hspace{1cm} 1-\mathtt{mod2}$	2/mod1	
sm	0	0	0	$7.647 \cdot 10^{-9}  7.647 \cdot 10^{-9}  0$		

# $1.21 \quad HW^+ \to u\bar{d}$

	interference				square			
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$		
sm	0	0	0	0.02277	0.02277	0		

## 1.22 $HW^- \rightarrow \bar{t}b$

		interfer	ence	square			
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	
cbW	0.006283	0.006283	0	2.265	2.265	0	
cbWI	$1.361 \cdot 10^{-7}$	$1.361 \cdot 10^{-7}$	0	2.265	2.265	0	
cpQ3	-2.206	-2.206	0	1.533	1.533	0	
cptbI	$-8.736 \cdot 10^{-6}$	$-8.736 \cdot 10^{-6}$	$1.145 \cdot 10^{-8}$	0.4891	0.4891	0	
ctWI	$-7.623 \cdot 10^{-5}$	$-7.623 \cdot 10^{-5}$	0	2.25	2.25	0	
ctp	0.05386	0.05386	0	0.05057	0.05057	0	
ctpI	-0.001785	-0.001785	0	0.05654	0.05654	0	
sm	0	0	0	0.5399	0.5399	0	

## 1.23 $HW^- \rightarrow \gamma e^- \bar{\nu}_e$

			interference		square	
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	1 - mod2/mod1
sm	0	0	0	$1.453 \cdot 10^{-9}$	$1.453 \cdot 10^{-9}$	0

## 1.24 $HW^- \rightarrow \mu^- \bar{\nu}_{\mu}$

			interference		square		
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	
sm	0	0	0	0.005335	0.005335	0	

## **1.25** $H\gamma \rightarrow b\bar{b}$

		interfer	ence		square			
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	1 - mod2/mod1		
cbW	$-1.604 \cdot 10^{-5}$	$-1.604 \cdot 10^{-5}$	0	0.06302	0.06302	$-1.587 \cdot 10^{-8}$		
cbWI	$3.022 \cdot 10^{-20}$	$2.58 \cdot 10^{-20}$	0.1463	0.06302	0.06302	$-1.587 \cdot 10^{-8}$		
sm	0	0	0	0.0001188	0.0001188	0		

## 1.26 $H\gamma \rightarrow t\bar{t}$

	interference				square		
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	1 - mod2/mod1	
ctWI	$-5.388 \cdot 10^{-17}$	$-1.059 \cdot 10^{-16}$	-0.9653	13.48	13.48	$1.187 \cdot 10^{-6}$	
ctZ	2.148	2.148	$5.587 \cdot 10^{-7}$	3.645	3.645	$1.125 \cdot 10^{-6}$	
ctZI	$6.37 \cdot 10^{-17}$	$5.939 \cdot 10^{-17}$	0.06766	7.532	7.532	$1.115 \cdot 10^{-6}$	
ctp	-0.2224	-0.2224	$-4.496 \cdot 10^{-8}$	0.006825	0.006825	$-1.465 \cdot 10^{-8}$	

1.27  $Hz \to \mu^+ \mu^-$ 

1.28  $Hz \rightarrow \nu_{\tau} \bar{\nu}_{\tau}$ 

1.29  $Hz \rightarrow b\bar{b}$ 

		interfer	ence		square		
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	
cbW	0.001427	0.001427	0	1.456	1.456	0	
cbWI	$-2.213 \cdot 10^{-6}$	$-2.213 \cdot 10^{-6}$	0	1.456	1.456	0	
cpQ3	0.3385	0.3385	$2.954 \cdot 10^{-8}$	2.95	2.95	0	
cpQM	0.2229	0.2229	0	0.9693	0.9693	0	
$\mathtt{sm}$	0	0	0	0.007034	0.007034	$1.422 \cdot 10^{-8}$	

1.30  $Hz \rightarrow s\bar{s}$ 

#### 1.31 $Hz \rightarrow t\bar{t}$

	interference				square			
	mod1	mod2	$1-{\tt mod2/mod1}$	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$		
$\mathtt{cpQM}$	2.071	2.071	0	1.411	1.411	0		
cpt	-1.647	-1.647	0	0.3434	0.3434	0		
ctWI	$3.765 \cdot 10^{-10}$	0	1	$9.824 \cdot 10^{-13}$	0	1		
ctZ	-0.2343	-0.2343	$5.975 \cdot 10^{-7}$	1.269	1.269	$1.104 \cdot 10^{-6}$		
ctZI	0.0002323	0.0002323	$5.597 \cdot 10^{-7}$	3.583	3.583	$1.116 \cdot 10^{-6}$		
ctp	-0.1133	-0.1133	0	0.05226	0.05226	0		
$\mathtt{ctpI}$	-0.001293	-0.001293	0	0.05186	0.05186	0		
$\mathtt{sm}$	0	0	0	3.779	3.779	0		

#### 1.32 $Hz \rightarrow u\bar{u}$

#### 1.33 $W^+W^- \rightarrow Hb\bar{b}$

cpQ3	$-2.774 \cdot 10^{-6}$	$-2.774 \cdot 10^{-6}$	0	$1.167 \cdot 10^{-6}$	$1.167 \cdot 10^{-6}$	0
срQМ	$4.696 \cdot 10^{-6}$	$4.696 \cdot 10^{-6}$	0	$6.268 \cdot 10^{-7}$	$6.268 \cdot 10^{-7}$	$1.595 \cdot 10^{-8}$
cptbI	$1.671 \cdot 10^{-8}$	$1.671 \cdot 10^{-8}$	0	$9.133 \cdot 10^{-7}$	$9.133 \cdot 10^{-7}$	0
ctWI	$-1.795 \cdot 10^{-6}$	$-1.795 \cdot 10^{-6}$	0	$3.112 \cdot 10^{-6}$	$3.112 \cdot 10^{-6}$	0
ctp	$6.46 \cdot 10^{-7}$	$6.46 \cdot 10^{-7}$	0	$5.206 \cdot 10^{-8}$	$5.206 \cdot 10^{-8}$	0
ctpI	$6.059 \cdot 10^{-7}$	$6.059 \cdot 10^{-7}$	0	$3.262 \cdot 10^{-8}$	$3.262 \cdot 10^{-8}$	0
$\mathtt{sm}$	0	0	0	$9.787 \cdot 10^{-6}$	$9.787 \cdot 10^{-6}$	$1.022 \cdot 10^{-8}$

## 1.34 $W^+W^- \rightarrow Hc\bar{c}$

			interference		square	
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$
sm	0	0	0	$1.943 \cdot 10^{-7}$	$1.943 \cdot 10^{-7}$	$5.147 \cdot 10^{-8}$

## 1.35 $W^+W^- \rightarrow Hd\bar{d}$

			interference		square	
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$
sm	0	0	0	$1.342 \cdot 10^{-7}$ 1	$1.342 \cdot 10^{-7}$	0

## 1.36 $W^+W^- \rightarrow Ht\bar{t}$

		interfer	ence	square			
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	$\verb mod1  \qquad \verb mod2  \qquad 1-\verb mod2/mod1 $			
cbW	$3.122 \cdot 10^{-8}$	$3.122 \cdot 10^{-8}$	0	$1.047 \cdot 10^{-8}  1.047 \cdot 10^{-8}  0$			
cbWI	$-3.041 \cdot 10^{-8}$	$-3.041 \cdot 10^{-8}$	0	$1.051 \cdot 10^{-8}  1.051 \cdot 10^{-8}$			
cpQ3	$5.814 \cdot 10^{-6}$	$5.814 \cdot 10^{-6}$	0	$9.25 \cdot 10^{-6}$ $9.25 \cdot 10^{-6}$ 0			
срQМ	$-2.189 \cdot 10^{-6}$	$-2.189 \cdot 10^{-6}$	$4.567 \cdot 10^{-8}$	$2.031 \cdot 10^{-6}$ $2.031 \cdot 10^{-6}$ 0			

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2.176 \cdot 10^{-6}
                                        2.176 \cdot 10^{-6}
                                                                  0
                                                                                                   1.197 \cdot 10^{-6} 1.197 \cdot 10^{-6}
                                                                                                                                             8.352 \cdot 10^{-8}
cpt
                 -1.76 \cdot 10^{-7}
                                        -1.76 \cdot 10^{-7}
                                                                                                   2.899 \cdot 10^{-9}
                                                                                                                       2.899 \cdot 10^{-9}
                                                                                                                                                     0
                                                                       0
cptbI
                -1.866 \cdot 10^{-6} \quad -1.866 \cdot 10^{-6}
                                                               -1.072 \cdot 10^{-7}
                                                                                                    2.89 \cdot 10^{-5}
                                                                                                                        2.89 \cdot 10^{-5}
                                                                                                                                             -3.46 \cdot 10^{-8}
ctWI
                                                                3.601 \cdot 10^{-7}
                                                                                                                                             1.056 \cdot 10^{-6}
ctZ
                  2.777 \cdot 10^{-8}
                                        2.777 \cdot 10^{-8}
                                                                                                   1.704 \cdot 10^{-7} 1.704 \cdot 10^{-7}
                                        3.339 \cdot 10^{-8}
                                                                5.691 \cdot 10^{-7}
                                                                                                   1.215 \cdot 10^{-8} 1.215 \cdot 10^{-8}
                                                                                                                                              1.07 \cdot 10^{-6}
ctZI
                 3.339 \cdot 10^{-8}
                                      -4.895 \cdot 10^{-7} -2.043 \cdot 10^{-8}
                 -4.895 \cdot 10^{-7}
                                                                                                   5.607 \cdot 10^{-7}
                                                                                                                       5.607 \cdot 10^{-7}
                                                                                                                                                     0
ctp
                 1.101 \cdot 10^{-6}
                                        1.101 \cdot 10^{-6}
                                                                                                                       7.353 \cdot 10^{-7}
                                                                       0
                                                                                                   7.353 \cdot 10^{-7}
                                                                                                                                                     0
ctpI
                                                                                                   7.582 \cdot 10^{-5} 7.582 \cdot 10^{-5}
                                                                                                                                             1.319 \cdot 10^{-8}
                         0
                                               0
                                                                       0
sm
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#### 1.37 $W^+W^- \to W^+W^-$

#### 1.38 $W^+W^- \rightarrow \gamma\gamma$

#### 1.39 $W^+W^- \rightarrow \gamma\gamma\gamma$

## **1.40** $\bar{b}t \rightarrow \bar{d}u$

		interfer	ence		square		
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	
cQbqu1	0	0	0	0.25	0.25	$3.08 \cdot 10^{-6}$	
cQbqu1I	0	0	0	0.25	0.25	$3.04 \cdot 10^{-6}$	
cQbqu1T	0	0	0	23.58	0.8133	0.9655	
cQbqu1TI	0	0	0	7.161	1.851	0.7415	
cQbqu8	0	0	0	0.05556	0.05556	$3.06 \cdot 10^{-6}$	
cQbqu8I	0	0	0	0.05556	0.05556	$3.06 \cdot 10^{-6}$	
cQbqu8T	0	0	0	1.591	0.4114	0.7415	
cQbqu8TI	0	0	0	5.241	0.1807	0.9655	
cQq13	0.5693	0.5693	$1.756 \cdot 10^{-8}$	2.691	2.691	0	
cQq83	$4.888 \cdot 10^{-20}$	$-4.329 \cdot 10^{-19}$	9.856	0.02728	0.02728	0	
cQtqd1	0	0	0	0.25	0.25	$3.04 \cdot 10^{-6}$	
cQtqd1I	0	0	0	0.25	0.25	$3.08 \cdot 10^{-6}$	
cQtqd1T	0	0	0	11.6	1.879	0.838	
cQtqd1TI	0	0	0	28.66	1.879	0.9344	
cQtqd8	0	0	0	0.05556	0.05556	$3.06 \cdot 10^{-6}$	
cQtqd8I	0	0	0	0.05556	0.05556	$3.06 \cdot 10^{-6}$	
cQtqd8T	0	0	0	5.241	0.1807	0.9655	
cQtqd8TI	0	0	0	6.368	0.4176	0.9344	
cbQqd1	0	0	0	0.25	0.25	$3.12 \cdot 10^{-6}$	
cbQqd1I	0	0	0	0.25	0.25	$3.12 \cdot 10^{-6}$	
cbQqd8	0	0	0	0.05556	0.05556	$2.916 \cdot 10^{-6}$	
cbQqd8I	0	0	0	0.05556	0.05556	$2.916 \cdot 10^{-6}$	
cbW	0.0003719	0.0003719	0	0.007753	0.007753	0	
cbWI	$3.529 \cdot 10^{-20}$	$4.732 \cdot 10^{-20}$	-0.341	0.007753	0.007753	0	
cbtud1	0	0	0	0.6728	0.6728	$6.094 \cdot 10^{-6}$	
cbtud1I	0	0	0	0.03069	0.03069	$6.092 \cdot 10^{-6}$	

cbtud8	0	0	0	0.1555 $0.1555$	$5.916 \cdot 10^{-6}$
cbtud8I	0	0	0	$0.01984 \qquad 0.01984$	$5.948 \cdot 10^{-6}$
cpQ3	0.0004845	0.0004845	0	$1.469 \cdot 10^{-5}$ $1.469 \cdot 10^{-5}$	0
cptb	$-2.193 \cdot 10^{-6}$	$-2.193 \cdot 10^{-6}$	$4.559 \cdot 10^{-8}$	$2.896 \cdot 10^{-5}$ $2.896 \cdot 10^{-5}$	0
cptbI	$-4.226 \cdot 10^{-22}$	$1.438 \cdot 10^{-22}$	1.34	$1.301 \cdot 10^{-6}$ $1.301 \cdot 10^{-6}$	0
ctQqu1	0	0	0	0.25 $0.25$	$3.08 \cdot 10^{-6}$
ctQqu1I	0	0	0	0.25 $0.25$	$3.12 \cdot 10^{-6}$
ctQqu8	0	0	0	0.05556 $0.05556$	$2.916 \cdot 10^{-6}$
ctQqu8I	0	0	0	0.05556 $0.05556$	$2.934 \cdot 10^{-6}$
ctW	0.0027	0.0027	$3.704 \cdot 10^{-8}$	$0.007094 \qquad 0.007094$	0
ctWI	$1.299 \cdot 10^{-18}$	$-5.749 \cdot 10^{-18}$	5.425	$0.008208 \qquad 0.008208$	0
sm	0	0	0	$0.03132 \qquad 0.03132$	$3.193 \cdot 10^{-8}$

## $1.41 \quad \gamma W^+ \to z W^+$

### $\mathbf{1.42} \quad \mu^+\mu^- \rightarrow \tau^+\tau^-$

### 1.43 $\nu_{\tau}\bar{\nu}_{\tau} \rightarrow \nu_{\tau}\bar{\nu}_{\tau}$

 $mod1 \quad mod2 \quad 1 - mod2/mod1$ mod1 $mod2 \quad 1 - mod2/mod1$ 0 0  $0.2516 \quad 0.2516$ 0 0 sm1.44  $\nu_e \bar{\nu}_e \rightarrow \nu_\mu \bar{\nu}_\mu$ interference square  $mod1 \mod 2 \quad 1 - mod2/mod1$ mod1mod2 1 - mod2/mod10 0  $0.007594 \quad 0.007594$ sm0 0  $b\bar{b} \to \gamma \gamma$ 1.45interference square mod1mod21 - mod2/mod1mod2 1 - mod2/mod1mod1  $6.873 \cdot 10^{-6}$  $6.873 \cdot 10^{-6}$  $-2.91 \cdot 10^{-8}$  $-4.849 \cdot 10^{-8}$ 0.00061870.0006187cbW  $1.019 \cdot 10^{-23}$  $-1.787 \cdot 10^{-22}$ 18.54  $-3.233 \cdot 10^{-8}$ cbWI 0.00061860.00061860  $8.28 \cdot 10^{-5}$  $8.28 \cdot 10^{-5}$  $-3.623 \cdot 10^{-8}$ 0 0 sm $b\bar{b} \to \mu^+\mu^-$ 1.46interference square 1 - mod2/mod11 - mod2/mod1mod1 mod2mod1 mod2 -0.005186-0.005186 $-1.928 \cdot 10^{-8}$ 0.1188 0.1188 0 cQe2 0.02136 0.02136 0.11250 cQ1M2 0 0.1125

0.002113

0.002113

0.1667

0.1667

 $1.162 \cdot 10^{-5}$ 

0.002113

0.002113

0.1667

0.1667

 $1.162 \cdot 10^{-5}$ 

0

 $4.734 \cdot 10^{-8}$ 

0

0

0

 $2.254 \cdot 10^{-8}$ 

 $-5.603 \cdot 10^{-5}$ 

0

0

 $7.551 \cdot 10^{-8}$ 

 $4.436 \cdot 10^{-5}$ 

 $4.556 \cdot 10^{-16}$ 

0

0

0.0001324

cbW

cbWI

cpQ3

cblS2 cblSI2  $4.436 \cdot 10^{-5}$ 

 $4.557 \cdot 10^{-16}$ 

0

0

0.0001324

cpQM	$9.955 \cdot 10^{-5}$	$9.955 \cdot 10^{-5}$	$2.009 \cdot 10^{-8}$	$3.075 \cdot 10^{-6}  3.075 \cdot 10^{-6}$	0
$\mathtt{sm}$	0	0	0	$0.001274 \qquad 0.001274$	0

## 1.47 $b\bar{b} \rightarrow \nu_e \bar{\nu}_e$

		interfer	rence	square			
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	
cQlM1	-0.05912	-0.05912	0	0.2532	0.2532	0	
cbW	$1.775 \cdot 10^{-5}$	$1.775 \cdot 10^{-5}$	0	0.001927	0.001927	0	
cbWI	$8.919 \cdot 10^{-20}$	$-2.927 \cdot 10^{-21}$	1.033	0.001927	0.001927	0	
cpQ3	0.0009915	0.0009915	0	$7.12 \cdot 10^{-5}$	$7.12 \cdot 10^{-5}$	0	
cpQM	$7.357 \cdot 10^{-5}$	$7.357 \cdot 10^{-5}$	0	$2.642 \cdot 10^{-6}$	$2.642 \cdot 10^{-6}$	0	
sm	0	0	0	0.00374	0.00374	$2.674 \cdot 10^{-8}$	

# 1.48 $b\bar{b} \rightarrow b\bar{b}$

		interfer	rence		square			
	mod1	mod2	$1-{\tt mod2/mod1}$	mod1	mod2	$1-{\tt mod2/mod1}$		
cQQ1	-0.0232	-0.0232	0	0.135	0.135	0		
cQQ8	-0.7493	-0.7493	0	0.1567	0.1567	0		
cQb1	0.09413	0.09413	$-2.125 \cdot 10^{-8}$	2.149	2.149	0		
cbW	0.002395	0.002395	0	0.03118	0.03118	$3.207 \cdot 10^{-8}$		
cbWI	$2.191 \cdot 10^{-18}$	$-1.415 \cdot 10^{-18}$	1.646	0.03118	0.03118	0		
cpQ3	-0.1049	-0.1049	0	0.004872	0.004872	0		
cpQM	-0.002173	-0.002173	$4.602 \cdot 10^{-8}$	$2.545 \cdot 10^{-5}$	$2.545 \cdot 10^{-5}$	0		
sm	0	0	0	4.411	4.411	0		

## 1.49 $b\bar{b} \rightarrow d\bar{d}$

		interfer	rence		square			
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$		
cQd8	0.32	0.32	0	0.108	0.108	0		
cQq11	0.02068	0.02068	0	0.09445	0.09445	0		
cQq13	0.02068	0.02068	0	0.09445	0.09445	0		
cbQqd1	-0.01371	0	1	0.5	0.5	$3.1 \cdot 10^{-6}$		
cbQqd1I	$-4.396 \cdot 10^{-21}$	0	1	0.5	0.5	$3.1 \cdot 10^{-6}$		
cbQqd8	$6.094 \cdot 10^{-10}$	0	1	0.1111	0.1111	$2.97 \cdot 10^{-6}$		
cbQqd8I	$-9.416 \cdot 10^{-22}$	0	1	0.1111	0.1111	$2.97 \cdot 10^{-6}$		
cbW	$6.115 \cdot 10^{-5}$	$6.115 \cdot 10^{-5}$	$1.635 \cdot 10^{-8}$	0.005504	0.005504	$1.817 \cdot 10^{-8}$		
cbWI	$9.237 \cdot 10^{-18}$	$9.237 \cdot 10^{-18}$	$2.137 \cdot 10^{-5}$	0.005502	0.005502	0		
cpQ3	0.0003029	0.0003029	0	$2.17\cdot 10^{-5}$	$2.17\cdot 10^{-5}$	0		
cpQM	0.0001555	0.0001555	0	$5.551 \cdot 10^{-6}$	$5.551 \cdot 10^{-6}$	0		
sm	0	0	0	0.7495	0.7495	0		

## $1.50 \quad b\bar{b} \to t\bar{t}$

	interference			square
	mod1	mod2	$1-{\tt mod2/mod1}$	$\verb mod1  \qquad \verb mod2  \qquad 1-\verb mod2/mod1 $
cQQ1	-0.1676	-0.1676	0	$0.2824 \qquad 0.2824 \qquad 0$
cQQ8	0.03487	0.03487	$-2.868 \cdot 10^{-8}$	$0.02004 \qquad 0.02004 \qquad 0$
cQb1	-0.008725	-0.008725	$-1.146 \cdot 10^{-8}$	$0.4893 \qquad 0.4893 \qquad 0$
cQt1	-0.2334	-0.2334	0	$0.4893 \qquad 0.4893 \qquad 0$
cQtQb1	-0.009963	-0.009963	0	$0.6104 \qquad  0.6104 \qquad  0$
cQtQb8I	$1.273 \cdot 10^{-19}$	$-1.339 \cdot 10^{-19}$	2.053	0.09636 $0.09636$ $0$
cbW	0.005785	0.005785	0	$0.1088 \qquad 0.1088 \qquad 0$
cbWI	$-9.398 \cdot 10^{-19}$	$4.22 \cdot 10^{-19}$	1.449	$0.1088 \qquad 0.1088 \qquad 0$
cpQ3	0.000811	0.000811	$6.165 \cdot 10^{-8}$	$0.003994 \qquad 0.003994 \qquad 2.504 \cdot 10^{-8}$
cpQM	-0.0006553	-0.0006553	$-1.526 \cdot 10^{-8}$	$2.555 \cdot 10^{-6}$ $2.555 \cdot 10^{-6}$ $-7.826 \cdot 10^{-8}$

cpt	-0.001631	-0.001631	$6.132 \cdot 10^{-8}$	$2.532 \cdot 10^{-5}$	$2.532 \cdot 10^{-5}$	0
cptbI	$-9.22 \cdot 10^{-22}$	$-3.414 \cdot 10^{-21}$	-2.703	0.001593	0.001593	0
ctG	0.09253	0.09253	0	0.04447	0.04447	0
ctGI	$3.162 \cdot 10^{-18}$	$-9.667 \cdot 10^{-18}$	4.057	0.03502	0.03502	0
ctWI	$-8.45 \cdot 10^{-19}$	$-1.653 \cdot 10^{-19}$	0.8044	0.22	0.22	$4.545 \cdot 10^{-8}$
ctZ	0.005851	0.005851	$5.64 \cdot 10^{-7}$	0.004479	0.004479	$1.094 \cdot 10^{-6}$
ctZI	$-2.641 \cdot 10^{-19}$	$1.298 \cdot 10^{-18}$	5.913	0.004099	0.004099	$1.098 \cdot 10^{-6}$
ctb1	-0.005564	-0.005564	$-1.797 \cdot 10^{-8}$	0.09017	0.09017	0
ctp	$-1.31 \cdot 10^{-5}$	$-1.31 \cdot 10^{-5}$	0	$6.089 \cdot 10^{-7}$	$6.089 \cdot 10^{-7}$	0
ctpI	$-2.691 \cdot 10^{-21}$	$-2.368 \cdot 10^{-21}$	0.1202	$6.906 \cdot 10^{-7}$	$6.906 \cdot 10^{-7}$	0
sm	0	0	0	0.4884	0.4884	0

## 1.51 $b\bar{b} \rightarrow u\bar{u}$

	interference				square			
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$		
cQbqu1	-0.01371	0	1	0.5	0.5	$3.06 \cdot 10^{-6}$		
cQbqu1T	0.08859	0	1	20.87	1.184	0.9433		
cQbqu1TI	$-2.79 \cdot 10^{-18}$	0	1	34.49	0.04681	0.9986		
cQbqu8	$-1.324 \cdot 10^{-20}$	0	1	0.1111	0.1111	$3.06 \cdot 10^{-6}$		
cQbqu8I	$-4.016 \cdot 10^{-20}$	0	1	0.1111	0.1111	$3.06 \cdot 10^{-6}$		
cQbqu8T	$8.741 \cdot 10^{-19}$	0	1	7.663	0.0104	0.9986		
cQbqu8TI	$-8.03 \cdot 10^{-19}$	0	1	4.639	0.2632	0.9433		
cQq11	-0.009446	-0.009446	$1.059 \cdot 10^{-8}$	0.04621	0.04621	0		
cQq13	0.009446	0.009446	$1.059 \cdot 10^{-8}$	0.04621	0.04621	0		
cQu8	0.4059	0.4059	0	0.137	0.137	0		
cbW	$5.866 \cdot 10^{-5}$	$5.866 \cdot 10^{-5}$	0	0.004352	0.004352	0		
cbWI	$3.376 \cdot 10^{-18}$	$3.458 \cdot 10^{-18}$	-0.0244	0.00435	0.00435	0		
cpQ3	0.001146	0.001146	0	$6.647 \cdot 10^{-5}$	$6.647 \cdot 10^{-5}$	$1.504 \cdot 10^{-8}$		

$\mathtt{cpQM}$	0.0001014	0.0001014	0	$5.747 \cdot 10^{-6}$	$5.747 \cdot 10^{-6}$	$-3.48 \cdot 10^{-8}$
sm	0	0	0	0.4932	0.4932	0

### 1.52 $b\bar{t} \rightarrow e^-\bar{\nu}_e$

	interference				square			
	mod1	mod2	$1-{\tt mod2/mod1}$	mod1	mod2	$1-{\tt mod2/mod1}$		
cQ131	0.1274	0.1274	0	0.6023	0.6023	0		
cbW	0.000102	0.000102	0	0.003878	0.003878	$2.579 \cdot 10^{-8}$		
cbWI	$-3.862 \cdot 10^{-19}$	$-1.326 \cdot 10^{-19}$	0.6567	0.003878	0.003878	$2.579 \cdot 10^{-8}$		
cblSI1	0	0	0	0.08333	0.08333	0		
cpQ3	0.001089	0.001089	$9.181 \cdot 10^{-8}$	$3.301 \cdot 10^{-5}$	$3.301 \cdot 10^{-5}$	0		
cptbI	$-1.741 \cdot 10^{-22}$	$-5.391 \cdot 10^{-23}$	0.6903	$8.169 \cdot 10^{-8}$	$8.169 \cdot 10^{-8}$	$1.224 \cdot 10^{-8}$		
ctWI	$1.579 \cdot 10^{-18}$	$3.109 \cdot 10^{-18}$	-0.9686	0.001485	0.001485	0		
ctlSI1	0	0	0	0.08333	0.08333	0		
ctlTI1	0	0	0	1.021	1.021	0		
sm	0	0	0	0.01308	0.01308	0		

### **1.53** $c\bar{c} \to \mu^{+}\mu^{-}$

### 1.54 $c\bar{s} \rightarrow \tau^+ \nu_{\tau}$

0 0 0 sm

 $0.005257 \quad 0.005257 \quad 1.902 \cdot 10^{-8}$ 

1.55  $d\bar{d} \rightarrow c\bar{c}$ 

interference

square  $mod1 \quad mod2 \quad 1 - mod2/mod1$ mod1 $mod2 \quad 1 - mod2/mod1$ 0 0 0  $0.5392 \quad 0.5392$ 0

**1.56**  $d\bar{d} \to e^+e^-$ 

sm

interference

 $mod2 \quad 1 - mod2/mod1$ 

square 1 - mod2/mod1mod1mod2 $0.0002853 \quad 0.0002853 \quad -7.011 \cdot 10^{-8}$ 

0 0 0 sm

mod1

0

0

0

0

**1.57**  $e^+\nu_{\mu} \to e^+\nu_{\mu}$ 

interference

0

 $mod2 \quad 1 - mod2/mod1$ 

square mod1mod2 1 - mod2/mod1 $0.01341 \quad 0.01341 \quad -7.457 \cdot 10^{-8}$ 

**1.58**  $e^+\nu_e \to \mu^+\nu_\mu$ 

sm

sm

interference

0

 $mod1 \quad mod2 \quad 1 - mod2/mod1$ 

square mod2 1 - mod2/mod1mod1 $0.02216 \quad 0.02216$ 

**1.59**  $e^+\nu_e \to e^+\nu_e$ 

interference square  $\verb|mod1| \verb|mod2| 1 - \verb|mod2| \verb|mod1|$  $\verb|mod2| 1 - \verb|mod2| mod1|$ mod10 0.32050.3205 $3.12 \cdot 10^{-8}$ 0 sm**1.60**  $e^+\tau^- \to e^+\tau^$ interference square 1 - mod2/mod1 $mod1 \quad mod2 \quad 1 - mod2/mod1$ mod1mod2  $0.02732 \quad 0.02732 \quad -3.66 \cdot 10^{-8}$ 0 0 0 sm**1.61**  $e^+e^- \to \mu^+\mu^$ interference square  $mod2 \quad 1 - mod2/mod1$ mod1mod2 1 - mod2/mod1mod1  $0.02537 \quad 0.02537 \quad -3.942 \cdot 10^{-8}$ 0 0 0 sm**1.62**  $e^+e^- \rightarrow e^+e^$ interference square  $mod1 \quad mod2 \quad 1 - mod2/mod1$ mod2 1 - mod2/mod1mod10 0  $0.05951 \quad 0.05951 \quad -3.361 \cdot 10^{-8}$ 0 sm**1.63**  $gg \rightarrow gg$ interference square  $mod1 \quad mod2 \quad 1 - mod2/mod1$  $mod1 \quad mod2 \quad 1 - mod2/mod1$ 

0

0

sm

0

577.6 577.6

0

### **1.64** $gg \rightarrow ggg$

			interference		square		
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	
sm	0	0	0	0.06678	0.06678	0	

### **1.65** $gg \rightarrow t\bar{t}$

		interfe	erence	square
	mod1	mod2	$1-{\tt mod2/mod1}$	$\verb mod1  & \verb mod2  & 1-\verb mod2/mod1 $
ctG	0.3179	0.3179	0	0.1039  0.1039  0
ctGI	$1.61 \cdot 10^{-17}$	$1.613 \cdot 10^{-17}$	-0.002105	$0.09132  0.09132 \qquad 0$
sm	0	0	0	1.022   1.022   0

### **1.66** $gg \rightarrow u\bar{u}$

### 1.67 $s\bar{s} \rightarrow \nu_{\tau}\bar{\nu}_{\tau}$

#### 1.68 $s\bar{s} \rightarrow s\bar{s}$

#### 

## **1.69** $t\bar{t} \rightarrow \nu_{\mu}\bar{\nu}_{\mu}$

	interference				square			
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$		
cQ1M2	0.01718	0.01718	$5.822 \cdot 10^{-8}$	0.09466	0.09466	0		
$\mathtt{cpQM}$	-0.0004415	-0.0004415	0	$1.975 \cdot 10^{-5}$	$1.975 \cdot 10^{-5}$	0		
cpt	$-2.253 \cdot 10^{-7}$	$-2.253 \cdot 10^{-7}$	$2.13 \cdot 10^{-6}$	$1.51 \cdot 10^{-6}$	$1.51 \cdot 10^{-6}$	0		
ctWI	$-5.711 \cdot 10^{-25}$	0	1	$1.186 \cdot 10^{-15}$	0	1		
ctZ	0.001877	0.001877	$5.862 \cdot 10^{-7}$	0.002553	0.002553	$1.097 \cdot 10^{-6}$		
ctZI	$4.501 \cdot 10^{-19}$	$2.372 \cdot 10^{-18}$	-4.269	0.0008202	0.0008202	$1.097 \cdot 10^{-6}$		
ctl2	-0.00521	-0.00521	$-3.839 \cdot 10^{-8}$	0.08223	0.08223	0		
$\mathtt{sm}$	0	0	0	0.0009299	0.0009299	$1.075 \cdot 10^{-8}$		

## 1.70 $t\bar{t} \rightarrow \tau^+\tau^-$

		interfere	ence		square			
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$		
cQe3	-0.01114	-0.01114	$-8.975 \cdot 10^{-8}$	0.225	0.225	0		
cQ1M3	-0.01897	-0.01897	0	0.07802	0.07802	0		
cpQM	$2.392 \cdot 10^{-5}$	$2.392 \cdot 10^{-5}$	$-8.36 \cdot 10^{-8}$	$3.775 \cdot 10^{-6}$	$3.775 \cdot 10^{-6}$	$-2.649 \cdot 10^{-8}$		
cpt	$7.06 \cdot 10^{-6}$	$7.06 \cdot 10^{-6}$	$-3.399 \cdot 10^{-7}$	$3.21 \cdot 10^{-6}$	$3.21\cdot 10^{-6}$	$3.116 \cdot 10^{-8}$		
ctWI	$-3.117 \cdot 10^{-19}$	$4.458 \cdot 10^{-19}$	2.43	0.002414	0.002414	$1.16 \cdot 10^{-6}$		
ctZ	-0.005474	-0.005474	$5.298 \cdot 10^{-7}$	0.0163	0.0163	$1.104 \cdot 10^{-6}$		
ctZI	$-5.821 \cdot 10^{-18}$	$-4.038 \cdot 10^{-18}$	0.3064	0.007842	0.007842	$1.097 \cdot 10^{-6}$		
cte3	-0.01378	-0.01378	0	0.07802	0.07802	0		

ctlSI3	$1.969 \cdot 10^{-19}$	$2.943 \cdot 10^{-19}$	-0.4947	0.1668	0.1668	0
ctlT3	0.008705	0.008705	0	1.162	1.162	0
ctlTI3	$-4.265 \cdot 10^{-19}$	$-4.547 \cdot 10^{-19}$	-0.06605	1.162	1.162	0
ctp	$-1.012 \cdot 10^{-6}$	$-1.012 \cdot 10^{-6}$	0	$3.101 \cdot 10^{-8}$	$3.101 \cdot 10^{-8}$	0
ctpI	$-1.155 \cdot 10^{-22}$	$-2.21 \cdot 10^{-22}$	-0.9133	$3.49 \cdot 10^{-8}$	$3.49 \cdot 10^{-8}$	0
sm	0	0	0	0.0008761	0.0008761	$-4.566 \cdot 10^{-8}$

## 1.71 $t\bar{t} \rightarrow c\bar{c}$

		interfere	ence	square
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	$\verb mod1  \qquad \verb mod2  \qquad 1-\verb mod2/mod1 $
cQq11	0.0202	0.0202	0	$0.08869 \qquad 0.08869 \qquad 0$
cQq13	0.0202	0.0202	0	$0.08869 \qquad 0.08869 \qquad 0$
cQu8	0.3721	0.3721	0	0.119   0.119   0
cpQM	$-6.86 \cdot 10^{-5}$	$-6.86 \cdot 10^{-5}$	$5.831 \cdot 10^{-8}$	$6.61 \cdot 10^{-6}$ $6.61 \cdot 10^{-6}$ $-1.513 \cdot 10^{-8}$
cpt	-0.0001635	-0.0001635	0	$2.749 \cdot 10^{-5}  2.749 \cdot 10^{-5}$
ctG	0.1977	0.1977	0	$0.03952 \qquad 0.03952 \qquad 0$
ctGI	$-1.471 \cdot 10^{-24}$	0	1	$0.03007 \qquad 0.03007 \qquad 0$
ctQqu1I	$1.55 \cdot 10^{-18}$	0	1	$0.5004 \qquad \qquad 0.5004 \qquad \qquad 3.097 \cdot 10^{-6}$
ctQqu8I	$8.144 \cdot 10^{-19}$	0	1	$0.1112 \qquad 0.1112 \qquad 2.967 \cdot 10^{-6}$
ctWI	$1.156 \cdot 10^{-10}$	$1.156 \cdot 10^{-10}$	$6.057 \cdot 10^{-7}$	$0.007455 \qquad 0.007455 \qquad 9.524 \cdot 10^{-7}$
ctZ	-0.003096	-0.003096	$5.492 \cdot 10^{-7}$	$0.008877 \qquad 0.008877 \qquad 1.093 \cdot 10^{-6}$
ctZI	$-1.012 \cdot 10^{-10}$	$-1.012 \cdot 10^{-10}$	$6.919 \cdot 10^{-7}$	$0.01185 \qquad 0.01185 \qquad 1.097 \cdot 10^{-6}$
ctq8	0.5602	0.5602	0	$0.1825 \qquad 0.1825 \qquad 0$
ctu1	0.01096	0.01096	$-9.127 \cdot 10^{-8}$	$0.08869 \qquad 0.08869 \qquad 0$
ctu8	0.07788	0.07788	0	$0.01971 \qquad 0.01971 \qquad 0$
sm	0	0	0	0.8743 $0.8743$ $0$

## 1.72 $t\bar{t} \rightarrow d\bar{d}$

		interfere		square			
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	
cQd1	-0.004706	-0.004706	$-2.125 \cdot 10^{-8}$	0.2155	0.2155	0	
cQd8	0.2774	0.2774	0	0.08705	0.08705	0	
cQq11	-0.1834	-0.1834	0	0.9012	0.9012	0	
cQq13	0.1834	0.1834	0	0.9012	0.9012	0	
cQq81	0.23	0.23	0	0.07104	0.07104	0	
cQq83	-0.23	-0.23	0	0.07104	0.07104	0	
cQtqd1	-0.4725	0	1	0.5004	0.5004	$3.057 \cdot 10^{-6}$	
cQtqd1I	$-2.939 \cdot 10^{-18}$	0	1	0.5004	0.5004	$3.057 \cdot 10^{-6}$	
cQtqd1T	1.704	0	1	7.099	0.5553	0.9218	
cQtqd1TI	$-2.043 \cdot 10^{-17}$	0	1	29.25	0.5553	0.981	
cQtqd8	$-5.064 \cdot 10^{-18}$	0	1	0.1112	0.1112	$3.057 \cdot 10^{-6}$	
cQtqd8I	$4.617 \cdot 10^{-18}$	0	1	0.1112	0.1112	$3.057 \cdot 10^{-6}$	
cQtqd8T	$4.815 \cdot 10^{-17}$	0	1	8.937	0.1929	0.9784	
cQtqd8TI	$-4.481 \cdot 10^{-18}$	0	1	6.5	0.1234	0.981	
cpQM	-0.001296	-0.001296	0	$4.517 \cdot 10^{-5}$	$4.517 \cdot 10^{-5}$	$2.214 \cdot 10^{-8}$	
cpt	$5.057 \cdot 10^{-5}$	$5.057 \cdot 10^{-5}$	$-5.933 \cdot 10^{-8}$	$1.99 \cdot 10^{-5}$	$1.99 \cdot 10^{-5}$	0	
ctG	0.1977	0.1977	0	0.01689	0.01689	0	
ctGI	$1.654 \cdot 10^{-24}$	$-9.191 \cdot 10^{-25}$	1.556	0.007443	0.007443	0	
ctW	0.003647	0.003647	$-5.485 \cdot 10^{-8}$	0.006616	0.006616	$3.779 \cdot 10^{-7}$	
ctWI	$1.466 \cdot 10^{-15}$	$1.465 \cdot 10^{-15}$	0.0004909	0.003127	0.003127	$3.838 \cdot 10^{-7}$	
ctZ	$2.861 \cdot 10^{-5}$	$2.861 \cdot 10^{-5}$	$1.748 \cdot 10^{-6}$	0.005277	0.005277	$1.099 \cdot 10^{-6}$	
ctZI	$-1.106 \cdot 10^{-15}$	$-1.106 \cdot 10^{-15}$	-0.000512	0.0008715	0.0008715	$1.09 \cdot 10^{-6}$	
ctd1	-0.01867	-0.01867	0	0.3197	0.3197	0	
ctd8	0.23	0.23	0	0.07104	0.07104	0	
ctq1	0.000222	0.000222	$-7.657 \cdot 10^{-7}$	0.2155	0.2155	0	
ctq8	0.4697	0.4697	0	0.1519	0.1519	0	

 ${\tt sm} \qquad \qquad 0 \qquad \qquad 0 \qquad \qquad 0.7654 \qquad 0.7654 \qquad 0$ 

## 1.73 $t\bar{t} \rightarrow s\bar{s}$

		interfere	ence		square			
	mod1	mod2	$1-{\tt mod2/mod1}$	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$		
cQd1	-0.009047	-0.009047	$-2.211 \cdot 10^{-8}$	0.5256	0.5256	0		
cQd8	0.05592	0.05592	0	0.0123	0.0123	0		
cQq11	-0.1624	-0.1624	0	0.7989	0.7989	0		
cQq13	0.1624	0.1624	0	0.7989	0.7989	0		
cQq81	0.08057	0.08057	0	0.02062	0.02062	0		
cQq83	-0.08057	-0.08057	0	0.02062	0.02062	0		
cQtqd1	-0.4725	0	1	0.5004	0.5004	$3.037 \cdot 10^{-6}$		
cQtqd1I	$-1.272 \cdot 10^{-17}$	0	1	0.5004	0.5004	$3.057 \cdot 10^{-6}$		
cQtqd1T	2.797	0	1	17.32	1.887	0.891		
cQtqd1TI	$1.125 \cdot 10^{-18}$	0	1	47.77	1.887	0.9605		
cQtqd8	$-5.975 \cdot 10^{-18}$	0	1	0.1112	0.1112	$3.057 \cdot 10^{-6}$		
cQtqd8I	$2.409 \cdot 10^{-20}$	0	1	0.1112	0.1112	$3.057 \cdot 10^{-6}$		
cQtqd8T	$1.493 \cdot 10^{-17}$	0	1	3.685	0.661	0.8206		
cQtqd8TI	$8.44 \cdot 10^{-18}$	0	1	10.61	0.4194	0.9605		
cpQM	-0.001147	-0.001147	$8.716 \cdot 10^{-8}$	$4.006 \cdot 10^{-5}$	$4.006 \cdot 10^{-5}$	0		
cpt	$1.619 \cdot 10^{-5}$	$1.619 \cdot 10^{-5}$	$-1.852 \cdot 10^{-7}$	$3.849 \cdot 10^{-6}$	$3.849 \cdot 10^{-6}$	0		
ctG	0.1977	0.1977	0	0.0241	0.0241	0		
ctGI	$1.471 \cdot 10^{-24}$	$1.838 \cdot 10^{-24}$	-0.25	0.01466	0.01466	0		
ctW	0.001779	0.001779	$5.622 \cdot 10^{-8}$	0.005673	0.005673	$3.878 \cdot 10^{-7}$		
ctWI	$5.661 \cdot 10^{-13}$	$5.661 \cdot 10^{-13}$	$9.715 \cdot 10^{-7}$	0.004192	0.004192	$3.817 \cdot 10^{-7}$		
ctZ	0.0009073	0.0009073	$6.062 \cdot 10^{-7}$	0.004046	0.004046	$1.112 \cdot 10^{-6}$		
ctZI	$-4.955 \cdot 10^{-13}$	$-4.955 \cdot 10^{-13}$	$9.083 \cdot 10^{-7}$	0.001716	0.001716	$1.107 \cdot 10^{-6}$		
ctd1	-0.005711	-0.005711	$-3.502 \cdot 10^{-8}$	0.09278	0.09278	0		

ctd8	0.08057	0.08057	0	0.02062	0.02062	0
ctq1	0.009246	0.009246	$-4.326 \cdot 10^{-8}$	0.5256	0.5256	0
ctq8	0.07496	0.07496	0	0.01872	0.01872	0
sm	0	0	0	0.6793	0.6793	0

## 1.74 $t\bar{t} \rightarrow t\bar{t}$

		interfere		square		
	mod1	mod2	$1-{\tt mod2/mod1}$	mod1	mod2	$1-{\tt mod2/mod1}$
cQQ1	-0.2643	-0.2643	0	1.327	1.327	0
cQQ8	0.0002512	0.0002512	$-1.194 \cdot 10^{-7}$	0.01291	0.01291	0
cQt1	-0.268	-0.268	0	13.01	13.01	0
cpQM	0.06129	0.06129	0	0.00851	0.00851	0
cpt	-0.03584	-0.03584	0	0.008763	0.008763	0
ctG	0.1618	0.1618	0	0.4069	0.4069	0
ctGI	$1.93 \cdot 10^{-17}$	$2.358 \cdot 10^{-17}$	-0.2216	0.338	0.338	0
ctWI	$3.93 \cdot 10^{-17}$	$5.799 \cdot 10^{-19}$	0.9852	0.3645	0.3645	$9.602 \cdot 10^{-7}$
ctZ	0.04249	0.04249	$5.413 \cdot 10^{-7}$	0.0923	0.0923	$1.094 \cdot 10^{-6}$
ctZI	$-6.096 \cdot 10^{-18}$	$2.289 \cdot 10^{-17}$	4.754	0.2433	0.2433	$1.11 \cdot 10^{-6}$
ctp	0.04266	0.04266	0	0.008415	0.008415	0
ctpI	$6.35 \cdot 10^{-19}$	$-5.842 \cdot 10^{-19}$	1.92	0.004786	0.004786	0
ctt1	-0.4834	-0.4834	$-2.069 \cdot 10^{-8}$	5.306	5.306	0
sm	0	0	0	1.498	1.498	0

# 1.75 $u\bar{d} \rightarrow \mu^+ \nu_\mu$

			interference		square			
	mod1	mod2	$1 - \mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	1 - mod2/mod1		
sm	0	0	0	0.007808	0.007808	$1.281 \cdot 10^{-8}$		

1.76  $u\bar{d} \rightarrow c\bar{s}$ 

interference square  $mod1 \quad mod2 \quad 1 - mod2/mod1$ mod1 mod2 1 - mod2/mod10 0 0  $3.016 \cdot 10^{-5} \quad 3.016 \cdot 10^{-5}$ sm

1.77  $u\bar{d} \rightarrow u\bar{d}$ 

interference square  $mod1 \quad mod2 \quad 1 - mod2/mod1$  $mod1 \quad mod2 \quad 1 - mod2/mod1$ 443.4 443.4 0 0 0 sm

0

1.78  $u\bar{u} \rightarrow \nu_e \bar{\nu}_e$ 

interference square 1 - mod2/mod1 $mod2 \quad 1 - mod2/mod1$ mod2 mod1 0 0  $0.0005301 \quad 0.0005301$  $-1.887 \cdot 10^{-8}$ 0 sm

1.79 $u\bar{u} \to u\bar{u}$ 

> interference square  $\verb|mod1| \verb|mod2| 1 - \verb|mod2| mod1|$  $mod1 \quad mod2 \quad 1 - mod2/mod1$ 0 0 2.99 2.99 0 sm

1.80  $zz \to W^+W^-$ 

interference square  $mod1 \quad mod2 \quad 1 - mod2/mod1$  $mod1 \quad mod2 \quad 1 - mod2/mod1$  sm 0 0 0  $42.87 42.87 2.333 \cdot 10^{-8}$ 

1.81  $zz \rightarrow zz$ 

## 2 By parameter point

### 2.1 cQQ1

		in	terference		square		
	mod1	mod2	$1-{\tt mod2/mod1}$	mod1	mod2	$1-{\tt mod2/mod1}$	
$b\bar{b}  o b\bar{b}$	-0.0232	-0.0232	0	0.135	0.135	0	
$b\bar{b} \to t\bar{t}$	-0.1676	-0.1676	0	0.2824	0.2824	0	
$t\bar{t} \to t\bar{t}$	-0.2643	-0.2643	0	1.327	1.327	0	

### 2.2 cQQ8

interference square mod1mod21 - mod2/mod1mod1mod21 - mod2/mod1 $b\bar{b} \to b\bar{b}$ -0.7493-0.74930 0.15670.15670  $-2.868 \cdot 10^{-8}$  $b\bar{b} \to t\bar{t}$ 0.034870.034870.020040.020040  $-1.194 \cdot 10^{-7}$  $t\bar{t} \to t\bar{t}$ 0.00025120.00025120.01291 0.012910

#### 2.3 cQb1

			square			
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$
$b\bar{b}  o b\bar{b}$	0.09413	0.09413	$-2.125 \cdot 10^{-8}$	2.149	2.149	0
$b\bar{b}  o t\bar{t}$	-0.008725	-0.008725	$-1.146 \cdot 10^{-8}$	0.4893	0.4893	0

## 2.4 cQbqu1

	interference				square		
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	1 - mod2/mod1	
$\bar{b}t \to \bar{d}u$	0	0	0	0.25	0.25	$3.08 \cdot 10^{-6}$	
$b\bar{b} \to u\bar{u}$	-0.01371	0	1	0.5	0.5	$3.06 \cdot 10^{-6}$	

## 2.5 cQbqu1I

	interference				square		
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	1 - mod2/mod1	
$\bar{b}t \to \bar{d}u$	0	0	0	0.25	0.25	$3.04 \cdot 10^{-6}$	

## 2.6 cQbqu1T

	interference				square		
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	1 - mod2/mod1	
$\bar{b}t \to \bar{d}u$	0	0	0	23.58	0.8133	0.9655	
$b\bar{b} \to u\bar{u}$	0.08859	0	1	20.87	1.184	0.9433	

## 2.7 cQbqu1TI

	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	1 - mod2/mod1
$\bar{b}t \to \bar{d}u$	0	0	0	7.161	1.851	0.7415
$b\bar{b} \to u\bar{u}$	$-2.79 \cdot 10^{-18}$	0	1	34.49	0.04681	0.9986

## 2.8 cQbqu8

		inte	erference	square
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	$\verb mod1  & \verb mod2  & 1-\verb mod2/mod1 $
$\bar{b}t \to \bar{d}u$	0	0	0	$0.05556  0.05556  3.06 \cdot 10^{-6}$
$b\bar{b} \to u\bar{u}$	$-1.324 \cdot 10^{-20}$	0	1	$0.1111  0.1111  3.06 \cdot 10^{-6}$

## 2.9 cQbqu8I

	interference				square		
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	
$\bar{b}t \to \bar{d}u$	0	0	0	0.05556	0.05556	$3.06 \cdot 10^{-6}$	
$b\bar{b} \to u\bar{u}$	$-4.016 \cdot 10^{-20}$	0	1	0.1111	0.1111	$3.06 \cdot 10^{-6}$	

## 2.10 cQbqu8T

		erference		square		
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$
$\bar{b}t \to \bar{d}u$	0	0	0	1.591	0.4114	0.7415
$b\bar{b} \to u\bar{u}$	$8.741 \cdot 10^{-19}$	0	1	7.663	0.0104	0.9986

## 2.11 cQbqu8TI

	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	1 - mod2/mod1
$\bar{b}t \to \bar{d}u$	0	0	0	5.241	0.1807	0.9655
$b\bar{b} \to u\bar{u}$	$-8.03 \cdot 10^{-19}$	0	1	4.639	0.2632	0.9433

### 2.12 cQd1

			square			
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1 - \mathtt{mod}2/\mathtt{mod}1$
$t\bar{t} \to d\bar{d}$	-0.004706	-0.004706	$-2.125 \cdot 10^{-8}$	0.2155	0.2155	0
$t\bar{t} \to s\bar{s}$	-0.009047	-0.009047	$-2.211 \cdot 10^{-8}$	0.5256	0.5256	0

### $2.13 \quad cQd8$

	interference				square			
	mod1	mod2	$1-{\tt mod2/mod1}$	mod1	mod2	$1-{\tt mod2/mod1}$		
$b\bar{b}  o d\bar{d}$	0.32	0.32	0	0.108	0.108	0		
$t\bar{t} \to d\bar{d}$	0.2774	0.2774	0	0.08705	0.08705	0		
$t \bar t  o s \bar s$	0.05592	0.05592	0	0.0123	0.0123	0		

### 2.14 cQe2

### $2.15 \quad \mathrm{cQe3}$

#### 2.16 cQl31

#### 2.17 cQlM1

#### 2.18 cQlM2

#### 2.19 cQlM3

## $2.20 \quad \mathrm{cQq}11$

		inter	ference		square			
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$		
$b\bar{b} \to d\bar{d}$	0.02068	0.02068	0	0.09445	0.09445	0		
$b\bar{b} \to u\bar{u}$	-0.009446	-0.009446	$1.059 \cdot 10^{-8}$	0.04621	0.04621	0		
$t\bar{t} \to c\bar{c}$	0.0202	0.0202	0	0.08869	0.08869	0		
$t\bar{t} \to d\bar{d}$	-0.1834	-0.1834	0	0.9012	0.9012	0		
$t\bar{t} \to s\bar{s}$	-0.1624	-0.1624	0	0.7989	0.7989	0		

## $2.21 \quad \text{cQq13}$

		int	erference	square			
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	
$\bar{b}t \to \bar{d}u$	0.5693	0.5693	$1.756 \cdot 10^{-8}$	2.691	2.691	0	
$b\bar{b} \to d\bar{d}$	0.02068	0.02068	0	0.09445	0.09445	0	
$b\bar{b} \to u\bar{u}$	0.009446	0.009446	$1.059 \cdot 10^{-8}$	0.04621	0.04621	0	
$t\bar{t} \to c\bar{c}$	0.0202	0.0202	0	0.08869	0.08869	0	
$t\bar{t} \to d\bar{d}$	0.1834	0.1834	0	0.9012	0.9012	0	
$t\bar{t} \to s\bar{s}$	0.1624	0.1624	0	0.7989	0.7989	0	

## $2.22 \quad \text{cQq81}$

		in	nterference		square			
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$		
$t\bar{t} \to d\bar{d}$	0.23	0.23	0	0.07104	0.07104	0		
$t\bar{t} \to s\bar{s}$	0.08057	0.08057	0	0.02062	0.02062	0		

### $2.23 \quad \mathrm{cQq83}$

			square			
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1 - \mathtt{mod}2/\mathtt{mod}1$
$\bar{b}t \to \bar{d}u$	$4.888 \cdot 10^{-20}$	$-4.329 \cdot 10^{-19}$	9.856	0.02728	0.02728	0
$t\bar{t} \to d\bar{d}$	-0.23	-0.23	0	0.07104	0.07104	0
$t\bar{t} \to s\bar{s}$	-0.08057	-0.08057	0	0.02062	0.02062	0

### 2.24 cQt1

	interference				square		
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1 - \mathtt{mod}2/\mathtt{mod}1$	
$b\bar{b} \to t\bar{t}$	-0.2334	-0.2334	0	0.4893	0.4893	0	
$t\bar{t} \to t\bar{t}$	-0.268	-0.268	0	13.01	13.01	0	

### 2.25 cQtQb1

	interference				square		
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	
b ar b  o t ar t	-0.009963	-0.009963	0	0.6104	0.6104	0	

### 2.26 cQtQb8I

## 2.27 cQtqd1

	interference				square			
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$		
$\bar{b}t \to \bar{d}u$	0	0	0	0.25	0.25	$3.04 \cdot 10^{-6}$		
$t\bar{t} \to d\bar{d}$	-0.4725	0	1	0.5004	0.5004	$3.057 \cdot 10^{-6}$		
$t\bar{t} \to s\bar{s}$	-0.4725	0	1	0.5004	0.5004	$3.037 \cdot 10^{-6}$		

## $2.28 \quad cQtqd1I$

	interference			square		
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	1 - mod2/mod1
$\bar{b}t \to \bar{d}u$	0	0	0	0.25	0.25	$3.08 \cdot 10^{-6}$
$t\bar{t} \to d\bar{d}$	$-2.939 \cdot 10^{-18}$	0	1	0.5004	0.5004	$3.057 \cdot 10^{-6}$
$t\bar{t} \to s\bar{s}$	$-1.272 \cdot 10^{-17}$	0	1	0.5004	0.5004	$3.057 \cdot 10^{-6}$

## $2.29 \quad \text{cQtqd1T}$

	interference				square			
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1 - \mathtt{mod}2/\mathtt{mod}1$		
$\bar{b}t \to \bar{d}u$	0	0	0	11.6	1.879	0.838		
$t\bar{t} \to d\bar{d}$	1.704	0	1	7.099	0.5553	0.9218		
$t\bar{t} \to s\bar{s}$	2.797	0	1	17.32	1.887	0.891		

## $2.30 \quad \mathrm{cQtqd1TI}$

$\bar{b}t \to \bar{d}u$	0	0	0	28.66	1.879	0.9344
$t\bar{t} \to d\bar{d}$	$-2.043 \cdot 10^{-17}$	0	1	29.25	0.5553	0.981
$t\bar{t} \to s\bar{s}$	$1.125 \cdot 10^{-18}$	0	1	47.77	1.887	0.9605

## 2.31 cQtqd8

	interference				square		
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	1 - mod2/mod1	
$\bar{b}t \to \bar{d}u$	0	0	0	0.05556	0.05556	$3.06 \cdot 10^{-6}$	
$t\bar{t} \to d\bar{d}$	$-5.064 \cdot 10^{-18}$	0	1	0.1112	0.1112	$3.057 \cdot 10^{-6}$	
$t \bar t  o s \bar s$	$-5.975 \cdot 10^{-18}$	0	1	0.1112	0.1112	$3.057 \cdot 10^{-6}$	

## $2.32 \quad \text{cQtqd8I}$

		erference		square		
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1 - \mathtt{mod}2/\mathtt{mod}1$
$\bar{b}t \to \bar{d}u$	0	0	0	0.05556	0.05556	$3.06 \cdot 10^{-6}$
$t\bar{t} \to d\bar{d}$	$4.617 \cdot 10^{-18}$	0	1	0.1112	0.1112	$3.057 \cdot 10^{-6}$
$t\bar{t} \to s\bar{s}$	$2.409 \cdot 10^{-20}$	0	1	0.1112	0.1112	$3.057 \cdot 10^{-6}$

## 2.33 cQtqd8T

	interference			square		
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	1 - mod2/mod1
$\bar{b}t \to \bar{d}u$	0	0	0	5.241	0.1807	0.9655
$t\bar{t} \to d\bar{d}$	$4.815 \cdot 10^{-17}$	0	1	8.937	0.1929	0.9784
$t\bar{t} \to s\bar{s}$	$1.493 \cdot 10^{-17}$	0	1	3.685	0.661	0.8206

## 2.34 cQtqd8TI

	interference				square		
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1 - \mathtt{mod}2/\mathtt{mod}1$	
$\bar{b}t \to \bar{d}u$	0	0	0	6.368	0.4176	0.9344	
$t\bar{t} \to d\bar{d}$	$-4.481 \cdot 10^{-18}$	0	1	6.5	0.1234	0.981	
$t\bar{t} \to s\bar{s}$	$8.44 \cdot 10^{-18}$	0	1	10.61	0.4194	0.9605	

## 2.35 cQu8

		j	interference		square			
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$		
$b\bar{b} \to u\bar{u}$	0.4059	0.4059	0	0.137	0.137	0		
$t\bar{t} \to c\bar{c}$	0.3721	0.3721	0	0.119	0.119	0		

## 2.36 cbQqd1

	interference				square		
	mod1	mod2	$1 - \mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	1 - mod2/mod1	
$\bar{b}t \to \bar{d}u$	0	0	0	0.25	0.25	$3.12 \cdot 10^{-6}$	
$b\bar{b} \to d\bar{d}$	-0.01371	0	1	0.5	0.5	$3.1 \cdot 10^{-6}$	

## 2.37 cbQqd1I

		erference		square		
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	1 - mod2/mod1
$\bar{b}t \to \bar{d}u$	0	0	0	0.25	0.25	$3.12 \cdot 10^{-6}$
$b\bar{b} \to d\bar{d}$	$-4.396 \cdot 10^{-21}$	0	1	0.5	0.5	$3.1 \cdot 10^{-6}$

# 2.38 cbQqd8

		erference		square		
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	1 - mod2/mod1
$\bar{b}t \to \bar{d}u$	0	0	0	0.05556	0.05556	$2.916 \cdot 10^{-6}$
$b\bar{b} \to d\bar{d}$	$6.094 \cdot 10^{-10}$	0	1	0.1111	0.1111	$2.97 \cdot 10^{-6}$

# 2.39 cbQqd8I

	interference			square
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	$\verb mod1  & \verb mod2  & 1-\verb mod2/mod1 $
$\bar{b}t \to \bar{d}u$	0	0	0	$0.05556  0.05556  2.916 \cdot 10^{-6}$
$b\bar{b}  o d\bar{d}$	$-9.416 \cdot 10^{-22}$	0	1	$0.1111  0.1111  2.97 \cdot 10^{-6}$

# 2.40 cbW

		interfer	ence		square			
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1-{\tt mod2/mod1}$		
$HH \to W^+ \bar{t} b$	$-1.176 \cdot 10^{-6}$	$-1.176 \cdot 10^{-6}$	0	$1.346 \cdot 10^{-5}$	$1.346 \cdot 10^{-5}$	0		
$HH \to z\bar{b}b$	$2.367 \cdot 10^{-7}$	$2.367 \cdot 10^{-7}$	0	$5.43 \cdot 10^{-6}$	$5.43 \cdot 10^{-6}$	0		
$HW^+ \to \gamma t \bar{b}$	$-2.009 \cdot 10^{-6}$	$-2.009 \cdot 10^{-6}$	0	$1.602 \cdot 10^{-5}$	$1.602 \cdot 10^{-5}$	$-6.243 \cdot 10^{-8}$		
$HW^-  o \bar{t}b$	0.006283	0.006283	0	2.265	2.265	0		
$H\gamma  o b ar{b}$	$-1.604 \cdot 10^{-5}$	$-1.604 \cdot 10^{-5}$	0	0.06302	0.06302	$-1.587 \cdot 10^{-8}$		
$Hz \to b\bar{b}$	0.001427	0.001427	0	1.456	1.456	0		
$W^+W^-  o Hb\bar{b}$	$-1.235 \cdot 10^{-8}$	$-1.235 \cdot 10^{-8}$	0	$7.602 \cdot 10^{-6}$	$7.602 \cdot 10^{-6}$	$1.315 \cdot 10^{-8}$		
$W^+W^-  o H t \bar t$	$3.122 \cdot 10^{-8}$	$3.122 \cdot 10^{-8}$	0	$1.047 \cdot 10^{-8}$	$1.047 \cdot 10^{-8}$	0		
$\bar{b}t \to \bar{d}u$	0.0003719	0.0003719	0	0.007753	0.007753	0		
$b\bar{b} \to \gamma \gamma$	$6.873 \cdot 10^{-6}$	$6.873 \cdot 10^{-6}$	$-2.91 \cdot 10^{-8}$	0.0006187	0.0006187	$-4.849 \cdot 10^{-8}$		
$b\bar{b} \to \mu^+ \mu^-$	$4.436 \cdot 10^{-5}$	$4.436 \cdot 10^{-5}$	$2.254 \cdot 10^{-8}$	0.002113	0.002113	0		

$b\bar{b}  o  u_e \bar{ u}_e$	$1.775 \cdot 10^{-5}$	$1.775 \cdot 10^{-5}$	0	0.001927	0.001927	0
$b\bar{b}  o b\bar{b}$	0.002395	0.002395	0	0.03118	0.03118	$3.207 \cdot 10^{-8}$
$b\bar{b} \to d\bar{d}$	$6.115 \cdot 10^{-5}$	$6.115 \cdot 10^{-5}$	$1.635 \cdot 10^{-8}$	0.005504	0.005504	$1.817 \cdot 10^{-8}$
$b\bar{b} \to t\bar{t}$	0.005785	0.005785	0	0.1088	0.1088	0
$b\bar{b} \to u\bar{u}$	$5.866 \cdot 10^{-5}$	$5.866 \cdot 10^{-5}$	0	0.004352	0.004352	0
$b\bar{t} \to e^-\bar{\nu}_e$	0.000102	0.000102	0	0.003878	0.003878	$2.579 \cdot 10^{-8}$

## 2.41 cbWI

		interfere	ence		square			
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$		
$HH  o W^+ \bar t b$	$9.196 \cdot 10^{-7}$	$9.196 \cdot 10^{-7}$	0	$1.346 \cdot 10^{-5}$	$1.346 \cdot 10^{-5}$	0		
$HH  o z \bar{b} b$	$-3.295 \cdot 10^{-8}$	$-3.295 \cdot 10^{-8}$	$3.035 \cdot 10^{-8}$	$5.422 \cdot 10^{-6}$	$5.422 \cdot 10^{-6}$	0		
$HW^+  o \gamma t \bar{b}$	$2.122 \cdot 10^{-6}$	$2.122 \cdot 10^{-6}$	0	$1.602 \cdot 10^{-5}$	$1.602 \cdot 10^{-5}$	0		
$HW^- \to \bar{t}b$	$1.361 \cdot 10^{-7}$	$1.361 \cdot 10^{-7}$	0	2.265	2.265	0		
$H\gamma  o b\bar{b}$	$3.022 \cdot 10^{-20}$	$2.58 \cdot 10^{-20}$	0.1463	0.06302	0.06302	$-1.587 \cdot 10^{-8}$		
$Hz  o b\bar{b}$	$-2.213 \cdot 10^{-6}$	$-2.213 \cdot 10^{-6}$	0	1.456	1.456	0		
$W^+W^-  o Hbar{b}$	$5.341 \cdot 10^{-7}$	$5.341 \cdot 10^{-7}$	$1.872 \cdot 10^{-8}$	$7.603 \cdot 10^{-6}$	$7.603 \cdot 10^{-6}$	0		
$W^+W^-  o H t \bar t$	$-3.041 \cdot 10^{-8}$	$-3.041 \cdot 10^{-8}$	0	$1.051 \cdot 10^{-8}$	$1.051 \cdot 10^{-8}$	0		
$\bar{b}t \to \bar{d}u$	$3.529 \cdot 10^{-20}$	$4.732 \cdot 10^{-20}$	-0.341	0.007753	0.007753	0		
$b\bar{b}  o \gamma \gamma$	$1.019 \cdot 10^{-23}$	$-1.787 \cdot 10^{-22}$	18.54	0.0006186	0.0006186	$-3.233 \cdot 10^{-8}$		
$b\bar{b}  o \mu^+\mu^-$	$4.556 \cdot 10^{-16}$	$4.557 \cdot 10^{-16}$	$-5.603 \cdot 10^{-5}$	0.002113	0.002113	$4.734 \cdot 10^{-8}$		
$b\bar{b}  o  u_e \bar{ u}_e$	$8.919 \cdot 10^{-20}$	$-2.927 \cdot 10^{-21}$	1.033	0.001927	0.001927	0		
$b\bar{b}  o b\bar{b}$	$2.191 \cdot 10^{-18}$	$-1.415 \cdot 10^{-18}$	1.646	0.03118	0.03118	0		
$b\bar{b}  o d\bar{d}$	$9.237 \cdot 10^{-18}$	$9.237 \cdot 10^{-18}$	$2.137 \cdot 10^{-5}$	0.005502	0.005502	0		
$b\bar{b}  o t\bar{t}$	$-9.398 \cdot 10^{-19}$	$4.22 \cdot 10^{-19}$	1.449	0.1088	0.1088	0		
$b\bar{b} \to u\bar{u}$	$3.376 \cdot 10^{-18}$	$3.458 \cdot 10^{-18}$	-0.0244	0.00435	0.00435	0		
$b\bar{t} \to e^- \bar{\nu}_e$	$-3.862 \cdot 10^{-19}$	$-1.326 \cdot 10^{-19}$	0.6567	0.003878	0.003878	$2.579 \cdot 10^{-8}$		

### 2.42 cblS2

### 2.43 cblSI1

### 2.44 cblSI2

#### 2.45 cbtud1

#### 2.46 cbtud1I

 $\bar{b}t \to \bar{d}u$  0 0 0 0.03069 0.03069 6.092 · 10<sup>-6</sup>

### 2.47 cbtud8

### 2.48 cbtud8I

## $2.49 \quad cpQ3$

		interfer	ence		square			
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1 m	$1-\mathtt{mod}2/\mathtt{mod}1$			
$HH  o W^+ \bar t b$	$1.846 \cdot 10^{-5}$	$1.846 \cdot 10^{-5}$	0	$3.446 \cdot 10^{-5}$ $3.446$	$6 \cdot 10^{-5}$ 0			
$HH  o z \bar b b$	$1.636 \cdot 10^{-6}$	$1.636 \cdot 10^{-6}$	0	$5.587 \cdot 10^{-6}$ $5.587$	$7 \cdot 10^{-6}$ 0			
$HW^+  o \gamma t \bar{b}$	$-1.286 \cdot 10^{-6}$	$-1.286 \cdot 10^{-6}$	0	$1.251 \cdot 10^{-6}$ $1.251$	$0 \cdot 10^{-6}$			
$HW^- \to \bar{t}b$	-2.206	-2.206	0	1.533 1.	533 0			
$Hz  o b ar{b}$	0.3385	0.3385	$2.954 \cdot 10^{-8}$	2.95 2	.95 0			
$W^+W^- \to H b \bar b$	$-2.774 \cdot 10^{-6}$	$-2.774 \cdot 10^{-6}$	0	$1.167 \cdot 10^{-6}$ $1.167$	$0 \cdot 10^{-6}$			
$W^+W^-  o Ht\bar{t}$	$5.814 \cdot 10^{-6}$	$5.814 \cdot 10^{-6}$	0	$9.25 \cdot 10^{-6}$ $9.25$	$\cdot 10^{-6}$ 0			
$\bar{b}t \to \bar{d}u$	0.0004845	0.0004845	0	$1.469 \cdot 10^{-5}$ $1.469$	$0 \cdot 10^{-5}$ 0			
$b\bar{b} \to \mu^+ \mu^-$	0.0001324	0.0001324	$7.551 \cdot 10^{-8}$	$1.162 \cdot 10^{-5}$ $1.162$	$2 \cdot 10^{-5}$ 0			
$b\bar{b}  o  u_e \bar{ u}_e$	0.0009915	0.0009915	0	$7.12 \cdot 10^{-5}$ $7.12$	$\cdot 10^{-5}$ 0			

b ar b  o b ar b	-0.1049	-0.1049	0	0.004872	0.004872	0
$b\bar{b}  o d\bar{d}$	0.0003029	0.0003029	0	$2.17 \cdot 10^{-5}$	$2.17\cdot 10^{-5}$	0
$b\bar{b}  o t\bar{t}$	0.000811	0.000811	$6.165 \cdot 10^{-8}$	0.003994	0.003994	$2.504 \cdot 10^{-8}$
$b\bar{b} \to u\bar{u}$	0.001146	0.001146	0	$6.647 \cdot 10^{-5}$	$6.647 \cdot 10^{-5}$	$1.504 \cdot 10^{-8}$
$b\bar{t} \to e^- \bar{\nu}_e$	0.001089	0.001089	$9.181 \cdot 10^{-8}$	$3.301 \cdot 10^{-5}$	$3.301 \cdot 10^{-5}$	0

# 2.50 cpQM

		interfer	ence		square		
	mod1	mod2	$1-{\tt mod2/mod1}$	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	
HH  o z ar b b	$1.013 \cdot 10^{-5}$	$1.013 \cdot 10^{-5}$	0	$2.79 \cdot 10^{-5}$	$2.79 \cdot 10^{-5}$	0	
$HH \to z t \bar{t}$	$2.828 \cdot 10^{-5}$	$2.828 \cdot 10^{-5}$	0	$2.942 \cdot 10^{-5}$	$2.942 \cdot 10^{-5}$	0	
$Hz  o b ar{b}$	0.2229	0.2229	0	0.9693	0.9693	0	
$Hz \to t\bar{t}$	2.071	2.071	0	1.411	1.411	0	
$W^+W^- \to Hb\bar{b}$	$4.696 \cdot 10^{-6}$	$4.696 \cdot 10^{-6}$	0	$6.268 \cdot 10^{-7}$	$6.268 \cdot 10^{-7}$	$1.595 \cdot 10^{-8}$	
$W^+W^-  o H t \bar t$	$-2.189 \cdot 10^{-6}$	$-2.189 \cdot 10^{-6}$	$4.567 \cdot 10^{-8}$	$2.031 \cdot 10^{-6}$	$2.031 \cdot 10^{-6}$	0	
$b\bar{b} \to \mu^+ \mu^-$	$9.955 \cdot 10^{-5}$	$9.955 \cdot 10^{-5}$	$2.009 \cdot 10^{-8}$	$3.075 \cdot 10^{-6}$	$3.075 \cdot 10^{-6}$	0	
$b\bar{b}  o  u_e \bar{ u}_e$	$7.357 \cdot 10^{-5}$	$7.357 \cdot 10^{-5}$	0	$2.642 \cdot 10^{-6}$	$2.642 \cdot 10^{-6}$	0	
$b\bar{b}  o b\bar{b}$	-0.002173	-0.002173	$4.602 \cdot 10^{-8}$	$2.545 \cdot 10^{-5}$	$2.545 \cdot 10^{-5}$	0	
$b\bar{b} \to d\bar{d}$	0.0001555	0.0001555	0	$5.551 \cdot 10^{-6}$	$5.551 \cdot 10^{-6}$	0	
$b\bar{b}  o t\bar{t}$	-0.0006553	-0.0006553	$-1.526 \cdot 10^{-8}$	$2.555 \cdot 10^{-6}$	$2.555 \cdot 10^{-6}$	$-7.826 \cdot 10^{-8}$	
$b\bar{b} \to u\bar{u}$	0.0001014	0.0001014	0	$5.747 \cdot 10^{-6}$	$5.747 \cdot 10^{-6}$	$-3.48 \cdot 10^{-8}$	
$t\bar{t} \to \nu_{\mu}\bar{\nu}_{\mu}$	-0.0004415	-0.0004415	0	$1.975 \cdot 10^{-5}$	$1.975 \cdot 10^{-5}$	0	
$t\bar{t} \to \tau^+ \tau^-$	$2.392 \cdot 10^{-5}$	$2.392 \cdot 10^{-5}$	$-8.36 \cdot 10^{-8}$	$3.775 \cdot 10^{-6}$	$3.775 \cdot 10^{-6}$	$-2.649 \cdot 10^{-8}$	
$t\bar{t} \to c\bar{c}$	$-6.86 \cdot 10^{-5}$	$-6.86 \cdot 10^{-5}$	$5.831 \cdot 10^{-8}$	$6.61 \cdot 10^{-6}$	$6.61 \cdot 10^{-6}$	$-1.513 \cdot 10^{-8}$	
$t\bar{t} \to d\bar{d}$	-0.001296	-0.001296	0	$4.517 \cdot 10^{-5}$	$4.517 \cdot 10^{-5}$	$2.214 \cdot 10^{-8}$	
$t\bar{t} \to s\bar{s}$	-0.001147	-0.001147	$8.716 \cdot 10^{-8}$	$4.006 \cdot 10^{-5}$	$4.006 \cdot 10^{-5}$	0	
$t\bar{t} \to t\bar{t}$	0.06129	0.06129	0	0.00851	0.00851	0	

# 2.51 cpt

		interfer	ence		square			
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$		
$HH \to z t \bar{t}$	$-3.477 \cdot 10^{-5}$	$-3.477 \cdot 10^{-5}$	0	$2.752 \cdot 10^{-5}$	$2.752 \cdot 10^{-5}$	0		
$Hz \to t\bar{t}$	-1.647	-1.647	0	0.3434	0.3434	0		
$W^+W^-  o H t \bar t$	$2.176 \cdot 10^{-6}$	$2.176 \cdot 10^{-6}$	0	$1.197 \cdot 10^{-6}$	$1.197 \cdot 10^{-6}$	$8.352 \cdot 10^{-8}$		
$b\bar{b} \to t\bar{t}$	-0.001631	-0.001631	$6.132 \cdot 10^{-8}$	$2.532 \cdot 10^{-5}$	$2.532 \cdot 10^{-5}$	0		
$t\bar{t} \to \nu_{\mu}\bar{\nu}_{\mu}$	$-2.253 \cdot 10^{-7}$	$-2.253 \cdot 10^{-7}$	$2.13 \cdot 10^{-6}$	$1.51 \cdot 10^{-6}$	$1.51 \cdot 10^{-6}$	0		
$t\bar{t} \to \tau^+ \tau^-$	$7.06 \cdot 10^{-6}$	$7.06 \cdot 10^{-6}$	$-3.399 \cdot 10^{-7}$	$3.21 \cdot 10^{-6}$	$3.21 \cdot 10^{-6}$	$3.116 \cdot 10^{-8}$		
$t\bar{t} \to c\bar{c}$	-0.0001635	-0.0001635	0	$2.749 \cdot 10^{-5}$	$2.749 \cdot 10^{-5}$	0		
$t\bar{t} \to d\bar{d}$	$5.057 \cdot 10^{-5}$	$5.057 \cdot 10^{-5}$	$-5.933 \cdot 10^{-8}$	$1.99 \cdot 10^{-5}$	$1.99 \cdot 10^{-5}$	0		
$t\bar{t} \to s\bar{s}$	$1.619 \cdot 10^{-5}$	$1.619 \cdot 10^{-5}$	$-1.852 \cdot 10^{-7}$	$3.849 \cdot 10^{-6}$	$3.849 \cdot 10^{-6}$	0		
$t\bar{t} \to t\bar{t}$	-0.03584	-0.03584	0	0.008763	0.008763	0		

## 2.52 cptb

		interfer	rence		square			
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	1 - mod2/mod1		
$\bar{b}t \to \bar{d}u$	$-2.193 \cdot 10^{-6}$	$-2.193 \cdot 10^{-6}$	$4.559 \cdot 10^{-8}$	$2.896 \cdot 10^{-5}$	$2.896 \cdot 10^{-5}$	0		

## 2.53 cptbI

		interfere	ence		square			
	mod1	mod2	$1-{\tt mod2/mod1}$	mod1	mod2	$1-{\tt mod2/mod1}$		
$HH \to W^+ \bar{t} b$	$-2.918 \cdot 10^{-7}$	$-2.918 \cdot 10^{-7}$	0	$2.402 \cdot 10^{-6}$	$2.402 \cdot 10^{-6}$	0		
$HW^+  o \gamma t \bar{b}$	$1.891 \cdot 10^{-10}$	$1.891 \cdot 10^{-10}$	0	$6.997 \cdot 10^{-8}$	$6.997 \cdot 10^{-8}$	$-1.429 \cdot 10^{-8}$		
$HW^- \to \bar{t}b$	$-8.736 \cdot 10^{-6}$	$-8.736 \cdot 10^{-6}$	$1.145 \cdot 10^{-8}$	0.4891	0.4891	0		
$W^+W^- \to Hb\bar{b}$	$1.671 \cdot 10^{-8}$	$1.671 \cdot 10^{-8}$	0	$9.133 \cdot 10^{-7}$	$9.133 \cdot 10^{-7}$	0		

$W^+W^-  o H t \bar t$	$-1.76 \cdot 10^{-7}$	$-1.76 \cdot 10^{-7}$	0	$2.899 \cdot 10^{-9}$	$2.899 \cdot 10^{-9}$	0
$\bar{b}t \to \bar{d}u$	$-4.226 \cdot 10^{-22}$	$1.438 \cdot 10^{-22}$	1.34	$1.301 \cdot 10^{-6}$	$1.301 \cdot 10^{-6}$	0
$b\bar{b} \to t\bar{t}$	$-9.22 \cdot 10^{-22}$	$-3.414 \cdot 10^{-21}$	-2.703	0.001593	0.001593	0
$b\bar{t} \to e^- \bar{\nu}_e$	$-1.741 \cdot 10^{-22}$	$-5.391 \cdot 10^{-23}$	0.6903	$8.169 \cdot 10^{-8}$	$8.169 \cdot 10^{-8}$	$1.224 \cdot 10^{-8}$

## 2.54 ctG

	interference				square			
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	1 - mod2/mod1		
$b\bar{b} \to t\bar{t}$	0.09253	0.09253	0	0.04447	0.04447	0		
$gg \to t\bar{t}$	0.3179	0.3179	0	0.1039	0.1039	0		
$t\bar{t} \to c\bar{c}$	0.1977	0.1977	0	0.03952	0.03952	0		
$t\bar{t} \to d\bar{d}$	0.1977	0.1977	0	0.01689	0.01689	0		
$t\bar{t} \to s\bar{s}$	0.1977	0.1977	0	0.0241	0.0241	0		
$t\bar{t} \to t\bar{t}$	0.1618	0.1618	0	0.4069	0.4069	0		

# 2.55 ctGI

		interfere	square			
	mod1	mod2	$1-{\tt mod2/mod1}$	$\verb mod1  & \verb mod2  & 1-\verb mod2/mod1 $		
$b\bar{b} \to t\bar{t}$	$3.162 \cdot 10^{-18}$	$-9.667 \cdot 10^{-18}$	4.057	0.03502  0.03502  0		
$gg \to t\bar{t}$	$1.61 \cdot 10^{-17}$	$1.613 \cdot 10^{-17}$	-0.002105	0.09132  0.09132  0		
$t\bar{t} \to c\bar{c}$	$-1.471 \cdot 10^{-24}$	0	1	0.03007  0.03007  0		
$t\bar{t} \to d\bar{d}$	$1.654 \cdot 10^{-24}$	$-9.191 \cdot 10^{-25}$	1.556	$0.007443  0.007443 \qquad 0$		
$t\bar{t} \to s\bar{s}$	$1.471 \cdot 10^{-24}$	$1.838 \cdot 10^{-24}$	-0.25	0.01466  0.01466  0		
$t\bar{t} \to t\bar{t}$	$1.93 \cdot 10^{-17}$	$2.358 \cdot 10^{-17}$	-0.2216	$0.338 \qquad 0.338 \qquad 0$		

# 2.56 ctQqu1

### 2.57 ctQqu1I

		terference		square		
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$
$\bar{b}t \to \bar{d}u$	0	0	0	0.25	0.25	$3.12 \cdot 10^{-6}$
$t\bar{t} \to c\bar{c}$	$1.55 \cdot 10^{-18}$	0	1	0.5004	0.5004	$3.097 \cdot 10^{-6}$

### 2.58 ctQqu8

## 2.59 ctQqu8I

### 2.60 ctW

$\bar{b}t \to \bar{d}u$	0.0027	0.0027	$3.704 \cdot 10^{-8}$	0.007094	0.007094	0
$t\bar{t} \to d\bar{d}$	0.003647	0.003647	$-5.485 \cdot 10^{-8}$	0.006616	0.006616	$3.779 \cdot 10^{-7}$
$t\bar{t} \to s\bar{s}$	0.001779	0.001779	$5.622 \cdot 10^{-8}$	0.005673	0.005673	$3.878 \cdot 10^{-7}$

## 2.61 ctWI

		interfere	ence	square
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	$\verb mod1  \qquad \verb mod2  \qquad 1-\verb mod2/mod1 $
$HH \to W^+ \bar{t} b$	$5.961 \cdot 10^{-6}$	$5.961 \cdot 10^{-6}$	0	$2.238 \cdot 10^{-6}$ $2.238 \cdot 10^{-6}$ 0
$HH \to z t \bar t$	$-2.015 \cdot 10^{-13}$	0	1	$7.154 \cdot 10^{-18}$ 0 1
$HW^+ \to \gamma t \bar{b}$	$1.159 \cdot 10^{-7}$	$1.159 \cdot 10^{-7}$	$9.488 \cdot 10^{-7}$	$1.202 \cdot 10^{-5}$ $1.202 \cdot 10^{-5}$ $1.248 \cdot 10^{-6}$
$HW^-  o \bar{t}b$	$-7.623 \cdot 10^{-5}$	$-7.623 \cdot 10^{-5}$	0	2.25 $2.25$ $0$
$H\gamma \to t\bar{t}$	$-5.388 \cdot 10^{-17}$	$-1.059 \cdot 10^{-16}$	-0.9653	13.48 13.48 1.187 $\cdot$ 10 <sup>-6</sup>
$Hz \to t\bar{t}$	$3.765 \cdot 10^{-10}$	0	1	$9.824 \cdot 10^{-13}$ 0 1
$W^+W^-  o Hb\bar{b}$	$-1.795 \cdot 10^{-6}$	$-1.795 \cdot 10^{-6}$	0	$3.112 \cdot 10^{-6}$ $3.112 \cdot 10^{-6}$ 0
$W^+W^-  o H t ar t$	$-1.866 \cdot 10^{-6}$	$-1.866 \cdot 10^{-6}$	$-1.072 \cdot 10^{-7}$	$2.89 \cdot 10^{-5}$ $2.89 \cdot 10^{-5}$ $-3.46 \cdot 10^{-8}$
$\bar{b}t \to \bar{d}u$	$1.299 \cdot 10^{-18}$	$-5.749 \cdot 10^{-18}$	5.425	$0.008208 \qquad 0.008208 \qquad 0$
$b\bar{b} \to t\bar{t}$	$-8.45 \cdot 10^{-19}$	$-1.653 \cdot 10^{-19}$	0.8044	$0.22   0.22   4.545 \cdot 10^{-8}$
$b\bar{t} \to e^- \bar{\nu}_e$	$1.579 \cdot 10^{-18}$	$3.109 \cdot 10^{-18}$	-0.9686	$0.001485 \qquad 0.001485 \qquad 0$
$t\bar{t}  o  u_{\mu} \bar{ u}_{\mu}$	$-5.711 \cdot 10^{-25}$	0	1	$1.186 \cdot 10^{-15}$ 0 1
$t\bar{t} \to \tau^+ \tau^-$	$-3.117 \cdot 10^{-19}$	$4.458 \cdot 10^{-19}$	2.43	$0.002414 \qquad 0.002414 \qquad 1.16 \cdot 10^{-6}$
$t\bar{t} \to c\bar{c}$	$1.156 \cdot 10^{-10}$	$1.156 \cdot 10^{-10}$	$6.057 \cdot 10^{-7}$	$0.007455 \qquad 0.007455 \qquad 9.524 \cdot 10^{-7}$
$t\bar{t} \to d\bar{d}$	$1.466 \cdot 10^{-15}$	$1.465 \cdot 10^{-15}$	0.0004909	$0.003127 \qquad 0.003127 \qquad 3.838 \cdot 10^{-7}$
$t\bar{t} \to s\bar{s}$	$5.661 \cdot 10^{-13}$	$5.661 \cdot 10^{-13}$	$9.715 \cdot 10^{-7}$	$0.004192 \qquad 0.004192 \qquad 3.817 \cdot 10^{-7}$
$t \bar t  o t \bar t$	$3.93 \cdot 10^{-17}$	$5.799 \cdot 10^{-19}$	0.9852	$0.3645$ $0.3645$ $9.602 \cdot 10^{-7}$

## 2.62 ctZ

interference

square

	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$
$HH \to zt\bar{t}$	$2.295 \cdot 10^{-6}$	$2.295 \cdot 10^{-6}$	$5.664 \cdot 10^{-7}$	$3.342 \cdot 10^{-5}$	$3.342 \cdot 10^{-5}$	$1.107 \cdot 10^{-6}$
$HW^+ \to \gamma t \bar{b}$	$2.574 \cdot 10^{-7}$	$2.574 \cdot 10^{-7}$	$5.829 \cdot 10^{-7}$	$4.429 \cdot 10^{-6}$	$4.429 \cdot 10^{-6}$	$1.129 \cdot 10^{-6}$
$H\gamma \to t\bar{t}$	2.148	2.148	$5.587 \cdot 10^{-7}$	3.645	3.645	$1.125 \cdot 10^{-6}$
$Hz \to t\bar{t}$	-0.2343	-0.2343	$5.975 \cdot 10^{-7}$	1.269	1.269	$1.104 \cdot 10^{-6}$
$W^+W^-  o H t \bar t$	$2.777 \cdot 10^{-8}$	$2.777 \cdot 10^{-8}$	$3.601 \cdot 10^{-7}$	$1.704 \cdot 10^{-7}$	$1.704 \cdot 10^{-7}$	$1.056 \cdot 10^{-6}$
$b\bar{b}  o t\bar{t}$	0.005851	0.005851	$5.64 \cdot 10^{-7}$	0.004479	0.004479	$1.094 \cdot 10^{-6}$
$t\bar{t}  ightarrow  u_{\mu} \bar{ u}_{\mu}$	0.001877	0.001877	$5.862 \cdot 10^{-7}$	0.002553	0.002553	$1.097 \cdot 10^{-6}$
$t\bar{t} \to \tau^+ \tau^-$	-0.005474	-0.005474	$5.298 \cdot 10^{-7}$	0.0163	0.0163	$1.104 \cdot 10^{-6}$
$t\bar{t} \to c\bar{c}$	-0.003096	-0.003096	$5.492 \cdot 10^{-7}$	0.008877	0.008877	$1.093 \cdot 10^{-6}$
$t\bar{t}  o d\bar{d}$	$2.861 \cdot 10^{-5}$	$2.861 \cdot 10^{-5}$	$1.748 \cdot 10^{-6}$	0.005277	0.005277	$1.099 \cdot 10^{-6}$
$t\bar{t} \to s\bar{s}$	0.0009073	0.0009073	$6.062 \cdot 10^{-7}$	0.004046	0.004046	$1.112 \cdot 10^{-6}$
$t \bar t  o t \bar t$	0.04249	0.04249	$5.413 \cdot 10^{-7}$	0.0923	0.0923	$1.094 \cdot 10^{-6}$

# 2.63 ctZI

		interfere		square			
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	
$HH \to z t \bar{t}$	$-6.854 \cdot 10^{-7}$	$-6.854 \cdot 10^{-7}$	$5.69 \cdot 10^{-7}$	$3.839 \cdot 10^{-5}$	$3.839 \cdot 10^{-5}$	$1.094 \cdot 10^{-6}$	
$HW^+  o \gamma t \bar{b}$	$3.144 \cdot 10^{-6}$	$3.144 \cdot 10^{-6}$	$5.725 \cdot 10^{-7}$	$1.44 \cdot 10^{-5}$	$1.44 \cdot 10^{-5}$	$1.111 \cdot 10^{-6}$	
$H\gamma \to t\bar{t}$	$6.37 \cdot 10^{-17}$	$5.939 \cdot 10^{-17}$	0.06766	7.532	7.532	$1.115 \cdot 10^{-6}$	
$Hz \to t\bar{t}$	0.0002323	0.0002323	$5.597 \cdot 10^{-7}$	3.583	3.583	$1.116 \cdot 10^{-6}$	
$W^+W^-  o Ht\bar{t}$	$3.339 \cdot 10^{-8}$	$3.339 \cdot 10^{-8}$	$5.691 \cdot 10^{-7}$	$1.215 \cdot 10^{-8}$	$1.215 \cdot 10^{-8}$	$1.07 \cdot 10^{-6}$	
$b\bar{b}  o t\bar{t}$	$-2.641 \cdot 10^{-19}$	$1.298 \cdot 10^{-18}$	5.913	0.004099	0.004099	$1.098 \cdot 10^{-6}$	
$t\bar{t}  o  u_{\mu} \bar{ u}_{\mu}$	$4.501 \cdot 10^{-19}$	$2.372 \cdot 10^{-18}$	-4.269	0.0008202	0.0008202	$1.097 \cdot 10^{-6}$	
$t\bar{t} \rightarrow \tau^+ \tau^-$	$-5.821 \cdot 10^{-18}$	$-4.038 \cdot 10^{-18}$	0.3064	0.007842	0.007842	$1.097 \cdot 10^{-6}$	
$t\bar{t} \to c\bar{c}$	$-1.012 \cdot 10^{-10}$	$-1.012 \cdot 10^{-10}$	$6.919 \cdot 10^{-7}$	0.01185	0.01185	$1.097 \cdot 10^{-6}$	
$t\bar{t} \to d\bar{d}$	$-1.106 \cdot 10^{-15}$	$-1.106 \cdot 10^{-15}$	-0.000512	0.0008715	0.0008715	$1.09 \cdot 10^{-6}$	
$t\bar{t} \to s\bar{s}$	$-4.955 \cdot 10^{-13}$	$-4.955 \cdot 10^{-13}$	$9.083 \cdot 10^{-7}$	0.001716	0.001716	$1.107 \cdot 10^{-6}$	

### 2.64 ctb1

#### 2.65 ctd1

interference square 1 - mod2/mod1mod2 1 - mod2/mod1mod1mod2 mod1 $t\bar{t} \to d\bar{d}$ -0.01867-0.018670.31970.31970  $t\bar{t} \to s\bar{s}$  $-0.005711 \quad -0.005711 \quad -3.502 \cdot 10^{-8}$  $0.09278 \quad 0.09278$ 

### 2.66 ctd8

interference square mod1mod2 1 - mod2/mod1mod1mod2 1 - mod2/mod1 $t\bar{t} \to d\bar{d}$ 0.230.23 $0.07104 \quad 0.07104$ 0 0  $t\bar{t} \to s\bar{s}$  $0.08057 \quad 0.08057$ 0  $0.02062 \quad 0.02062$ 0

### 2.67 cte3

#### 2.68 ctl2

#### 2.69 ctlSI1

### 2.70 ctlSI3

#### 2.71 ctlT3

### 2.72 ctlTI1

 $b\bar{t} \to e^- \bar{\nu}_e$  0 0 1.021 1.021 0

### 2.73 ctlTI3

### 2.74 ctp

interference square mod11 - mod2/mod1mod2 1 - mod2/mod1mod2 mod1 $HH \to Ht\bar{t}$  $3.449 \cdot 10^{-5}$  $3.449 \cdot 10^{-5}$ 0  $2.149 \cdot 10^{-5}$  $2.149 \cdot 10^{-5}$ 0  $HH \rightarrow W^+ \bar{t} b$  $1.764 \cdot 10^{-5}$  $1.764 \cdot 10^{-5}$  $5.558 \cdot 10^{-6}$  $5.558 \cdot 10^{-6}$ 0 0  $HH \rightarrow zt\bar{t}$  $5.436 \cdot 10^{-6}$  $5.436 \cdot 10^{-6}$  $3.137 \cdot 10^{-6}$  $3.137 \cdot 10^{-6}$ 0 0  $-4.686 \cdot 10^{-8}$  $-1.463 \cdot 10^{-8}$  $HW^+ \to \gamma t \bar{b}$  $2.134 \cdot 10^{-7}$  $2.134 \cdot 10^{-7}$  $6.836 \cdot 10^{-8}$  $6.836 \cdot 10^{-8}$  $HW^- \to \bar{t}b$ 0.053860.053860.050570.050570 0  $H\gamma \to t\bar{t}$ -0.2224-0.2224 $-4.496 \cdot 10^{-8}$ 0.0068250.006825 $-1.465 \cdot 10^{-8}$  $Hz \to t\bar{t}$ -0.1133-0.11330 0.052260.052260  $W^+W^- \to Hb\bar{b}$  $6.46 \cdot 10^{-7}$  $6.46 \cdot 10^{-7}$  $5.206 \cdot 10^{-8}$  $5.206 \cdot 10^{-8}$ 0 0  $W^+W^- \to H t \bar{t}$  $-4.895 \cdot 10^{-7}$  $5.607 \cdot 10^{-7}$  $-4.895 \cdot 10^{-7}$  $-2.043 \cdot 10^{-8}$  $5.607 \cdot 10^{-7}$ 0  $-1.31 \cdot 10^{-5}$  $b\bar{b} \to t\bar{t}$  $-1.31 \cdot 10^{-5}$  $6.089 \cdot 10^{-7}$ 0  $6.089 \cdot 10^{-7}$  $t\bar{t} \to \tau^+ \tau^ -1.012 \cdot 10^{-6}$  $-1.012 \cdot 10^{-6}$  $3.101 \cdot 10^{-8}$  $3.101 \cdot 10^{-8}$ 0  $t\bar{t} \to t\bar{t}$ 0.042660.042660.0084150.0084150

### 2.75 ctpI

interference square

	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$
$HH \to H t \bar t$	$2.398 \cdot 10^{-5}$	$2.398 \cdot 10^{-5}$	0	$4.187 \cdot 10^{-5}$	$4.187 \cdot 10^{-5}$	0
$HH \to W^+ \bar{t} b$	$7.674 \cdot 10^{-6}$	$7.674 \cdot 10^{-6}$	$1.303 \cdot 10^{-8}$	$9.878 \cdot 10^{-6}$	$9.878 \cdot 10^{-6}$	$1.012 \cdot 10^{-8}$
$HH \to z t \bar{t}$	$4.373 \cdot 10^{-7}$	$4.373 \cdot 10^{-7}$	0	$3.224 \cdot 10^{-6}$	$3.224 \cdot 10^{-6}$	0
$HW^+ \to \gamma t \bar{b}$	$-5.57 \cdot 10^{-8}$	$-5.57 \cdot 10^{-8}$	$1.795 \cdot 10^{-8}$	$8.477 \cdot 10^{-8}$	$8.477 \cdot 10^{-8}$	$-1.18 \cdot 10^{-8}$
$HW^-  o \bar{t}b$	-0.001785	-0.001785	0	0.05654	0.05654	0
$H\gamma \to t\bar{t}$	$-5.632 \cdot 10^{-18}$	$-6.498 \cdot 10^{-18}$	-0.1537	0.007789	0.007789	$-1.284 \cdot 10^{-8}$
$Hz \to t\bar{t}$	-0.001293	-0.001293	0	0.05186	0.05186	0
$W^+W^-  o Hb\bar b$	$6.059 \cdot 10^{-7}$	$6.059 \cdot 10^{-7}$	0	$3.262 \cdot 10^{-8}$	$3.262 \cdot 10^{-8}$	0
$W^+W^-  o H t \bar t$	$1.101 \cdot 10^{-6}$	$1.101 \cdot 10^{-6}$	0	$7.353 \cdot 10^{-7}$	$7.353 \cdot 10^{-7}$	0
$b\bar{b}  o t\bar{t}$	$-2.691 \cdot 10^{-21}$	$-2.368 \cdot 10^{-21}$	0.1202	$6.906 \cdot 10^{-7}$	$6.906 \cdot 10^{-7}$	0
$t\bar{t} \to \tau^+ \tau^-$	$-1.155 \cdot 10^{-22}$	$-2.21 \cdot 10^{-22}$	-0.9133	$3.49 \cdot 10^{-8}$	$3.49 \cdot 10^{-8}$	0
$t\bar{t} \to t\bar{t}$	$6.35 \cdot 10^{-19}$	$-5.842 \cdot 10^{-19}$	1.92	0.004786	0.004786	0

# 2.76 ctq1

		int	erference		square			
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$		
$t\bar{t} \to d\bar{d}$	0.000222	0.000222	$-7.657 \cdot 10^{-7}$	0.2155	0.2155	0		
$t\bar{t} \to s\bar{s}$	0.009246	0.009246	$-4.326 \cdot 10^{-8}$	0.5256	0.5256	0		

## 2.77 ctq8

		in	iterference		square			
	mod1	mod2	$1-{\tt mod2/mod1}$	mod1	mod2	$1-{\tt mod2/mod1}$		
$t\bar{t} \to c\bar{c}$	0.5602	0.5602	0	0.1825	0.1825	0		
$t\bar{t} \to d\bar{d}$	0.4697	0.4697	0	0.1519	0.1519	0		
$t\bar{t} \to s\bar{s}$	0.07496	0.07496	0	0.01872	0.01872	0		

## 2.78 ctt1

		1n <sup>1</sup>	terference		square			
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	1 - mod2/mod1		
$t \bar t  o t \bar t$	-0.4834	-0.4834	$-2.069 \cdot 10^{-8}$	5.306	5.306	0		

## 2.79 ctu1

		in	nterference	square
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	$\mathtt{mod1}  \mathtt{mod2}  1 - \mathtt{mod2}/\mathtt{mod1}$
$t\bar{t} \to c\bar{c}$	0.01096	0.01096	$-9.127 \cdot 10^{-8}$	$0.08869  0.08869 \qquad 0$

## 2.80 ctu8

		in	iterference		square		
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	1 - mod2/mod1	
$t\bar{t} \to c\bar{c}$	0.07788	0.07788	0	0.01971	0.01971	0	

## 2.81 sm

			interference		square	
	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$	mod1	mod2	$1-\mathtt{mod}2/\mathtt{mod}1$
$HH \to HH$	0	0	0	0.2047	0.2047	0
$HH \to HHH$	0	0	0	$2.579 \cdot 10^{-7}$	$2.579 \cdot 10^{-7}$	0
$HH \to H  au^+  au^-$	0	0	0	$7.468 \cdot 10^{-11}$	$7.468 \cdot 10^{-11}$	0
$HH  o Hbar{b}$	0	0	0	$1.226 \cdot 10^{-9}$	$1.226 \cdot 10^{-9}$	0
$HH  o Htar{t}$	0	0	0	$5.805 \cdot 10^{-6}$	$5.805 \cdot 10^{-6}$	0
$HH \rightarrow Hzz$	0	0	0	$7.337 \cdot 10^{-6}$	$7.337 \cdot 10^{-6}$	0

$HH \to W^+W^-$	0	0	0	0.09021	0.09021	$1.109 \cdot 10^{-8}$
$HH \to W^+W^-\gamma$	0	0	0		$4.679 \cdot 10^{-5}$	$-2.137 \cdot 10^{-8}$
$HH \to W^+ \bar{t}b$	0	0	0	0.0001377	0.0001377	0
$HH \to W^+ e^- \bar{\nu}_e$	0	0	0		$1.145 \cdot 10^{-7}$	$8.734 \cdot 10^{-8}$
$HH \to W^- u\bar{d}$	0	0	0	$1.107 \cdot 10^{-6}$	$1.107 \cdot 10^{-6}$	$9.033 \cdot 10^{-8}$
$HH \rightarrow z\bar{b}b$	0	0	0		$1.864 \cdot 10^{-6}$	0
$HH \to z \nu_e \bar{\nu}_e$	0	0	0	$1.87 \cdot 10^{-7}$	$1.87 \cdot 10^{-7}$	0
$HH \rightarrow zc\bar{c}$	0	0	0		$2.581 \cdot 10^{-7}$	0
$HH \to z d\bar{d}$	0	0	0	0.004286	0.004286	0
$HH \rightarrow ze^+e^-$	0	0	0	$6.15 \cdot 10^{-8}$	$6.15 \cdot 10^{-8}$	0
$HH \to z t \bar{t}$	0	0	0		$1.378 \cdot 10^{-5}$	0
$HH \rightarrow zz$	0	0	0	0.07641	0.07641	0
$HW^+ \to \gamma t \bar{b}$	0	0	0	$1.849 \cdot 10^{-7}$	$1.849 \cdot 10^{-7}$	$-5.407 \cdot 10^{-8}$
$HW^+ \rightarrow \gamma u \bar{d}$	0	0	0	$7.647 \cdot 10^{-9}$	$7.647 \cdot 10^{-9}$	0
$HW^+ \rightarrow u\bar{d}$	0	0	0	0.02277	0.02277	0
$HW^- \to \bar{t}b$	0	0	0	0.5399	0.5399	0
$HW^-  o \gamma e^- \bar{\nu}_e$	0	0	0	$1.453 \cdot 10^{-9}$	$1.453 \cdot 10^{-9}$	0
$HW^-  o \mu^- \bar{\nu}_\mu$	0	0	0	0.005335	0.005335	0
$H\gamma  o bar{b}$	0	0	0	0.0001188	0.0001188	0
$H\gamma \to t\bar{t}$	0	0	0	0.4808	0.4808	0
$Hz \to \mu^+\mu^-$	0	0	0	0.002889	0.002889	0
$Hz \to \nu_{\tau} \bar{\nu}_{\tau}$	0	0	0	0.004781	0.004781	0
$Hz  o b ar{b}$	0	0	0	0.007034	0.007034	$1.422 \cdot 10^{-8}$
$Hz \to s\bar{s}$	0	0	0	0.007992	0.007992	0
$Hz \to t\bar{t}$	0	0	0	3.779	3.779	0
$Hz \to u\bar{u}$	0	0	0	0.01039	0.01039	0
$W^+W^- \to H b \bar b$	0	0	0	$9.787 \cdot 10^{-6}$	$9.787 \cdot 10^{-6}$	$1.022 \cdot 10^{-8}$
$W^+W^- \to Hc\bar{c}$	0	0	0	$1.943 \cdot 10^{-7}$	$1.943 \cdot 10^{-7}$	$5.147 \cdot 10^{-8}$
$W^+W^- \to H d\bar{d}$	0	0	0	$1.342 \cdot 10^{-7}$	$1.342 \cdot 10^{-7}$	0

$W^+W^- \to H t \bar t$	0	0	0	$7.582 \cdot 10^{-5}$	$7.582 \cdot 10^{-5}$	$1.319 \cdot 10^{-8}$
$W^+W^-  o W^+W^-$	0	0	0	4.625	4.625	0
$W^+W^- \to \gamma\gamma$	0	0	0	3.119	3.119	$-3.206 \cdot 10^{-8}$
$W^+W^- \to \gamma\gamma\gamma$	0	0	0	$1.026 \cdot 10^{-6}$	$1.026 \cdot 10^{-6}$	$-9.747 \cdot 10^{-8}$
$\bar{b}t \to \bar{d}u$	0	0	0	0.03132	0.03132	$3.193 \cdot 10^{-8}$
$\gamma W^+ \to z W^+$	0	0	0	0.2246	0.2246	0
$\mu^+\mu^- \to \tau^+\tau^-$	0	0	0	0.006648	0.006648	$-3.009 \cdot 10^{-8}$
$ u_{ au}\bar{ u}_{ au}  o  u_{ au}\bar{ u}_{ au}$	0	0	0	0.2516	0.2516	0
$ u_e \bar{\nu}_e \to \nu_\mu \bar{\nu}_\mu$	0	0	0	0.007594	0.007594	0
$b\bar{b}  o \gamma\gamma$	0	0	0	$8.28 \cdot 10^{-5}$	$8.28 \cdot 10^{-5}$	$-3.623 \cdot 10^{-8}$
$b\bar{b}  o \mu^+ \mu^-$	0	0	0	0.001274	0.001274	0
$b\bar{b}  o \nu_e \bar{\nu}_e$	0	0	0	0.00374	0.00374	$2.674 \cdot 10^{-8}$
$b\bar{b}  o b\bar{b}$	0	0	0	4.411	4.411	0
$b\bar{b}  o d\bar{d}$	0	0	0	0.7495	0.7495	0
$b\bar{b}  o t\bar{t}$	0	0	0	0.4884	0.4884	0
$b\bar{b} \to u\bar{u}$	0	0	0	0.4932	0.4932	0
$b\bar{t} \to e^- \bar{\nu}_e$	0	0	0	0.01308	0.01308	0
$c\bar{c} \to \mu^+ \mu^-$	0	0	0	0.001819	0.001819	0
$c\bar{s} \to \tau^+ \nu_{\tau}$	0	0	0	0.005257	0.005257	$1.902 \cdot 10^{-8}$
$d\bar{d} \to c\bar{c}$	0	0	0	0.5392	0.5392	0
$d\bar{d} \to e^+e^-$	0	0	0	0.0002853	0.0002853	$-7.011 \cdot 10^{-8}$
$e^+\nu_{\mu} \to e^+\nu_{\mu}$	0	0	0	0.01341	0.01341	$-7.457 \cdot 10^{-8}$
$e^+\nu_e \to \mu^+\nu_\mu$	0	0	0	0.02216	0.02216	0
$e^+\nu_e \to e^+\nu_e$	0	0	0	0.3205	0.3205	$3.12 \cdot 10^{-8}$
$e^+\tau^- \to e^+\tau^-$	0	0	0	0.02732	0.02732	$-3.66 \cdot 10^{-8}$
$e^+e^- \to \mu^+\mu^-$	0	0	0	0.02537	0.02537	$-3.942 \cdot 10^{-8}$
$e^+e^- \rightarrow e^+e^-$	0	0	0	0.05951	0.05951	$-3.361 \cdot 10^{-8}$
$gg \to gg$	0	0	0	577.6	577.6	0
$gg \to ggg$	0	0	0	0.06678	0.06678	0

gg  o t ar t	0	0	0	1.022	1.022	0
$gg \to u\bar{u}$	0	0	0	0.4727	0.4727	0
$s\bar{s} \to \nu_{\tau} \bar{\nu}_{\tau}$	0	0	0	0.0007149	0.0007149	0
$s\bar{s} \to s\bar{s}$	0	0	0	10.3	10.3	0
$t\bar{t}  o  u_{\mu} \bar{ u}_{\mu}$	0	0	0	0.0009299	0.0009299	$1.075 \cdot 10^{-8}$
$t\bar{t} \rightarrow \tau^+ \tau^-$	0	0	0	0.0008761	0.0008761	$-4.566 \cdot 10^{-8}$
$t\bar{t} \to c\bar{c}$	0	0	0	0.8743	0.8743	0
$t\bar{t} \to d\bar{d}$	0	0	0	0.7654	0.7654	0
$t\bar{t} \to s\bar{s}$	0	0	0	0.6793	0.6793	0
$t\bar{t} \to t\bar{t}$	0	0	0	1.498	1.498	0
$u\bar{d} \to \mu^+ \nu_\mu$	0	0	0	0.007808	0.007808	$1.281 \cdot 10^{-8}$
$u\bar{d} \to c\bar{s}$	0	0	0	$3.016 \cdot 10^{-5}$	$3.016 \cdot 10^{-5}$	0
$u\bar{d} \to u\bar{d}$	0	0	0	443.4	443.4	0
$u\bar{u} \to \nu_e \bar{\nu}_e$	0	0	0	0.0005301	0.0005301	$-1.887 \cdot 10^{-8}$
$u\bar{u} \to u\bar{u}$	0	0	0	2.99	2.99	0
$zz \to W^+W^-$	0	0	0	42.87	42.87	$2.333 \cdot 10^{-8}$
$zz \to zz$	0	0	0	0.08151	0.08151	0