

ILC Model Independent Coupling Summary

Table 10.1. Summary of expected accuracies $\Delta g_i/g_i$ for model independent determinations of the Higgs boson couplings. The theory errors are $\Delta F_i/F_i = 0.1\%$. For the invisible branching ratio, the numbers quoted are 95% confidence upper limits. The four columns refer to ILC energy and luminosity scenarios 1,2,3, and 4 respectively.

Mode	ILC(250) baseline	ILC(500) baseline	ILC(1000) baseline	ILC(250) LumUp	ILC(500) LumUp	ILC(1000) LumUp
$\gamma\gamma$	18 %	8.4 %	4.1 %	8.2 %	4.5 %	2.4 %
gg	6.4 %	2.4 %	1.8 %	3.0 %	1.3 %	0.93 %
WW	4.8 %	1.4 %	1.4 %	2.3 %	0.67 %	0.65 %
ZZ	1.3 %	1.3 %	1.3 %	0.61 %	0.61 %	0.61 %
$t\bar{t}$	–	14 %	3.2 %	–	7.8 %	2.0 %
$b\bar{b}$	5.3 %	1.8 %	1.5 %	2.5 %	0.90 %	0.74 %
$\tau^+\tau^-$	5.7 %	2.4 %	1.9 %	2.7 %	1.2 %	0.99 %
$c\bar{c}$	6.8 %	2.9 %	2.0 %	3.2 %	1.5 %	1.1 %
$\mu^+\mu^-$	–	–	16 %	–	–	10 %
$\Gamma_T(h)$	11 %	5.9 %	5.6 %	5.4 %	2.8 %	2.7 %
hhh	–	83 %	21 %	–	46 %	13 %
BR(invis.)	< 0.69 %	< 0.69 %	< 0.69 %	< 0.32	< 0.32	< 0.32 %

ILC Coupling Summary For Facility Comparison

Table 10.2. Summary of expected accuracies $\Delta g_i/g_i$ of Higgs boson couplings using, for each coupling, the fitting technique that most closely matches that used by LHC experiments. For $g_g, g_\gamma, g_W, g_Z, g_b, g_t, g_\tau$ the seven parameter HXSWG benchmark parameterization described in Section 10.3.7 of [43] is used. For the couplings g_μ, g_{hhh} and the limit on invisible branching ratio independent analyses are used. The charm coupling g_c and the Higgs total width $\Gamma_T(h)$ come from our 10 parameter model independent fit. All theory errors are 0.1%. For the invisible branching ratio, the numbers quoted are 95% confidence upper limits.

	ILC(250)	ILC(500)	ILC(1000)	ILC(250)	ILC(500)	ILC(1000)
Mode	baseline	baseline	baseline	LumUp	LumUp	LumUp
$\gamma\gamma$	17 %	8.3 %	3.8 %	8.1 %	4.4 %	2.3 %
gg	6.1 %	2.0 %	1.1 %	2.8 %	1.1 %	0.67 %
WW	4.7 %	0.39 %	0.21 %	2.2 %	0.31 %	0.13 %
ZZ	0.73 %	0.49 %	0.44 %	0.38 %	0.31 %	0.22 %
$t\bar{t}$	6.3 %	2.5 %	1.3 %	3.0 %	1.4 %	0.76 %
$b\bar{b}$	4.7 %	0.93 %	0.51 %	2.2 %	0.57 %	0.31 %
$\tau^+\tau^-$	5.2 %	1.9 %	1.3 %	2.4 %	1.0 %	0.72 %
$\mu^+\mu^-$	–	–	16 %	–	–	10 %
hhh	–	83 %	21 %	–	46 %	13 %
BR(invis.)	< 0.69 %	< 0.69 %	< 0.69 %	< 0.32	< 0.32	< 0.32 %
$c\bar{c}$	6.8 %	2.9 %	2.0 %	3.2 %	1.5 %	1.1 %
$\Gamma_T(h)$	11 %	5.9 %	5.6 %	5.4 %	2.8 %	2.7 %