

## Comparison of linear and circular collider precision electroweak capabilities — M. Peskin

The expected luminosity and the projected errors for a linear collider Giga-Z are discussed in the ILC report [arXiv:1908.11299](https://arxiv.org/abs/1908.11299) . That document has a full table of the ILC capabilities for improved precision electroweak from radiative return and from a 100 fb<sup>-1</sup> dedicated run (5 billion Z's).

The 2019 ECFA Higgs panel report ([arXiv:1905.03764](https://arxiv.org/abs/1905.03764)) includes a table (Table 27) that compared the precision electroweak capabilities of HL-LHC, FCCee, CEPC, ILC, and CLIC. On the next slide is a table of the most relevant numbers. The numbers are projected relative errors in units of ( $10^{-4}$ ).

# projected errors on Z boson coupling observables

	current	FCC-ee	CEPC	Giga-Z	ILC250
$\delta A_e$	140	1.1	3.2	5.1	10
$\delta A_\mu$	1060			5.4	54
$\delta A_\tau$	300	3.1	5.2	5.4	57
$\delta A_b$	220			5.1	6.4
$\delta A_c$	400			5.8	21
$\delta A_{FB}^\mu$	770	0.54	4.6		
$\delta A_{FB}^b$	160	30	10		
$\delta A_{FB}^c$	500	80	30		
$\delta R_e$	24	3	2.4	5.4	11
$\delta R_\mu$	16	0.5	1	2.8	11
$\delta R_\tau$	22	1	1.5	4.5	12
$\delta R_b$	31	2	2	7	11
$\delta R_c$	170	10	10	30	50

from Table 27 of the ECFA Higgs panel report, arXiv:1905.03764; errors are given in units of  $10^{-4}$