

Precision absolute luminosity with photon pairs

Wednesday, 11 October 2023 17:00 (20 minutes)

At all center-of-mass energies of a future high-energy e^+e^- collider precise determination of the absolute integrated luminosity underpins the physics program. It is especially critical for measuring the number of light neutrino generations (N_ν). In this contribution we will emphasize the prospects and investigate the potential of using the pure QED process, $e^+e^- \rightarrow \gamma\gamma$, to target absolute precisions at the 0.01% level. This photon-pair process can be experimentally and theoretically more favorable than the small-angle Bhabha scattering based measurements typically considered for absolute integrated luminosity. We investigate consequences for detector design and detector performance (both required and currently achievable) in terms of photon measurements and rejection of Bhabha electrons.

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Session Classification: Parallel - WG1-PREC

Track Classification: WG1-PREC - Physics Potential: Precision