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Overview of FCC-ee physics

As part of the Future Circular Collider study at CERN, the Future e+e- Circular Collider, FCC-ee, (formerly called TLEP) is a new generation collider, able to fit in a 80 to 100km tunnel, and able to deliver high luminosity in up to four interaction points from at least the Z peak to above the top pair threshold. The luminosity at the Z pole, W pair and top threshold are over $2.5 \cdot 10^{35}$, $1.2 \cdot 10^{35}$ and $1.8 \cdot 10^{34}/\text{cm}^2/\text{s}$ in each of four interaction points, respectively allowing to contemplate statistics of over 10^{12} Z decays 10^8 W pairs and 10^6 top quark pairs. This leads to several independent ways of extracting the strong coupling constant α_S with a precision of the order of 0.0001, with different theoretical and experimental assumptions and model dependencies.

Summary

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