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FCC-ee luminosity tuning using lumical, beamstrahlung monitor and vertex detector in machine learning framework

Monday 2 June 2025 16:00 (2 hours)

FCC-ee luminosity optimization relies on measuring realistic signals from Bhabha scattering, beamstrahlung, and radiative Bhabha photons. Initial assessments of beamstrahlung signals examine the change in luminosity, beamstrahlung power and vertex detector hits in response to waist shifts, vertical dispersion and skew coupling at the collision point. These ongoing studies aim to extract IP-aberration-related signals from the energy spectrum, angular distribution, power of beamstrahlung photons, the vertex detector hits and the luminosity. Furthermore, the study integrates all these signals into a machine-learning-based approach for luminosity tuning and optimisation.

Footnotes

Paper preparation format

LaTeX

Region represented

Europe

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