

MITP
TOPICAL
WORKSHOP

Electroweak Corrections at
Current and Future
Accelerators

May 4 – 8, 2026
<https://indico.mitp.uni-mainz.de/event/438/>

mtp
Mainz Institute for
Theoretical Physics

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ECCFA – Mission of the Workshop

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Welcome by the organizers Andrzej Czarnecki, S.D., Ayres Freitas and Jens Erler

Timeliness of the workshop

Present-day particle physics:

- ▶ Standard Model (SM) → very good overall description of particle phenomena
- ▶ no convincing signals/traces of new physics in current collider data
- ▶ precision → may reveal limitations of the SM ? → key to discoveries ?

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Electroweak (EW) corrections:

- ▶ important ingredient to virtually all predictions for collider physics
- ▶ potential component to reveal SM extensions ?
(EW symmetry breaking, flavour, WIMPs, FIMPS, etc.)

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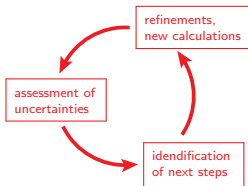
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The way to the future:

- ▶ theory work for future colliders (FCC-ee/hh, etc.) → great challenges !
- ▶ technical and conceptual progress is mission critical
(in particular for EW corrections)
- ▶ the ever-lasting rat race:



Plan of the workshop

↪ reflected by daily structure:

- ▶ Monday: LHC EW precision physics, extraction of pseudo-observables (POs) from hadron collider data, impact of PDFs
- ▶ Tuesday: determination of POs at e^+e^- colliders ($e^+e^- \rightarrow f\bar{f}, WW, ZH$)
- ▶ Wednesday: high-precision Z-pole POs, W-boson mass, Higgs decay widths
- ▶ Thursday: low-energy ee, ep, eC scattering (in particular relating to P2@MESA), weak charges of e, p, C, heavy nuclei
- ▶ Friday: discussion of theory uncertainties

Structure:

- ▶ few talks, mostly reviews
- ▶ plenty of time for discussions:
 - ▶ address the most important points/issues in reach for near-future work
 - ▶ identify important gaps in current understanding
 - ▶ new ideas in key areas ?

Outcome of the workshop

Common document:

- ▶ draft on CERN overleaf → fill with keywords during the workshop
<https://www.overleaf.com/read/vrmtvpnnsptb#da58fe>
- ▶ sections follow workshop structure
- ▶ two overseers per section (+ organizers) → leading roles in drafting sections
- ▶ finalization after the workshop → publication