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## Impact of Advances in Detector Techniques on Higgs Measurements at Future Higgs Factories

*Friday, 8 July 2022 15:45 (15 minutes)*

At the latest European strategy update in 2020 it has been highlighted that the next highest-priority collider should be an  $e^+e^-$  Higgs factory with a strong focus on precision physics. To utilise the clean event environments, a new generation of collider detector technologies is being developed along with novel algorithms to push event reconstruction to its full potential. This talk reviews key Higgs physics measurements and discusses in how far their prospects would benefit from advances in high-level reconstruction and improved detector capabilities. For instance the selection of Higgs and double-Higgs production modes, like ZH vs. ZZ/WW and ZHH vs. ZZH, in fully hadronic decay channels does not only profit from the excellent jet energy resolution of particle flow but also from a full kinematic fit reconstruction. This not only uses the known centre-of-mass energy at lepton colliders, but also allows to take into account invisible jet constituents. Second-generation decays of the Higgs boson are rare, suffer from a huge background at the LHC and are difficult to tag. Novel approaches to particle identification and in particular reconstruction of charged kaons and other strange hadrons substantially enhance charm- and strange-tagging, enabling among others a drastic improvement on the limit of the strange-Yukawa coupling.

### In-person participation

Yes

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