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Precision flavour and tau physics at FCC-ee

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The abundant production of beauty and charm hadrons in the $5 \cdot 10^{12}$ Z boson decays expected at FCC-ee offers outstanding opportunities in flavour physics that exceed those available at Belle II by a factor of 20, and are complementary to the LHC heavy-flavour programme. A wide range of measurements will be possible in heavy-flavour spectroscopy, rare decays of heavy-flavoured particles and CP-violation studies, which will benefit from the low-background experimental environment, the high Lorentz boost, and the availability of the full spectrum of hadron species. The huge data samples of the Tera-Z phase opens also the possibility of much improved determinations of tau-lepton properties – lifetime, leptonic and hadronic widths, and mass – allowing for important tests of lepton universality. In addition, via the measurement of the tau polarisation, FCC-ee can access a precise determination of the neutral-current couplings of electrons and taus. These measurements present strong experimental challenges to match as far as possible statistical uncertainties, $O(10^{-5})$, raising strict detector requirements. This contribution will present an overview of the broad potential of the FCC-ee flavor physics program and also some preliminary results from recent analyses.

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