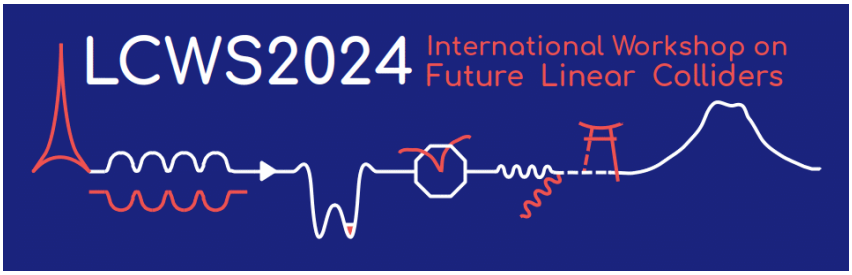

Contribution ID: **102** Type: **Oral presentation (remote)**

Top mass measurement at the CEPC

Tuesday 9 July 2024 11:20 (20 minutes)

The study is based on the publication of EPJC 83, 269 (2023).
We present a study of top quark mass measurements at the t\bar{t} threshold based on CEPC. A centre-of-mass energy scan near two times of the top mass is performed and the measurement precision of top quark mass, width and \alpha_S are evaluated using the t\bar{t} production rates. Realistic scan strategies at the threshold are discussed to maximise the sensitivity to the measurement of the top quark properties individually and simultaneously in the CEPC scenarios assuming a limited total luminosity of 100 fb^{-1}. With the optimal scan for individual property measurements, the top quark mass precision is expected to be 9 MeV, the top quark width precision is expected to be 26 MeV, and \alpha_S can be measured at a precision of 0.00039. Taking into account the uncertainties from theory, background subtraction, beam energy and luminosity spectrum, the top quark mass can be measured at a precision of 14 MeV optimistically and 34 MeV conservatively at CEPC.

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Session Classification: Top, QCD, Flavor, Precision Modelling

Track Classification: Physics and Detector: Top quark, QCD, Flavour, Precision Modelling