

Status of Chiral Belle: The Beam Polarization Upgrade of SuperKEKB

Thursday 18 July 2024 16:00 (15 minutes)

Recent R&D work associated with upgrading the SuperKEKB e^+e^- collider with polarized electron beams and Chiral Belle's program of unique precision measurements using Belle II will be described. These include five values of $\sin^2 \theta_W$ via left-right asymmetry measurements (A_{LR}) in $e^+e^- \rightarrow e^+e^-, \mu^+\mu^-, \tau^+\tau^-, c\bar{c}, b\bar{b}$. A_{LR} yields values of the neutral current (NC) coupling constant of each fermion species that will match (e, τ) or greatly exceed (b, c, μ) existing Z^0 world averages precision, but at 10GeV, thereby providing unique probes the running of θ_W . The program also probes new physics via the highest precision measurements by many factors of NC universality and tau lepton properties, including the tau $g-2$. After providing an update on Chiral Belle's physics potential, we will report on recent R&D related to provision of the required hardware, including modest upgrades to the SuperKEKB electron ring.

Alternate track

1. Top Quark and Electroweak Physics

I read the instructions above

Yes

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Session Classification: Quark and Lepton Flavour Physics

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