

PRISMA+ Colloquium

July 19, 2023 at 1 p.m.
Lorentz-Raum, 05-127, Staudingerweg 7

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JGU Mainz

On the determination of $\Delta\alpha(M_Z)$: comparison between methods and frameworks

The fine structure constant is a fundamental parameter in the Standard Model, playing a crucial role in computing a wide range of observables and consistency relations. While the current error on $\Delta\alpha(M_Z)$ is at the level of $\sim 10^{-4}$, future requirements, such as those of the FCC-ee/ILC, demand a reduction. In this talk, the referent presents an updated calculation of the hadronic contribution to $\Delta\alpha(M_Z)$. He will review different computational methods, such as the explicit integration in the timelike, renormalization group equations (RGE), and the euclidean split technique. The results emphasize the importance of accurately accounting for the charm quark contributions.