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PrecisionSM: an annotated database for low-energy positron-electron hadronic cross sections

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PrecisionSM is an annotated database that compiles the available data on low-energy cross sections of electron-positron collisions into hadronic channels. This database organizes and collects data samples from e^+e^- experiments, which are used as input for the data-driven theoretical evaluation of the muon anomalous magnetic moment, a_μ, serving as a precise test of the Standard Model when compared to the experimental measurements of a_μ. The database is accessible through a custom website (https://precision-sm.github.io) which contains details about the data samples, such as the treatment of radiative corrections, as well as links to papers on Inspire and to tables on HEPdata.

The PrecisionSM database was developed within a Joint Research Initiative in the group application of the European hadron physics community, STRONG2020, and is now incorporated into the RadioMonteCarLow2 Working Group (RMCL2 WG) activities, which have the more general goal of improving the theoretical description of scattering processes at e^+e^- colliders. The results of Phase I of the new RMCL2 WG have been published in https://arxiv.org/abs/2410.22882.

In this poster, we will report on the status of the PrecisionSM database, which currently contains a list of the dominant 2π channel, and the ongoing work for the other channels.

Secondary track

T05 - QCD and Hadronic Physics

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