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Precise theory prediction for di-lepton production

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Using the McMule framework, we present fully differential predictions for the process $e^+e^- \to \mu^+\mu^-, \tau^+\tau^-$ with polarised initial states, including the dominant QED corrections at NNLO. Weak corrections are included at NLO in an effective field theory approach. This calculation is important for a wide range of experiments measuring the R ratio (e.g. Daphne, VEPP, ...) or tau properties (e.g. Belle II). The latter is particularly interesting in the light of a recent proposal to measure the tau's anomalous magnetic moment using production asymmetry.

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