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Charm physics at Future Z/W/Higgs Factories

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Future electron-positron colliders operating at electroweak (EW) scales will generate a number of W and Z bosons, which will subsequently decay into charmed hadrons. The advanced detector systems anticipated for these colliders will offer excellent event reconstruction quality and high tagging efficiency for the relevant processes. Combined with the high average momentum of charm quarks produced in electroweak vector decays, these future lepton colliders will provide new opportunities for studying charm physics. Furthermore, the inclusive production of charm quarks at the EW scale allows for probing flavor physics at a level significantly higher than the hadron scales, thus free from systematic uncertainties induced by non-perturbative QCD.

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