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Worldwide Activities towards a Future Circular Collider: Physics and Detector Studies

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Collider rings with circumference in the range of 50-100 km could host electron-positron colliders with center-of-mass energies up to 350 GeV, and proton-proton colliders up to 100 TeV. Two-stage projects, along the lines of the LEP-LHC complex, are under study by the high-energy physics community worldwide. The physics potential of such a future facility spans from improving by orders of magnitude the precision study of the Higgs boson, to extending by a factor of 10 the mass reach for the search of new particles. The talk will review the physics opportunities and the challenges that are emerging from the current studies.