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Beam polarization studies at the CEPC

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In the future 100 km-scale Circular Electron Positron Collider (CEPC), beam polarization is an important design aspect. Transverse beam polarization for resonant depolarization is essential for precision measurements of the beam energies at Z-pol and WW threshold. Longitudinally polarized colliding beams are also beneficial for expanding the capability of the physics program. This paper reports the progress in the design studies of polarized beams for the CEPC. We focus on the approach of injection of polarized beams generated from the source into the collider rings for both applications. Our investigation into key issues in this approach is summarized, including polarized positron beam generation, beam polarization maintenance in the booster, and spin rotator design in the collider rings. Implications to resonant depolarization measurements are also discussed.

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Footnotes

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Yes

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