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Simulation of Longitudinal Electron Cooling of 20 GeV Proton Beam at EicC

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The longitudinal electron cooling processes of a 20 GeV proton beam were simulated using a code at the Electron-Ion collider in China. The longitudinal cooling time was obtained for different parameter configurations of the storage ring, proton beam, electron cooling device, and electron beam. From the simulated results, the longi-tudinal cooling time of the 20 GeV proton beam is over 100 seconds. The longitudinal cooling time can be short-ened with the help of proper configuration of the pa-rameters.

Footnotes

Funding Agency

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Yes

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