

Emittance growth from Beam-Gas Scattering in CEPC

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Large angle beam-gas scattering events are rare but can induce large betatron oscillation amplitudes, which drive particles beyond the core and into the halo region. On the other hand, small angle scattering events have higher probability and will act analogously to quantum excitation. They can dilute core the particle distribution and cause emittance growth. In this paper, numerical estimation and Monte Carlo simulations of this process at CEPC are presented.

Author: Dr BAI, Sha (IHEP)

Co-author: Prof. GAO, Jie (IHEP)

Presenter: Dr BAI, Sha (IHEP)

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