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Research of resonant kicker for CEPC RF region beam separating system

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In the CEPC TDR, the RF beam separating system adopts an electro-magnetic separator scheme. The adverse issues of DC HV as high as hundred kV and beam impedance of the electrostatic separator are inevitable, so an alternative solution using kicker magnets and septum magnets was proposed. Compared with static-electrical separator, kicker magnet is stronger and contributes lower beam impedance. According to specific physical parameters, the integral field strength of the kicker magnet is 0.1624 T·m, the magnetic field strength is 203 Gs, the effective length of the magnet is 8 m, the half-width of beam stay clear is 10.1×3.8 mm (H×V), and the half-width of good field region is 9.6×3.6 mm (H×V). Based on this, the resonant kicker research was conducted.

Footnotes

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