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Low emittance lattices

Saturday 16 November 2024 12:00 (1 hour)

The impact of lattice design on the natural emittance in an electron storage ring is discussed. The general expression for the equilibrium horizontal emittance in a storage ring is applied to the specific cases of storage rings constructed from FODO cells, double bend achromats, multi-bend achromats and theoretical minimum emittance lattices. Additional methods to reduce the emittance are discussed, including the use of transverse gradient bends, longitudinally varying bends and reverse bends. Finally, practical storage ring designs and existing light sources facilities are reviewed.

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