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Design of the low-emittance complex bend lattice

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The demands of a higher brightness photon beam push the electron beam emittance of storage rings towards a diffraction-limited level. The concept of multi-bend achromat (MBA) structure and its variations, containing multiple dipoles in a cell, has been widely employed in the fourth-generation storage ring light sources. Recently, a novel concept of lattice structure, called complex bend lattice, extends the option for low emittance ring lattice design. This paper presents the developed low-emittance complex bend lattices. The benefits of using complex bends include low natural emittance, long straights for IDs, more free space for accelerator equipment, and reduced power consumption for magnets.

Footnotes

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North America

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