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## A method for coil design of twin-aperture cos-theta superconducting dipoles based on extended sector model

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The magnetic design is a basic aspect of the superconducting magnets for particle accelerators. When dealing with single aperture  $\cos\theta$ -type dipoles, the coil design can be performed with an analytic approach based on a sector dipole approximation followed by a numerical optimization. The great advantage of this approach is a rapid evaluation of the field harmonics which permits an almost exhaustive scan on positions and dimensions of the sectors for coil layouts. For some double aperture dipoles, as the 16 T bending dipole of FCC-hh, the magnetic cross-talk between apertures makes this approach unfeasible. We have developed an extension of the sector model, which allows to consider the cross-talk between the two apertures. This method has permitted to find a new possible coil design for the 16 T dipole. This expansion can be generalized to a larger class of magnets.

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