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Estimates of cross-talk effects for magnets of the Advanced Photon Source upgrade lattice

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The Advanced Photon Source (APS) has recently installed and begun commissioning of a hybrid seven-bend-achromat design to replace the original storage ring. As in many recent storage ring designs, the APS Upgrade* (APS-U) magnets are closely spaced compared to those in third-generation storage rings. Calculation of “cross-talk” effects for such closely-spaced magnets can be time-consuming if performed using magnetic modeling codes. For APS-U, the effects are modest, so we used an approximate method of field-clamping at adjacent iron boundaries. This paper presents details on the methods and results of applying that method.

Footnotes

- L. Farvacque et al., IPAC13, 79 (2013). ** M. Borland et al., IPAC18, 2872 (2018).

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