

C04

## Design of the elliptical multipole wiggler for the Advanced Photon Source

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The elliptical multipole wiggler (EMW) for the Advanced Photon Source (APS) is currently under construction. This insertion device will generate circularly polarized photons with energies above 40 keV and with AC modulation of the polarization helicity. The APS EMW design utilizes the same approach as did the earlier prototype [1]. The vertical magnetic field of 1.0 T is produced by a hybrid permanent magnet structure with a period of 16 cm. The horizontal magnetic field of 0.076 T is generated by an electromagnet. Three-dimensional calculations have been carried out in order to optimize the final pole geometry. The electromagnet core is fabricated from laminated iron to operate with a switching frequency up to 10 Hz. In order to maintain the required accuracy in the time-dependent field integrals throughout the electromagnet AC cycle, a dynamic compensation system is being developed.

[1] E. Gluskin et. al., The Elliptical Multipole Wiggler Project, IEEE Proc., Dallas TX, 1995.

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