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Rotating coil and wire measurements for the Advanced Photon Source Upgrade

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The next generation of light sources is based on Multi-bend Achromat (MBA) lattices to achieve very low emittances of well below 0.1 nm-rad. In addition to regular dipoles, quadrupoles and sextupoles similar to existing machines, a typical MBA lattice consists of several combined function magnets with strong dipole and quadrupole components. These combined function magnets are also slightly curved, which makes measurement of field quality and alignment difficult using conventional rotating coil and wire based methods which are more suited for straight magnets and magnet assemblies. For the upgrade of Advanced Photon Source (APS-U) at Argonne National Laboratory, a scheme is developed to apply conventional rotating coil and wire based methods to measure such curved combined function magnets. The measurement scheme will be presented in this talk.

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