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Elliptical multipole wiggler for the production of variably polarized radiation

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A new insertion device has been designed, manufactured, and tested as a result of a collaboration between the Advanced Photon Source, Budker Institute of Nuclear Physics, and the National Synchrotron Light Source. The device - an Elliptical Multipole Wiggler (EMW) - is a source of variably polarized x-rays. It has a period of 16 cm and consists of two magnetic structures. The hybrid magnet structure produces a vertical wiggler field with a peak value of 8 kG. The horizontal wiggler field (1 kG) is generated by electric coils capable of operating with a switching frequency up to 100 Hz. After fabrication, the EMW was measured and magnetically tuned. When installed on the NSLS x-ray ring, the EMW produces variably polarized radiation in the 1-10 keV energy range.

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