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# Design and analysis of a photon/safety shutter for CARS sector 14 ID beamline at the Advanced Photon Source

W. Schildkamp, Y. Jaski, and G. Navrotski
*Consortium for Advanced Radiation Sources, University of Chicago, 5640 S. Ellis Ave., Chicago, IL 60637*

A photon/safety shutter capable of stopping bremsstrahlung, white, pink, and monochromatic radiation from the APS wiggler and undulator sources is described. The shutter consists of two individually actuated but redundant block assemblies. Each block consists of a water cooled, OFHC block thermal absorber followed by a tungsten block to stop both synchrotron and bremsstrahlung rays. The design presented here is inexpensive and spatially compact. Fatigue analysis and ANSYS thermal and stress analysis are presented.