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Power loading and transmission calculations for an ALS wiggler beamline

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A protein crystallography beamline is being designed for the Advanced Light Source (ALS). The radiation source is a 38 pole, 2 T wiggler. The computer code WrPwr was developed for characterizing power loading and transmission of beamline elements. The wiggler source is characterized by the period length, number of periods, and the magnetic field harmonics. The electron beam parameters are beam energy and current. A beam line element is characterized as a surface which is specified by its location and orientation relative to the wiggler center. A power density profile is calculated on the surface. The code will also calculate absorbtion and transmission if a filter function is specified. The filter function provides an absobtion versus photon energy profile. The paper includes a description of the computer code along with the results of calculatoins.