

Description of SRWLIB example files

3-14-19

SRWLIB Example#1: Calculating electron trajectory in 3D magnetic field of an APPLE-II undulator

SRWLIB Example#2: Calculating electron trajectory in magnetic field of a segmented planar undulator

SRWLIB Example#3: Calculating synchrotron (undulator) radiation emitted by an electron travelling in ellipsoidal undulator

SRWLIB Example#4: Calculating synchrotron (undulator) radiation electric field (from one electron) and simulating wavefront propagation through a simple optical system

SRWLIB Example#5: Calculating electron trajectory and spontaneous emission from a very long segmented undulator (transversely-uniform magnetic field defined)

SRWLIB Example#6: Calculating spectral flux of undulator radiation by finite-emittance electron beam collected through a finite aperture and power density distribution of this radiation (integrated over all photon energies)

SRWLIB Example#7: Simulating propagation of a Gaussian X-ray beam through a simple optical scheme containing CRL

SRWLIB Example#8: Simulating partially-coherent UR focusing with a CRL

SRWLIB Example#9: Simulating propagation of a Gaussian X-ray beam through a Beamline containing Imperfect Mirrors

SRWLIB Example # 10: Simulating emission and propagation of partially-coherent undulator radiation through a microscopy beamline with a secondary source aperture and ellipsoidal K-B mirrors used for final focusing

SRWLIB Example # 11: Calculating spectral flux of undulator radiation by finite-emittance electron beam and performing partially-coherent wavefront propagation through a simple optical system containing dispersive CRL

SRWLIB Example # 12: Simulating Wavefront Propagation through initial part of a Soft X-Ray Undulator Radiation Beamline containing Variable Line Spacing (VLS) Grating. Based on input and contributions of N. Canestrari, E. Vescovo, V. Bisogni (BNL)

SRWLIB Example#13: Simulating emission and propagation of Bending Magnet SR through a simple optical scheme containing one focusing element

SRWLIB Example#14: Simulating propagation of a Gaussian X-ray beam through a simple optical scheme containing C(400) dual-crystal monochromator

SRWLIB Example#15: The example was created by Timur Shaftan (BNL) for RadTrack project (<https://github.com/radiasoft/radtrack>). Adapted by Maksim Rakitin (BNL). The purpose of the example is to demonstrate good agreement of the SRW simulation of propagation of a gaussian beam through a drift with an analytical estimation.

SRWLIB Example#16: The example was created by Timur Shaftan (BNL) for RadTrack project (<https://github.com/radiasoft/radtrack>). Adapted by Maksim Rakitin (BNL). The purpose of the

example is to demonstrate good agreement of the SRW simulation of intensity distribution after diffraction on a circular aperture with an analytical approximation. The example requires SciPy library to perform comparison.