

RAY-UI: Extensions compared to RAY

P. Baumgärtel⁽¹⁾, T. Zeschke⁽¹⁾, A. Erko⁽²⁾, F. Schäfers⁽²⁾, and H. Schirmacher⁽³⁾

*(1) Department for Optics and Beamlines
Helmholtz Zentrum Berlin für Materialien und Energie
Albert-Einstein-Str. 15, 12489 Berlin, Germany*

*(2) Department for Nanometre Optics and Technology
Helmholtz Zentrum Berlin für Materialien und Energie
Albert-Einstein-Str. 15, 12489 Berlin, Germany*

*(3) Fachbereich VI – Informatik und Medien
Beuth Hochschule für Technik Berlin
Luxemburger Str. 10, 13353 Berlin, Germany*

peter.baumgaertel@helmholtz-berlin.de

The RAY-UI project started as a proof-of-concept for an interactive and graphical user interface (UI) for the well-known ray tracing software RAY [1]. In the meantime, it has developed into a powerful enhanced version of RAY that also serves as the platform for new development and improvement of the source code and associated tools [2].

Compared to RAY several extensions and features were implemented: The design parameters of the optical element “Reflection Zone Plate” were massively extended. The line density can now be derived by either entrance and exit angle of the beam or by entrance angle and offset to the Fresnel center of the incident beam. We introduced capillaries as a new optical element. Beside this RAY-UI is now also supporting “smart” parameters which refer to the whole optical system. As an example we show the setup of a plane grating monochromator beamline, where the monochromator’s premirror depends on the rotation of the grating.

[1] F. Schäfers, RAY - The BESSY Raytrace Program, in: Modern Developments in X-Ray and Neutron Optics, Springer Series in Modern Optical Sciences, eds A. Erko, , M. Idir, Th. Krist, , A.G. Michette, Vol. 137, 2008, 9-41

[2] P. Baumgärtel, M. Witt, J. Baensch, M. Fabarius, A. Erko, F. Schäfers and H. Schirmacher, RAY-UI: A Powerful and Extensible User Interface for RAY, AIP Conf. Proc. 1741, 2016, 040016