cosine

High energy optics simulator

The high energy optics software simulates X and gamma-ray imaging systems based on grazing incidence scattering using the Monte Carlo technique. The software offers control of the surface properties and scattering processes at each individual interaction. Also the geometry of the surfaces and imaging system, the incoming beam and the resulting images patterns on the detector surface are fully under control of the user.

The high energy optics simulation software is based on the Geant4 framework. Geant4 is a radiation interaction simulation widely used in the fields of particle and nuclear physics. Geant4 supports geometry descriptions, particle/photon tracking, physics processes and easy access to all important parameters for analysis of the simulated system.

The X-ray performance of Geant4 has been extended by cosine by implementing the description of the physical processes of grazing angle interaction of X-ray photons and matter at each interaction. The software provides control of surface scattering and metrology models and can be introduced in any geometrical configuration.

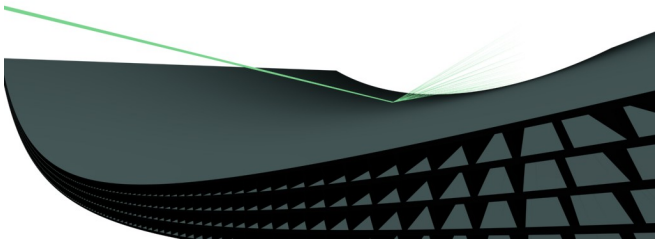
By using cosine's high energy optics simulation software the system designer or user can quickly determine realistic system performances and features.

The software can be offered as tool running on your PC. The user control is performed by configuration files or in the form of a graphical user interface. Besides the software cosine offers to provide a manual, installation support and training.

For developers a license of the software source can be provided allowing the user to expand by programming alternative modeling. Also here cosine offers user support.

cosine has used this software for performance evaluation of new generation X-ray telescopes (XEUS, IXO) and to support the performance prototype X-ray lens modules studies at X-ray facilities Bessy-II and Panter.

cosine has applied this software using complex geometries and shapes. Also it is possible to import a CAD model into the simulation.



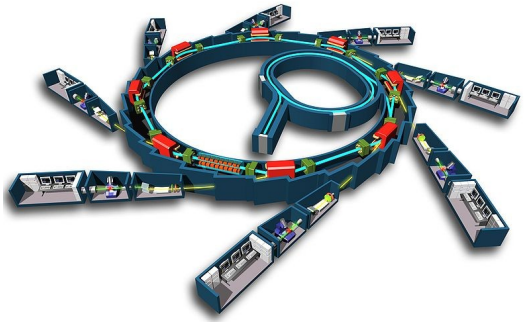
For more information about this product please contact Dr Erik Maddox, e.maddox@cosine.nl, +31 71 5284962

cosine
Niels Bohrweg 11
2333 CA Leiden
The Netherlands

Tel. +31 71 5284962
info@cosine.nl
www.cosine.nl

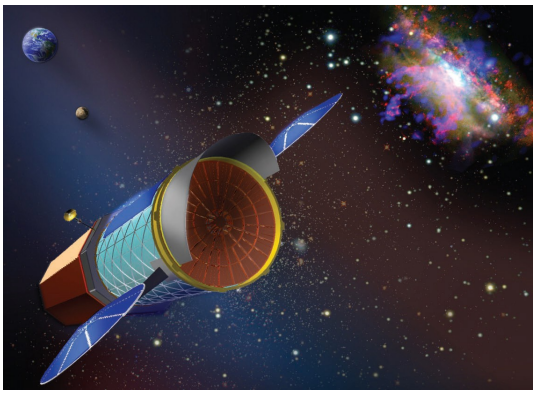
cosine

High energy optics simulation applications



Synchrotron facilities

- Simulation of X-ray beam control and manipulation at research facilities using synchrotron radiation

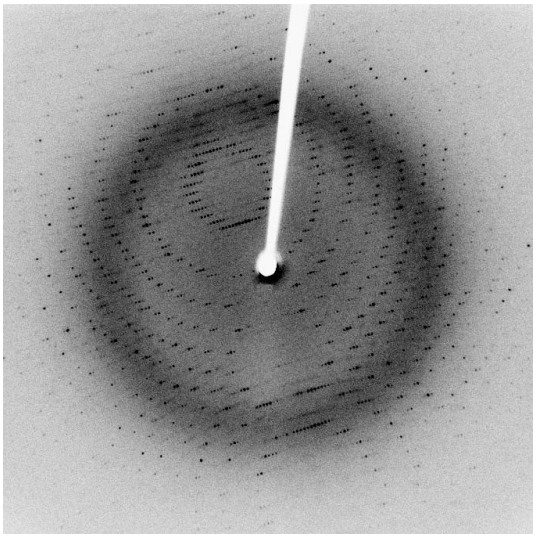


Space based X-ray telescopes

- Performance prediction and system analysis
-

Medical imaging

- Simulation of radiodiagnostics and radiotherapy efficiency and performance



Material analysis

- Analysis of X-ray fluorescence and X-ray diffraction

cosine
Niels Bohrweg 11
2333 CA Leiden
The Netherlands

Tel. +31 71 5284962
info@cosine.nl
www.cosine.nl