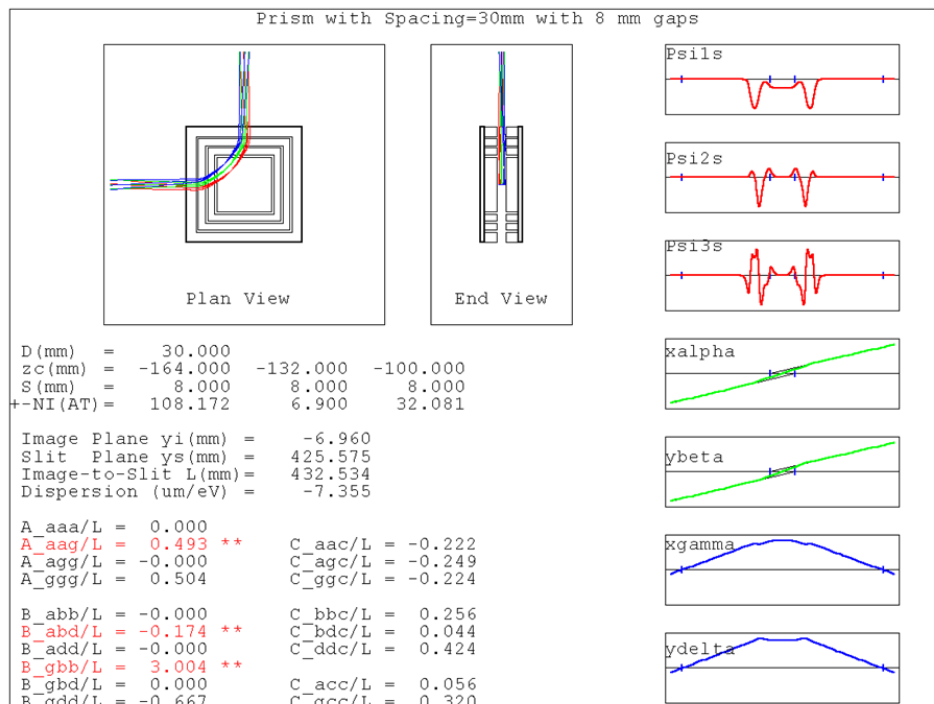# PRISM

Simulation of magnetic prisms

The PRISM software is a stand alone package which simulates magnetic PRISMS. PRISM computes the 3rd-order aberrations of the system, but is limited to axes with a 90° bend.

Sample output from PRISM software

The software computes the optical axis, multipole field components along the optical axis, the first order ("paraxial") trajectories, the image and slit plane locations, the dispersion, and the primary ("second rank") geometrical and chromatic aberrations.

Trajectories are also computed by direct ray-tracing, which permits assessment of the effects of high-order aberrations at large field sizes. These results are still valid beyond the range of validity of the primary aberrations.

The software can display the ray paths through the prism in plan view and end view, plots of the multipole field functions and paraxial rays along the unfolded optical axis, and spot diagrams of the primary aberrations and the higher-order aberrations from the direct ray-tracing.

The fields in the prism are represented by Schwarz-Christoffel transformations and the direct ray-tracing is done with a Runge-Kutta solution of the equations of motion.