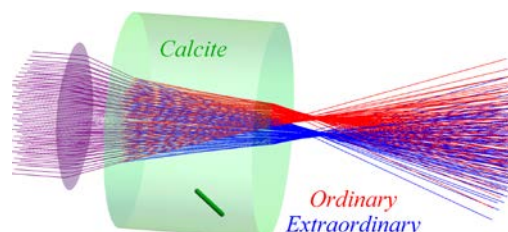
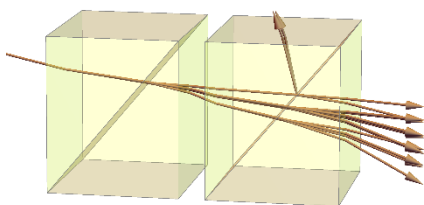




AiryCrystal

AiryCrystal Software Capabilities

Description: For the design and analysis of uniaxial, biaxial and optically active crystal assemblies. The AiryCrystal polarization ray tracing engine will refract, reflect, and total internally reflect rays through assemblies of anisotropic crystals calculating amplitudes, polarization states, optical path length, and wavefronts.



Applications: Waveplates, achromatic waveplates, crystal polarizers, Wollaston prisms, Glan-Taylor and Glan-Thompson polarizers, walk-off plates, Lyot filters, arbitrary crystal polyhedra, gem stones, etc.

Capabilities and Features: AiryCrystal base package includes planar surfaces, uncoated interfaces and/or perfect coatings (ideal, lossless, non-polarizing). Automated ray doubling, beam dividing at beamsplitters and interfaces, sequential and non-sequential modes. All ray intercept calculations include 3D polarization ray tracing matrices and Mueller matrices. Includes a materials library of common crystals and their principal refractive indices as functions of wavelength, to which user defined materials and dispersion equations can be added. Plotting routines for rendering optical systems and rays. Plates, prisms, and elements can be uniaxial, biaxial, optically active, combinations of uniaxial or biaxial and optically active (quartz), or isotropic and will be rigorously ray traced.

Combination of exiting wavefronts, for example superposing ordinary and extraordinary modes into a single wavefront. Analysis of wavefronts: amplitude, phase, retardance, diattenuation, variations with field and wavelength, effect of multiple reflections. Capable of tolerancing of crystal assemblies: dimensions, angles, optic axis orientations, refractive index.

Mathematica: Requires Wolfram Research's *Mathematica*[®]. All quantities can be further manipulated within *Mathematica* for flexible operation.