ASAP 2025 V1 Release Notes
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ASAP 2025 V1 RELEASE NOTES

Breault Research Organization Software Development (BreaultSWD) remains at the forefront of the optics industry and is ready to assist by providing state-of-the-art software products for optical scientists and engineers throughout the world solving day-to-day optical problems no matter how simple or complex.

ASAP 2025 V1 is a continuation of the BreaultSWD Strategic Development Plan committed to fulfilling current customer needs and developing relationships with future customers.

ASAP 2025 V1 focuses on the following developmental areas: Features and Renovation.

ASAP FEATURES

Thermal Irradiance

BreaultSWD has incorporated the ability to easily calculate the background thermal irradiance on the detector from internal thermal emission by warm surfaces within a given optical system.

A thermal irradiance calculation is a two-step process. First, a ray trace is executed to determine the geometrical configuration factors (GCFs) of all objects. These GCFs, along with information on the emissivity and temperature of each object, are then used to calculate the thermal irradiance. The GCFs only need to be calculated once. The thermal irradiance may then be calculated for any set of temperatures and emissivities within the optical system.

For more information see THERMAL_IRRADIANCE.pdf under the User Guides shortcut in the Breault Research Organization Start menu folder.

ThetaI-ThetaO Concentrator (TTC) Edge

BreaultSWD has incorporated the TTC edge command to model a TTC concentrator.

A concentrator is an optical device that collects light within an aperture and concentrates the light into a smaller aperture. A widely used design is the compound parabolic concentrator (CPC), which is a reflector formed from a tilted off-axis section of a parabola. The large aperture that collects the light has a half width of a. The small exit aperture has a half width of a'.

A CPC that is designed for an extended light source that subtends a half angle of ThetaI will send the light through an exit aperture that has a half width of a' = a/sin(ThetaI). Light exiting the CPC fills the full hemisphere beyond the exit aperture. That is, the emerging light subtends a half angle ThetaO of 90 degrees.

The concentration produced by a CPC is close to the maximum possible, but if optics or other devices beyond the exit aperture cannot make use of the light at angles up to 90 degrees then light at high angles will be lost. An alternative is to use a ThetaIThetaO concentrator (TTC).

A TTC accepts light from an extended source that subtends a half angle of ThetaI. Light emerging from the exit aperture subtends a half angle of ThetaO. The half width of the exit aperture is a' = a sin(ThetaO)/sin(ThetaI).

For more information see TTC_edge.pdf under the User Guides shortcut in the Breault Research Organization Start menu folder

ASAP Renovation --

ASAP Help Facility

With the ASAP 2025 V1 release, BreaultSWD has embarked upon a complete revamp of the ASAP Help Facility.

A complete audit of all user interface help links and controls provided the team insight into numerous deficiencies and errors within the facility. Incorporated into ASAP 2025 V1 are several updates to not only help database links but help database content as well.

The BreaultSWD team is dedicated to continue enhancing the ease of use along with the breadth and depth of information of the ASAP Help Facility in this and all future ASAP product releases.