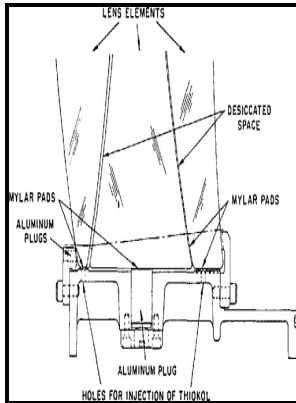# Modern optical engineering - the design of optical systems

McGraw Hill - Engineering an optical system

Description: -

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Optical instruments -- Design and construction.Modern optical engineering - the design of optical systems
-Modern optical engineering - the design of optical systems
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Modern Optical Engineering: The Design... book by Warren J. Smith

A radius is positive if the center of curvature lies to the right of the surface. Plotting the MTF, or image contrast, against spatial frequency shows how varying the optical path difference can affect a system's imaging capabilities figure 1. He resides with his wife in Vista, California.

An Introduction to Optical Design

The following conventions are used by most workers in the field of optics. The location and size of the image formed by a given optical system can be determined by locating the respective images of the sources making up the object.

An Introduction to Optical Design

When an optical system is bounded on both sides by air as is true in the great majority of applications , the nodal points coincide with the principal points. Thus the distance between the image positions for the front and rear surfaces is 2.

Modern Optical Engineering, 4th Ed.: The Design of Optical Systems : Smith, Warren: Amazon.sg: Books

With mirrors as in the HST , you can correct it by making the mirror a slightly non-spherical conic section but you have to create the CORRECT conic shape, which was HST's problem -- they built it perfectly against the wrong test standard! Since most optical systems of practical value form good images, it is apparent that most of the light rays originating at an object point must pass at least reasonably close to the paraxial image point.

Modern Optical Engineering: The Design... book by Warren J. Smith

However, this still puts Smith's book ahead of Shannon's, which has no references whatever. Case Studies in System Layout 339 14. The convex mirror forms a virtual image and is equivalent to a negative element.

Engineering an optical system

The Gregorian mirror system is the reflecting equivalent. Thus s may be considered as the center of a new spherical or cylindrical wave depending on whether s is a pinhole or a slit , provided that the size of s is sufficiently small. The surface radii are R1 and R2, and the surface curvatures are c1 and c2.

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Heights above the optical axis are positive e.

Engineering an optical system

In the admittedly silly sketch above, vertical distance represents the error function value lower is better , and horizontal position represents ONE of the variables in the lens for example, it could be the curvature of the front surface. It is the common axis of rotation for an axially symmetrical optical system. The numerical exercises which follow the early chapters are now completely worked out, instead of simply providing the correct answers.

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