Hembach Photonik –
Experts for Optical Design and Analysis

Hembach Photonik GmbH is your development partner for illumination, sensor and imaging optical systems. It is located in Rednitzhembach, in the metropolitan area of Nuremberg, Germany. Since its foundation in 2011, Hembach Photonik has extended its fields of activity considerably, covering now most fields of classical optics.

Based on the long term experience of our staff, we develop optical products from the feasibility study to the virtual or real prototype. Also we analyze and improve the performance of existing optical systems and support your own design activities with our software solutions. We fulfill your optical design and analysis requests within a wide range of application fields including, but not limited to:

- Optical systems for space applications
- Illumination systems for automotive and general lighting
- Sensors for optical particle sizing, distance and position measurements
- Laser optics for various applications
- Imaging optics for photography and machine vision

Optical design and development
Hembach Photonik offers the full development chain from concept studies, first order design, tolerancing and straylight analysis to the virtual and real prototype. For illumination, sensor and other non-imaging systems such as LED optics, light guides and free-form reflectors, we employ ASAP®, Solidworks® as well as our own software. For imaging optics, such as camera lenses, telescopes and other high-end-systems, we count on Zemax® and Code-V®.

Straylight Analysis
As good as the imaging performance of an optical system may be: it is often the sensitivity to straylight that decides about its usability in real world. Whether light scattering from surfaces or bulk matter, ghost images, diffraction or thermal radiation — we help you to analyze and reduce straylight. Based on this rich experience with straylight, Hembach Photonik is renowned for its service quality and is a leading supplier for stray light analyses in Europe — with customers in space industry, optical lithography, biomedical optics and other straylight critical applications.

Light Scattering Applications
Scattered light is an indispensable means for the contact-free, non-destructive analysis of materials. In illumination systems, light scattering can be used for guiding and homogenizing light; in most imaging systems, it is just unwanted straylight. Hembach Photonik looks back to more than twenty years of scientific and engineering experience in the field of light scattering. We help you design and analyze optical and illumination systems in which light scattering matters — from optical particle sizes and contamination detection to illumination systems using diffusers.

Optical software RayJack One®
Based on a rich library of custom optical software solutions, Hembach Photonik has developed RayJack One — a non-sequential ray tracer featuring a powerful and flexible graphical user interface, comprehensive library for volume light scattering, and differential ray tracing for exact radiometry/photometry.

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