What are the differences between light simulation programs?

At first glance all light simulation and design programs seem to address the same task. But a closer examination demonstrates a wide range of optical and light effects which will be treated by the different software. Basically there are 4 main categories of light and optical software applications: Rendering software, illumination simulation software, e.g. for architecture applictions, optical simulation software and design software to optimize the geometry of optical devices, e.g. of luminaires.

Rendering software as well as illumination simulation tools which cover aesthetic aspects of light and light distribution, e.g. illumination effects in architecture, styling studies of vehicle rear and headlight designs, etc. The main mathematical methods is ray-tracing with a lot of variants. In our portfolio **Inspirer**, **Specter or iLight** - is replaced now by **Lumicept** - from Integra is belonging to this category. Also common rendering programs, e.g. **KeyShot 4.2** can be used for this type of simulation.

Optical simulation software which uses exact optical rules to study the distribution of light, e.g. distribution and optimization of LED-light source positioning in a medical device or design of luminaires equipped with LED or conventional light sources. In our solution portfolio both **LightMAGIC** as well as **Specter**(replaced by Lumicept - more info will be released shortly) are optical simulation software. LightMAGIC is dedicated to the digital color process of painted surfaces of cars whereas Specter is more focused on the exact calcualtion of light distribution in complex optical systems, e.g. simulation of optical microstructures for the simulation of backlight illumination of flatscreens.

For the design, layout and optimization of luminaires as a complement to CAD-systems both **Photopia**® as well as **Lumicept** are suitable solutions.

Complex applications are a combination of aesthetic rendering and exact optical simulation, e.g. digital prototypes of car headlights.

We can consult you at the project definition and selection of the right tools. We are focused on solutions and not on providing a special software tool.