

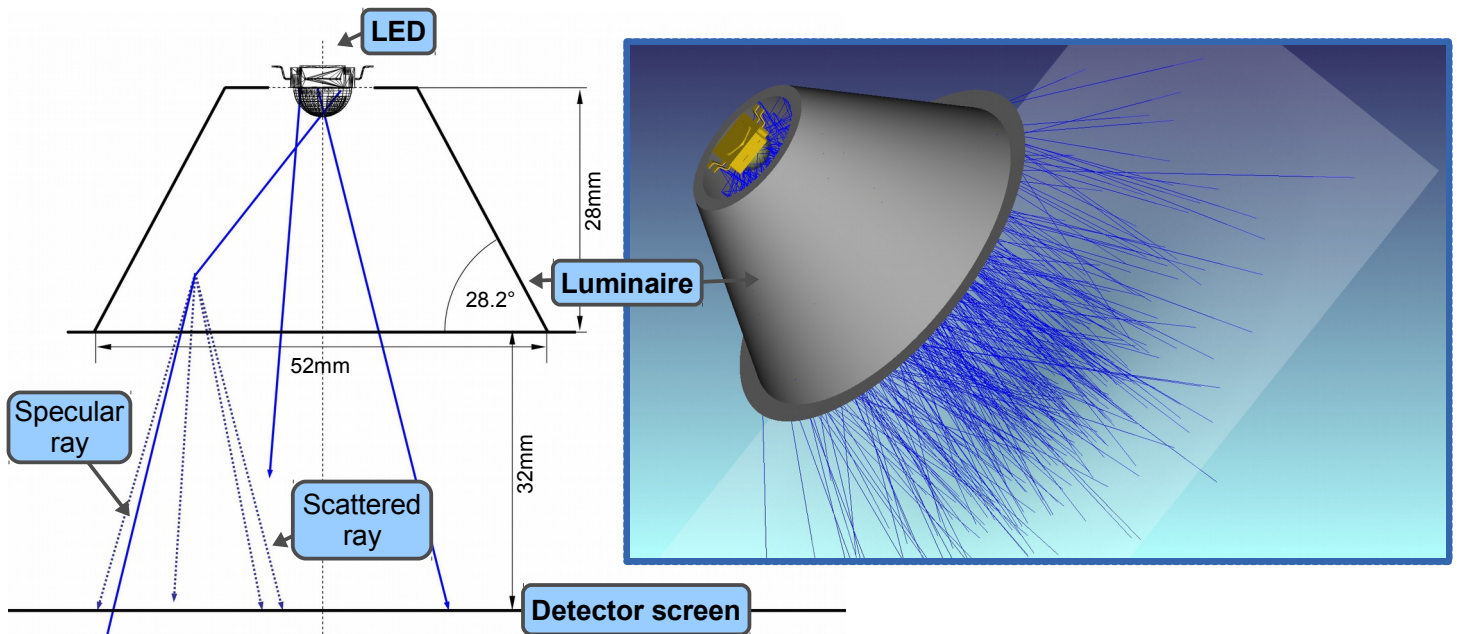
Optical Simulation of Diffuse Luminaire Surfaces



by
 Ákos Gombos and Gábor Gajdáty

Background

Non-sequential ray-tracing calculation is a fast and cost-efficient method to optimize the geometry and control the light distribution performance of luminaires, made of Furukawa's MCPET. Our numerical models – including the measured scattering properties (BSDF) of the MCPET surface – provide both qualitative and accurate quantitative analysis of the desired product.



Case study

A thermoformed, conic shape MCPET luminaire is used to smoothly distribute the light of a high-power, white light LD source.

• Light source

Luxeon L XK2-PWN4-V00
 Total power: 120mW

• Luminaires

Specular reflector: Aluminum*
 Diffuse reflector: MCPET**

• Calculation

1 million rays
 2.5 minutes

*: Ideal specular reflection was assumed, $R=1.0$

** : Gaussian scatter model was fitted on measured BSDF data

