for the method, in particular for the determination of the refractive index were carried out by Alexander Wilkie himself.

Fluorescence is the focus of the fourth and fifth publications. Together with Mojzik and Fichet, the paper "Handling Fluorescence in a Uni-directional Spectral Path Tracer" was published in 2018. Here, for the first time in rendering, fluorescent bulk materials exhibiting pronounced wavelength asymmetry are considered and the corresponding effects are simulated. In addition, an extension of the Hero wavelength sampling (see above) is presented that can handle fluorescence events on surfaces as well as in volumes. Taken together, these two innovations enable the robust inclusion of arbitrary fluorescence effects in modern unidirectional spectral path-tracers.

Finally, the 2019 paper by Jung, Wilkie, Hanika, Jakob, and Dachsbacher titled "Wide Gamut Spectral Upsampling with Fluorescence" describes the first method to estimate spectral distributions for colors in wide gamut color spaces such as DCI P3, Rec. 2020, ACEScg. Similar to printing or textiles, where fluorescent components are added to produce saturated colors, the spectrum of a given color additive is composed of a reflectance component and a flourezcence component. The spectrum of the flourezzenz portion is modeled as a cubic B-spline, which is parameterized by means of the stokesshift, the distance between the peak wavelength of the absorption spectrum and the peak of the emission spectrum. Using this method, even saturated colors can be correctly reproduced in spectral rendering for the first time and used for predictive rendering.

Furthermore, the algorithmic implementation of the presented algorithms and the very successful realization of numerous prototypes and their integration into the open source "Advanced Rendering Toolkit (ART)", is an extremely demanding and challenging task of Practical Computer Science, which I would like to emphasize here.

The presented second habilitation thesis and the large number of additional papers of him published at the highest level underline the outstanding standard of his work and the excellent scientific standing of Alexander Wilkie in the rapidly growing field of predictive rendering.

I therefore strongly recommend the continuation of the habilitation process.

Sincerely,

Digitally signed by Reinhard Klein
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