LightTrans' Talk at EOS Topical Meeting on Diffractive Optics 2019

On the importance of Homeomorphic Operations in Physical and Geometrical Optics

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Paper authors: F. Wyrowski[1], O. Baladron-Zorita[1,2], Z. Wang[1,2], and C. Hellmann[3]
[1] Friedrich Schiller University Jena | Germany
[2] LightTrans GmbH | Jena, Germany
[3] Wyrowski Photonics GmbH | Jena, Germany

Presenting Author: Frank Wyrowski

Abstract

Physical-optics system modeling can be performed by connecting different rigorous and approximated field solvers, which are selected to efficiently solve Maxwell's equations in the individual mathematical regions into which a system can be torn. We discuss the case in which a sequence of connected solvers constitutes a 1:1 mapping between the input and the output fields. It turns out that such sequences are (1) the key to fast phy- sical optics and (2) they reveal how ray tracing is embedded in and accessible through physical optics.