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Spheroidal Functions and Light Beams: Towards the Modeling of Fields with Spheroidal Geometry

Content

The propagation of light with spheroidal geometry can be studied by separating the Helmholtz equation into oblate spheroidal coordinates, obtaining solutions that describe the angular, radial and azimuthal components of the propagation. The radial components determine how the solution varies with distance from the central focus, while the angular components describe the distribution of light as a function of the polar angle in the spheroidal geometry. Spheroidal functions are not available in open access libraries. Algorithms were developed in Julia to calculate these functions, obtaining results consistent with the literature and highlighting its precision in modeling the components. Its relevance lies in its applicability in areas such as telecommunications and optical micromanipulation.

Tipo de presentación

Póster

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