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**"Conical diffraction: Hamilton's diabolical point illuminated"**

Abstract: Conical diffraction is an optical phenomenon observed in biaxial materials which have three principal refractive indices. Light incident along one of two optic axes in such a material propagates as a hollow skewed cone, emerging as a hollow cylinder. The unusual beam structure is observed to be highly sensitive on parameters such as the wavelength and the electric field profile of the incoming ray. The conically diffracted beam itself is studied as both a curiosity and with potential applications in mind, such as optical trapping of micron-scale objects. Numerical models were also developed which successfully describe the observations.