

# On the Velocity of the TE-polarized Light Wave to Propagate through an Uniform Dielectric Layer

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We present a new model of scattering the plane TE-polarized light wave on an uniform dielectric layer. This wave is shown to split uniquely into two causally evolved components to describe alternative subprocesses (transmission and reflection) in all spatial regions. Either component has one incoming and one outgoing waves, joined at the midpoints of the layer with keeping the continuity of the complex-valued electrical field and the energy current density. This model, unlike the conventional one, predicts a subluminal energy transfer through the layer in the regime of a frustrated total internal reflection (FTIR).

Comments: 6 pages, 8 figures, rewritten thoroughly, mathematical model is, of course, the same

Subjects: **Optics (physics.optics)**; Quantum Physics (quant-ph)

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