Intermediate model for laser propagation in nonlinear media

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The propagation of a laser pulse in a nonlinear medium is usually described by the equations of nonlinear geometrical optics or non linear diffractive optics, that nonlinear transport equations or nonlinear Schrödinger equations. However, for short or chirped pulses these models are not effective. In this talk we will present new asymptotic models that are exact in linear regimes and better than the usual ones in nonlinear cases. We prove some error estimates and present some numerical simulations.

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