Waveguide coupling in the few-cycle regime

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Résumé en anglais	We consider the coupling of two optical waveguides in the few-cycle regime. The analysis is performed in the frame of a generalized Kadomtsev-Petviashvili model. A set of two coupled modified Korteweg–de Vries equations is derived, and it is shown that three types of coupling can occur, involving the linear index, the dispersion, or the nonlinearity. The linear nondispersive coupling is investigated numerically, showing the formation of vector solitons. Separate pulses may be trapped together if they have not initially the same location, size, or phase, and even if their initial frequencies differ.
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