CHAOS 2009
2nd Chaotic Modeling and Simulation International Conference
June 1 - 5, 2009 Chania Crete Greece www.chaos2009.net

Chaotic Mode-locking of Chirped-pulse Oscillators

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Chaotic mode-locking of chirped-pulse oscillator has been analyzed on the basis of generalized nonlinear cubic-quintic complex Ginzburg-Landau equation.
It has been shown, that the chirped solitary pulse can be stabilized against the vacuum excitation, if the fourth-order dispersion is nonzero and positive. However, the pulse evolves chaotically, if the dispersion reaches some threshold value.
Keywords: Chirped-solitary pulse, Pulse propagation and temporal solitons, Mode-locked lasers.