



Hysteresis phenomenon and multistability in figure-of-eight microstructured fiber laser

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Auteur	Guesmi, Khmaies [1], Bahloul, Faouzi [2], Salhi, Mohamed [3], Sanchez, François [4], Attia, Rabah [5]
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Résumé en anglais	<p>We report a theoretical investigation of multi-pulse emission of a microstructured figure-of-eight fiber laser operating in passive mode-locking. The proposed laser is mode locked by the nonlinear amplifying loop mirror (NALM). We study, in this paper, the hysteresis dependence and the number of pulses in steady state as a function of both the small signal gain and the nonlinear coefficient of microstructured fiber. The numerical simulation confirms that the pulse splitting is a consequence of the energy quantization in anomalous dispersion. Moreover, our results suggest that the hysteresis phenomenon is an intrinsic feature of the mode-locked fiber lasers independently of the exact mode-locking mechanism. Finally, we identify that the nonlinear coefficient of microstructured fiber plays a key role in the formation of multi-soliton.</p>
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