



Theoretical study of the erbium-doped fiber laser passively mode-locked by nonlinear polarization rotation

Submitted by Hervé Leblond on Mon, 06/01/2015 - 11:34

Titre	Theoretical study of the erbium-doped fiber laser passively mode-locked by nonlinear polarization rotation
Type de publication	Article de revue
Auteur	Salhi, Mohamed [1], Leblond, Hervé [2], Sanchez, François [3]
Editeur	American Physical Society
Type	Article scientifique dans une revue à comité de lecture
Année	2003
Date	Jan-01-2003
Numéro	1
Pagination	013802
Volume	67
Titre de la revue	Physical Review A
ISSN	1050-2947
Résumé en anglais	<p>We investigate theoretically the mode-locking properties of an erbium-doped birefringent fiber laser in a unidirectional cavity containing an optical isolator. The mode-locking is achieved through nonlinear polarization rotation. The approach is based on a master equation which takes explicitly into account the angles between the eigen axis of the fiber at each side of the polarizer. The stability conditions of both the stationary and localized solutions are determined. This allows to establish a stability diagram versus the angles which gives the domains where the laser operates in continuous, mode-locked or unstable regime. The model also allows to calculate the pulse duration together with the pulse energy as a function of the orientation of the eigen axis of the fiber with respect to the polarizer.</p>
URL de la notice	http://okina.univ-angers.fr/publications/ua12104 [4]
DOI	10.1103/PhysRevA.67.013802 [5]
Lien vers le document	http://journals.aps.org/pr/abstract/10.1103/PhysRevA.67.013802 [6]
Titre abrégé	Phys. Rev. A

Liens

- [1] <http://okina.univ-angers.fr/m.salhi/publications>
- [2] <http://okina.univ-angers.fr/herve.leblond/publications>
- [3] <http://okina.univ-angers.fr/francois.sanchez/publications>
- [4] <http://okina.univ-angers.fr/publications/ua12104>
- [5] <http://dx.doi.org/10.1103/PhysRevA.67.013802>
- [6] <http://journals.aps.org/pr/abstract/10.1103/PhysRevA.67.013802>

