

Accepted Manuscript

Title: PERTURBATION THEORY AND OPTICAL SOLITON COOLING WITH ANTI-CUBIC NONLINEARITY

Author: Anjan Biswas Qin Zhou Malik Zaka Ullah Mir Asma Seithuti P. Moshokoa Milivoj Belic



PII: S0030-4026(17)30596-X
DOI: <http://dx.doi.org/doi:10.1016/j.ijleo.2017.05.060>
Reference: IJLEO 59206

To appear in:

Received date: 21-2-2017
Accepted date: 17-5-2017

Please cite this article as: Anjan Biswas, Qin Zhou, Malik Zaka Ullah, Mir Asma, Seithuti P. Moshokoa, Milivoj Belic, PERTURBATION THEORY AND OPTICAL SOLITON COOLING WITH ANTI-CUBIC NONLINEARITY, <![CDATA[Optik - International Journal for Light and Electron Optics]]> (2017), <http://dx.doi.org/10.1016/j.ijleo.2017.05.060>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65

PERTURBATION THEORY AND OPTICAL SOLITON COOLING WITH ANTI-CUBIC NONLINEARITY

Anjan Biswas ^{1,2}, Qin Zhou ³, Malik Zaka Ullah ²,
Mir Asma ⁴, Seithuti P. Moshokoa ¹ & Milivoj Belic ⁵

¹ Department of Mathematics and Statistics,
Tshwane University of Technology, Pretoria-0008, South Africa

² Operator Theory and Applications Research Group, Department of Mathematics,
Faculty of Science, King Abdulaziz University, PO Box-80203, Jeddah-21589, Saudi Arabia

³ School of Electronics and Information Engineering,
Wuhan Donghu University, Wuhan 430212, People's Republic of China

⁴ Institute of Mathematical Sciences, Faculty of Science,
University of Malaya, 50601 Kuala Lumpur, Malaysia

⁵ Science Program, Texas A & M University at Qatar,
PO Box 23874, Doha, Qatar

Abstract

Soliton perturbation theory is applied to obtain the adiabatic variation of its parameters and slow change in velocity. The dynamical system leads to a stable fixed point to which the soliton amplitude and frequency gets locked into for a stable propagation down the fibers with anti-cubic nonlinearity.

Keywords: solitons; perturbation; adiabaticity.

Download English Version:

<https://daneshyari.com/en/article/5025217>

Download Persian Version:

<https://daneshyari.com/article/5025217>

[Daneshyari.com](https://daneshyari.com)