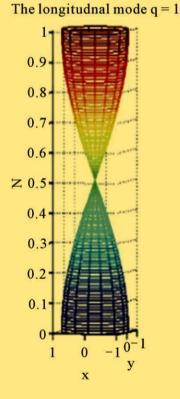
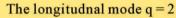
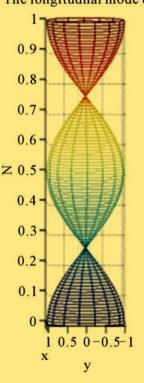


Journal of Modern Physics

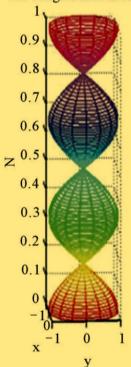




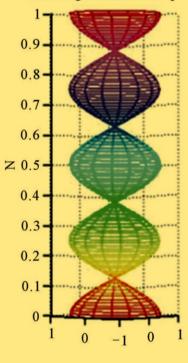




The longitudnal mode q = 3



The longitudnal mode q = 4





Journal Editorial Board

ISSN: 2153-1196 (Print) ISSN: 2153-120X (Online)

http://www.scirp.org/journal/jmp

Editor-in-Chief

Prof. Victor Yashnikov Russian Academy of Sciences, Russia

Executive-Editor in-Chief

Dr. Marko Markov Research International, Buffalo Office, USA

Editorial Board

Prof. Sadhan Kumar Adhikari Universidade Estadual Paulista, Brazil Prof. Sami M. AL-Jaber AN-Najah National University, Palestine Dr. Ksenofontov Alexandre Moscow Engineering Physics Institute, Russia Prof. Roberto Oscar Aquilano Universidad Nacional de Rosario, Argentina Prof. Salvatore Capozziello University of Naples "Federico II", Italy Dr. Riccardo Cerulli Gran Sasso National Laboratory, INFN, Italy Prof. Papadopoulos Demetrios Aristotle University of Thessaloniki, Greece Dr. Hua-Shu Dou National University of Singapore, Singapore Prof. Constantin Fetecau Government College University, Romania

Prof. Bouzid Menaa Fluorotronics, Inc., USA

Prof. Karo Michaelian National Autonomous University of Mexico, Mexico

Prof. Zdzislaw E. Musielak

Prof. Luciano Nunziante

University of Naples Federico II, Italy

Prof. Richard Saurel

University Aix Marseille I, France

Prof. Magnus Willander

Linköping University, Sweden

University of Allahabad, India

Dr. S. Zerbini University of Trento, Italy

Managing Executive Editor

Prof. Chang Liu Wuhan University, China Email: cliu@acc-lab.whu.edu.cn

Editorial Assistant

Shirley Zhou Scientific Research Publishing, USA Email: jmp@scirp.org



TABLE OF CONTENTS

Volume 2	Number 4 April 2	011
	al Energy Level and the Nature of Microwave Background of Universe	175
	analysis of Harmonic Plane Wave Propagation in 1D-Periodic Media	188
0 0	nd Modeling of Efficient Resonant Photo Acoustic Sensors for Spectroscopic Applications K. Chaudhary	200
	itical Issues of the LAGEOS-Based Tests of the Lense-Thirring Effect	210
•	n and Stable Attractors in a Dissipative Orbital Motion nento, A. L. A. Fonseca	219
and Small Bo	Design Optimization for Long Wavelength Semiconductor Lasers with Low Threshold Curream Divergence nna, A. Alharbi, A. Salhi	
Schrödinger-	Langevin Equation and Ion Transport at Nano Scale rya, S. Dutta, S. Roy	
Epidemiolog		
Optical Prop	wal, R. K. Pandey, M. P. Tripathi, O. P. Singh perties of Aligned Nematic Liquid Crystals in Electric Field Melik, F. Angay, M. Emek, A. Yildirim	
Quantum Su	percurrent Transistors in Silicon Quantum Wells Confined by Superconductor Barriers v, E. Y. Danilovsky, L. E. Klyachkin, A. A. Kudryavtsev, R. V. Kuzmin, A. M. Malyarenko, W. Gehlhoff, unov	
	ld Geodesics in Terms of Elliptic Functions and the Related Red Shift	274
One-Dimensi	fusion to Escape through Small Windows: Assessing the Applicability of the Reduction to Effection Description in a Spherical Cavity	
MV. Vázqu	ez, L. Dagdug	284

The figure on the front cover is from the article published in Journal of Modern Physics, 2011, Vol. 2, No. 4, pp. 200-209, by Fahem Yehya, Anil K. Chaudhary.

Copyright © 2011 SciRes.

Journal of Modern Physics (JMP)

Journal Information

SUBSCRIPTIONS

The *Journal of Modern Physics* (Online at Scientific Research Publishing, www.SciRP.org) is published monthly by Scientific Research Publishing, Inc., USA.

Subscription rates:

Print: \$59 per issue.

To subscribe, please contact Journals Subscriptions Department, E-mail: sub@scirp.org

SERVICES

Advertisements

Advertisement Sales Department, E-mail: service@scirp.org

Reprints (minimum quantity 100 copies)

Reprints Co-ordinator, Scientific Research Publishing, Inc., USA.

E-mail: sub@scirp.org

COPYRIGHT

Copyright@2011 Scientific Research Publishing, Inc.

All Rights Reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, scanning or otherwise, except as described below, without the permission in writing of the Publisher.

Copying of articles is not permitted except for personal and internal use, to the extent permitted by national copyright law, or under the terms of a license issued by the national Reproduction Rights Organization.

Requests for permission for other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works or for resale, and other enquiries should be addressed to the Publisher.

Statements and opinions expressed in the articles and communications are those of the individual contributors and not the statements and opinion of Scientific Research Publishing, Inc. We assumes no responsibility or liability for any damage or injury to persons or property arising out of the use of any materials, instructions, methods or ideas contained herein. We expressly disclaim any implied warranties of merchantability or fitness for a particular purpose. If expert assistance is required, the services of a competent professional person should be sought.

PRODUCTION INFORMATION

For manuscripts that have been accepted for publication, please contact:

E-mail: jmp@scirp.org



Journal of

Call for Papers

Modern Physics

ISSN Print: 2153-1196 **ISSN Online: 2153-120X**

http://www.scirp.org/journal/jmp/

Journal of Modern Physics(JMP) is an international journal dedicated to the latest advancement of modern physics. The goal of this journal is to provide a platform for scientists and academicians all over the world to promote, share, and discuss various new issues and developments in different areas of modern physics.

Editor-in-Chief

Prof. Victor Yashnikov Russian Academy of Sciences, Russia

Executive-Editor-in-Chief

Dr. Marko Markov Research International, Buffalo Office, USA

Editorial Board

Prof. Sadhan Kumar Adhikari Prof. Sami M. AL-Jaber Dr. Ksenofontov Alexandre Prof. Roberto Oscar Aquilano Prof. Salvatore Capozziello Dr. Riccardo Cerulli Prof. Papadopoulos Demetrios Dr. Hua-Shu Dou Prof. Constantin Fetecau Prof. Bouzid Menaa Prof. Karo Michaelian Prof. Zdzislaw E. Musielak

Prof. Luciano Nunziante Prof. Jingli Ren Prof. Richard Saurel Prof. Magnus Willander Dr. Raghvendra Singh Yadav Dr. S. Zerbini

Universidade Estadual Paulista, Brazil AN-Najah National University, Palestine Moscow Engineering Physics Institute, Russia Universidad Nacional de Rosario, Argentina University of Naples "Federico II", Italy Gran Sasso National Laboratory, INFN, Italy Aristotle University of Thessaloniki, Greece National University of Singapore, Singapore Government College University, Romania Fluorotronics, Inc., USA

National Autonomous University of Mexico, Mexico The University of Texas at Arlington, USA University of Naples Federico II, Italy Zhengzhou University, China University Aix Marseille I, France LinköpingUniversity, Sweden University of Allahabad, India University of Trento, Italy

Managing Executive Editor

Prof. Chang Liu Wuhan University, China Email: cliu@acc-lab.whu.edu.cn

Subject Coverage

Journal of Modern Physics publishes original papers including but not limited to the following fields:

Theoretical High Energy Physics **Biophysics and Medical Physics** Earth and Planetary Sciences Instrumentation and Measurement

Plasma Physics

Materials Sciences and Technology Nuclear Science and Engineering Computational Physics Interdisciplinary Physics

Other Topics in Physics

We are also interested in: 1) Short Reports—2-5 page papers where an author can either present an idea with theoretical background but has not yet completed the research needed for a complete paper or preliminary data; 2) Book Reviews—Comments and critiques.

Notes for Intending Authors

Submitted papers should not have been previously published nor be currently under consideration for publication elsewhere. Paper submission will be handled electronically through the website. All papers are refereed through a peer review process. For more details about the submissions, please access the website.

Website and E-Mail

http://www.scirp.org/journal/jmp E-mail: jmp@scirp.org