

Publikasi di Jurnal Internasional Terindeks Scopus



Print ISSN: 0219-581X
Online ISSN: 1793-5350

<http://www.worldscientific.com/doi/pdf/10.1142/S0219581X10006855>

Fabrication of Distributed Feedback Grating from Hybrid Polymer which Exhibits Photo- pumped Lasing Action

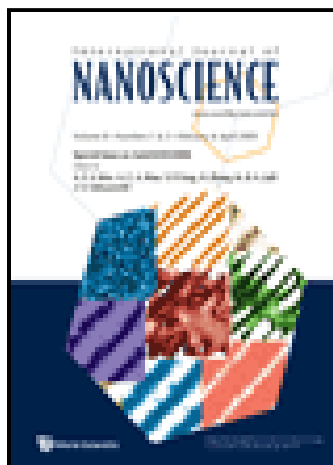
International Journal of Nanoscience
Vol 9 No 4, 307-310 (2010)

DOI 10.1142/S0219581X10006855

Rahmat Hidayat, Herman, **Fitrilawati**, Masayoshi Ojima,
and Masanori Ozaki

Publisher
World Scientific Publishing Co

**International Journal of
Nanoscience
(IJN)**



**Print ISSN: 0219-581X
Online ISSN: 1793-5350**

**Volume: 9, Issue: 4 (August 2010),
pp 307-310**

World Scientific Publishing Co. Pte. Ltd.

Editorial Board

Managing Editors

J G Hou
Structure Research Laboratory
University of Science and Technology of China
Hefei, Anhui 230026
China
jghou@ustc.edu.cn

C H Sow
Department of Physics, National University of Singapore,
Lower Kent
Ridge Road,
Singapore 119260
physowch@nus.edu.sg

A Zakhidov
UTD-Nanotech Institute
University of Texas at Dallas
P. O. Box 830688, M/S BE26
Richardson, TX 75083-0688
USA
zakhidov@utdallas.edu

Associate Editors

M Aono (*National Institute for Materials Science, Japan*)
R H Baughman (*University of Texas, Dallas, USA*)
F Besenbacher (*Aarhus University, Denmark*)
M Bououdina (*University of Bahrain, Kingdom of Bahrain*)
G Contini (*Istituto di Struttura della Materia, Italy*)
C S Fadley (*University of California, Davis, USA*)
T Hashizume (*Hitachi Ltd., Japan*)
J R Heflin (*Virginia Polytechnic Institute and State University, USA*)
S Heun (*NEST, Istituto Nanoscienze-CNR and Scuola Normale Superiore, Italy*)
David Hui (*University of New Orleans, USA*)
K L S Iyer (*The University of Western Australia, Australia*)
T S Jones (*University of Warwick, UK*)
S Licoccia (*University of Rome Tor Vergata, Italy*)
C T Lim (*National University of Singapore, Singapore*)
G Q Max Lu (*The University of Queensland, Australia*)
S Mathur (*University of Cologne, Germany*)
S G Mhaisalkar (*Nanyang Technological University, Singapore*)
A Ruediger (*INRS Énergie, Matériaux et Télécommunications, Canada*)
C Santato (*École Polytechnique de Montréal, Canada*)
Y Shi (*Nanjing University, China*)
X W Sun (*Nanyang Technological University, Singapore*)
Y Tachibana (*Osaka University, Japan*)
T T Tsong (*Accademia Sinica, ROC*)
M Tsukada (*Tohoku University, Japan*)
M A Van Hove (*City University of Hong Kong, Hong Kong*)
G Westin (*Uppsala University, Sweden*)
P D Yang (*University of California, Berkeley, USA*)
H Zhang (*Nanyang Technological University, Singapore*)
J Zou (*The University of Queensland, Australia*)

PREFACE

Page: iii-iii

INFLUENCE OF ROOM HUMIDITY ON THE FORMATION OF NANOSCALE SILICON OXIDE PATTERNED BY AFM LITHOGRAPHY

A. MAKARIMI ABDULLAH, SABAR D. HUTAGALUNG and ZAINOVIA LOCKMAN

Page: 251-255

QUASI-SOLID-STATE DYE-SENSITIZED SOLAR CELLS WITH A HIGH MOLECULAR GEL POLYMER ELECTROLYTE BASED ON PEO/P(VDF-HFP)

D. W. ZHANG, X. D. LI, S. M. HUANG, Z. A. WANG, J. H. SHI, Z. SUN and X. J. YIN

Page: 257-261

ELECTRICAL PROPERTIES OF AlGaN/GaN HETEROSTRUCTURE FIELD-EFFECT TRANSISTORS (HFETs) WITH AND WITHOUT Mg-DOPED CARRIER CONFINEMENT LAYER

A. Sh. HUSSEIN, Z. HASSAN, H. ABU HASSAN and S. M. THAHAB

Page: 263-267

EFFECT OF ANCHORING GROUPS ON ELECTRON TRANSPORT IN SINGLE MOLECULAR JUNCTIONS

P. ARUNA PRIYA, C. PREFERENCIAL KALA, C. MUTHAMIZHCHELVAN and D. JOHN THIRUVADIGAL

Page: 269-272

ELECTRON TRANSPORT INVESTIGATION OF METAL-MOLECULE-METAL INTERFACE FOR NANO-ELECTRONICS

C. PREFERENCIAL KALA, D. JOHN THIRUVADIGAL and P. ARUNA PRIYA

Page: 273-276

RAMAN STUDIES OF ELECTROSTATIC DOPING OF A THIN SINGLE-WALLED CARBON NANOTUBE BUNDLE

P. Q. GAO, Q. ZHANG, S. N. YUAN, N. PENG and D. Y. HE

Page: 277-281

NANOMECHANICAL PROPERTIES OF A Sn-Ag-Cu SOLDER REINFORCED WITH Ni-COATED CARBON NANOTUBES

Y. D. HAN, H. Y. JING, S. M. L. NAI, L. Y. XU, C. M. TAN and J. WEI

Page: 283-287

SILICON NANOWIRE TRANSISTOR FABRICATED BY AFM NANOLITHOGRAPHY FOLLOWED BY WET CHEMICAL ETCHING PROCESS

K. C. LEW and SABAR D. HUTAGALUNG

Page: 289-293

INFLUENCE OF I₂ CONCENTRATION AND CATIONS ON THE PERFORMANCE OF QUASI-SOLID-STATE DYE-SENSITIZED SOLAR CELLS WITH THERMOSETTING POLYMER GEL ELECTROLYTE

X. D. LI, X. J. YIN, C. F. LIN, D. W. ZHANG, Z. A. WANG, Z. SUN and S. M. HUANG

Page: 295-299

TiO₂ NANOTUBE AS ADDITIVE TO TiO₂ FILM FOR IMPROVING PERFORMANCE OF DYE-SENSITIZED SOLAR CELLS

X. D. LI, D. W. ZHANG, Z. A. WANG, Z. SUN, S. M. HUANG, X. J. YIN and C. F. LIN

Page: 301-305

FABRICATION OF DISTRIBUTED FEEDBACK GRATING FROM HYBRID POLYMER WHICH EXHIBITS PHOTO-PUMPED LASING ACTION

RAHMAT HIDAYAT, HERMAN, FITRILAWATI, MASAYOSHI OJIMA and MASANORI OZAKI

Page: 307-310

NANOSCALE ARRAYS IN LITHIUM NIOBATE FABRICATED BY INTERFERENCE LITHOGRAPHY AND DRY ETCHING

G. Y. SI, A. J. DANNER, J. H. TENG, S. S. ANG, A. B. CHEW and E. DOGHECHE

Page: 311-315

COMPARISON OF THE HYDROTHERMAL AND VPT GROWN ZnO NANOWIRE FIELD EFFECT TRANSISTORS

YE WANG, XIAO WEI SUN, JUNLIANG ZHAO, GREGORY KIA LIANG GOH, LANLAN CHEN, LAURA-LYNN LIEW, JIJUN QIU and YOON-HWAE HWANG

Page: 317-320

OPTICAL PROPERTIES AND VISIBLE ROOM TEMPERATURE PHOTOLUMINESCENCE OF AMORPHOUS SILICON RICH SILICON NITRIDE IN SiO₂/SiN_x QUANTUM WELL STRUCTURES

LOBNA KAMYAB, RUSLI, MINGBIN YU, LINING HE and MANIK DUA

Page: 321-325

NONEQUILIBRIUM GREEN'S FUNCTION BASED QUANTUM TRANSPORT SIMULATION FOR STRAINED-ENGINEERED NANOSCALE TRANSISTORS IN THE PRESENCE OF ELECTRON-PHONON INTERACTIONS

T. K. MAITI and C. K. MAITI

Page: 327-333

OBSERVATION OF NANOSCALED ZnO GROWTH ON POLYCRYSTALLINE Zn METAL SHEET PREPARED BY ATMOSPHERIC-PRESSURE PLASMA JET

HAO-LONG CHEN and KO-CHENG TSENG

Page: 335-339

PULSED LASER ANNEALING OF ULTRA-SHALLOW JUNCTIONS IN SILICON-GERMANIUM

L. S. TAN, J. Y. TAN, A. BEGUM, M. H. HONG, A. Y. DU, M. BHAT and X. C. WANG

Page: 341-344

DEPENDENCE OF THE ABSORPTION SPECTRA OF III-V SEMICONDUCTOR QUANTUM DOTS ON THE FUNDAMENTAL PARAMETERS

SUBINDU KUMAR and SANJIB KABI

Page: 345-349

TRANSIENT PHASE CHANGE ANALYSIS OF SCALING IN PHASE CHANGE DEVICES

ENG GUAN YEO, LUPING SHI, RONG ZHAO, CHONG TOW CHONG and ILESANMI ADESIDA

Page: 351-354

STRUCTURAL AND OPTICAL INVESTIGATIONS ON NANOCRYSTALLINE TiO₂ THIN FILMS PREPARED BY SOL-GEL SPIN COATING TECHNIQUE

T. S. SENTHIL, M. THAMBIDURAI, N. MUTHUKUMARASAMY and R. BALASUNDARAPRABHU

Page: 355-358

PROFILES OPTIMIZATION AND CHARACTERIZATIONS OF 1D AND 2D PLASMONIC CRYSTALS

HUSEN KARTASASMITA KANG, CHEE CHEONG WONG and FILIPPO ROMANATO

Page: 359-363

THE INFLUENCE OF PULSE PARAMETERS ON THE MICROSTRUCTURE OF IRON ELECTRODEPOSITS

VAHID AFSHARI and CHANGIZ DEHGHANIAN

Page: 365-370

FORMATION OF NANOCCLUSERS IN EXPANDING LASER PLUME

E. G. GAMALY, N. R. MADSEN, A. V. RODE and D. GOLBERG

Page: 371-375

FABRICATION OF CARBON NANOTUBE FIELD EFFECT TRANSISTORS WITH OCMC DISPERSED SINGLE-WALLED CARBON NANOTUBES

KUMAR RAJ, QING ZHANG, LIANGYU YAN and MARY B. CHAN PARK

Page: 377-381

ERRATA: 'Addendum to "NANOBUBBLES AT THE INTERFACE OF HOPG AND ETHANOL SOLUTION"

X. H. ZHANG, Z. H. WU, X. D. ZHANG, G. LI and J. HU

Page: 383-384

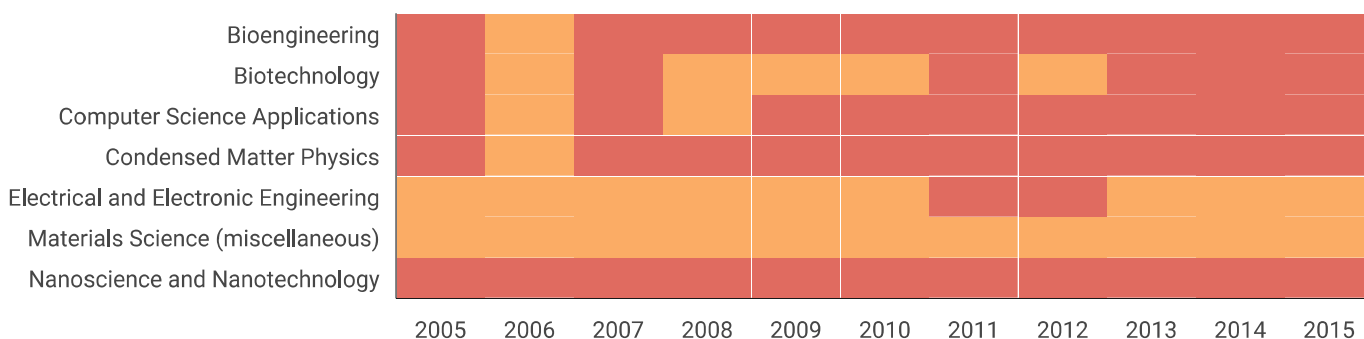
International Journal of Nanoscience

Country	Singapore
Subject Area	Biochemistry, Genetics and Molecular Biology, Chemical Engineering, Computer Science, Engineering, Materials Science, Physics and Astronomy
Subject Category	Bioengineering, Biotechnology, Computer Science Applications, Condensed Matter Physics, Electrical and Electronic Engineering, Materials Science (miscellaneous), Nanoscience and Nanotechnology
Publisher	World Scientific Publishing Co
Publication type	Journals
ISSN	0219581X
Coverage	2004-ongoing
Scope	This inter-disciplinary, internationally-reviewed research journal covers all aspects of nanometer scale science and technology. Articles in any contemporary topical areas are sought, from basic science of nanoscale physics and chemistry to applications in nanodevices, quantum engineering and quantum computing. IJN will include articles in the following research areas (and other related areas): · Properties Effected by Nanoscale Dimensions · Atomic Manipulation, Coupling of Properties at the Nanoscale · Controlled Synthesis, Fabrication and Processing at the Nanoscale · Nanoscale Precursors and Assembly, Nanostructure Arrays, Fullerenes, Carbon Nanotubes and Organic Nanostructures · Quantum Dots, Quantum Wires, Quantum Wells, Superlattices (source)

16

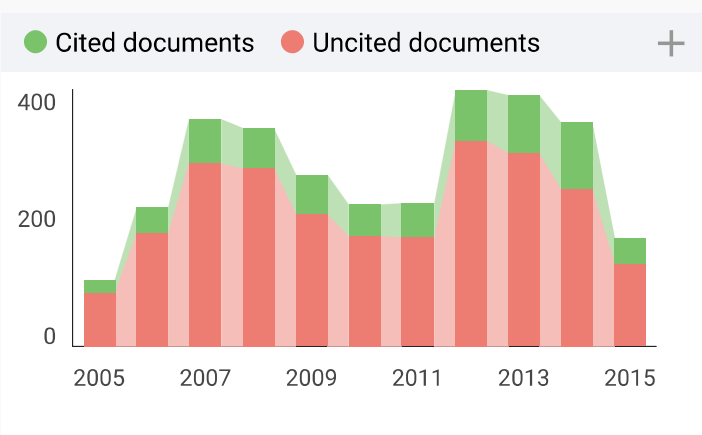
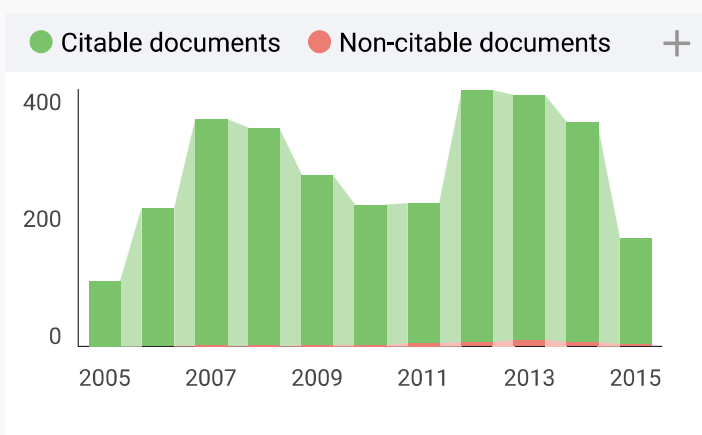
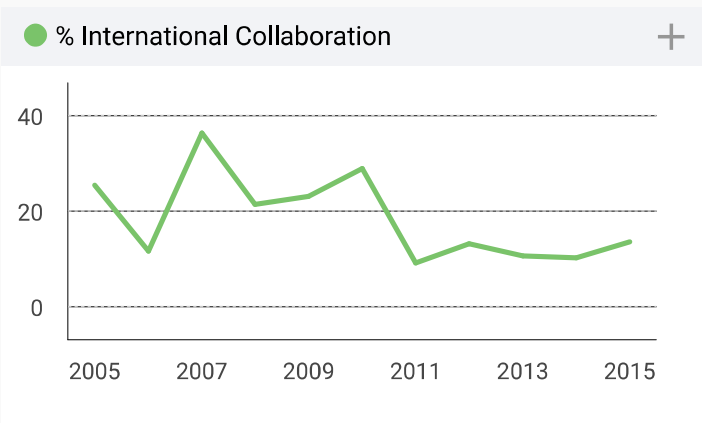
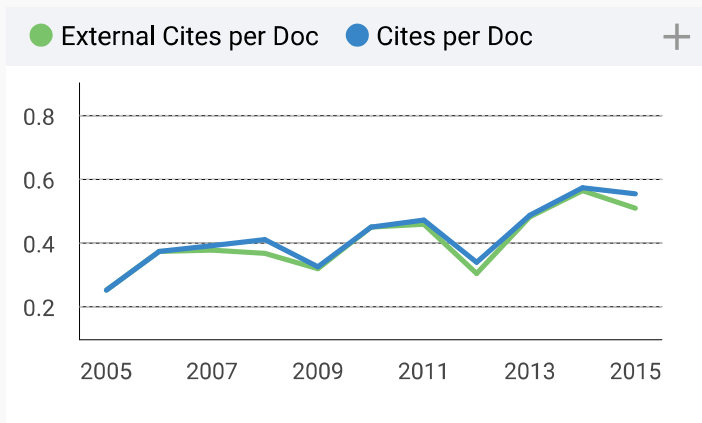
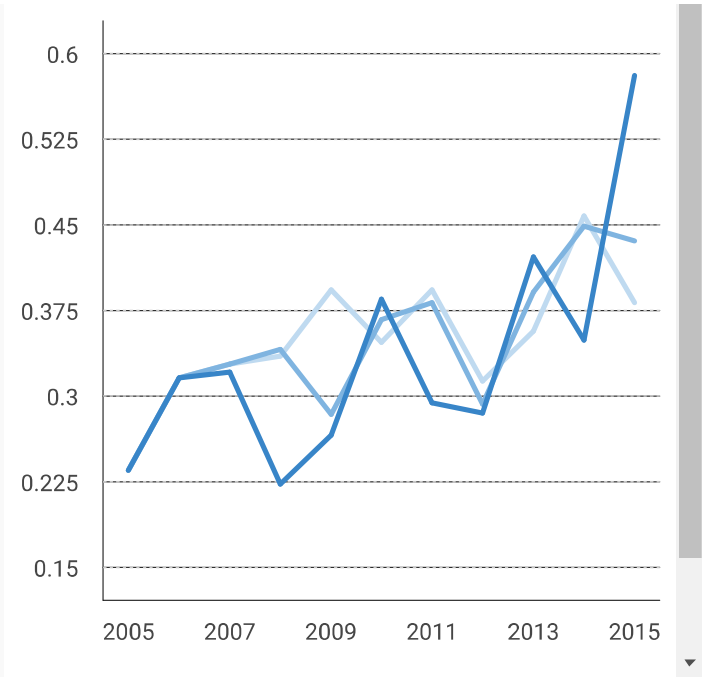
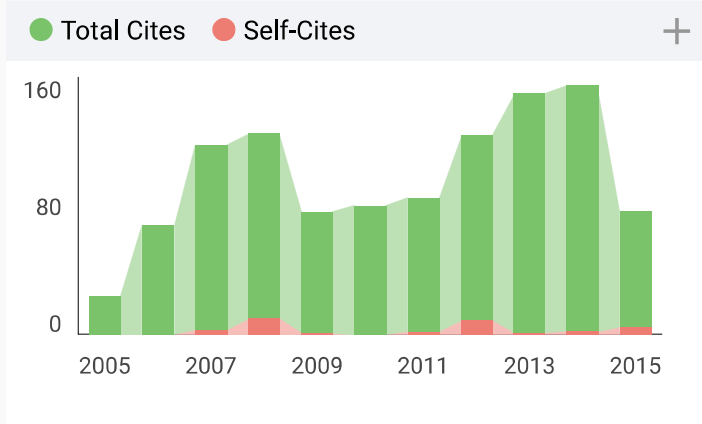
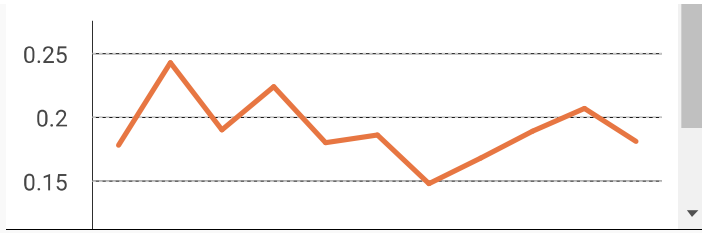
H Index

Quartiles +



● SJR +

Citations per document +



Show this widget in your own website

Just copy the code below and paste within your html code:

```
<a href="http://www.scimag
```


International Journal of
Nanoscience



Indicator: 2008-2015 Value

Developed by:



Powered by:



Follow us on Twitter

Scimago Lab, Copyright 2007-2016. Data Source: Scopus®

EST MODUS IN REBUS
Horatio (Satire 1,1,106)

FABRICATION OF DISTRIBUTED FEEDBACK GRATING FROM HYBRID POLYMER WHICH EXHIBITS PHOTO-PUMPED LASING ACTION

RAHMAT HIDAYAT* and HERMAN

*Physics of Magnetic and Photonic Research Division
Faculty of Mathematics and Natural Sciences
Institut Teknologi Bandung Jl. Ganesha 10
Bandung 40132, Jawa Barat, Indonesia
rahmat@fi.itb.ac.id

FITRILAWATI

*Department of Physics, Faculty of Mathematics and Natural Sciences
Universitas Padjadjaran, Jl. Raya Jatinangor Km.21
Sumedang 45363, West Java, Indonesia*

MASAYOSHI OJIMA and MASANORI OZAKI

*Division of Electrical, Electronic and Information Engineering
Osaka University, Yamada-Oka 2-1, Suita, Osaka, Japan*

We have studied the preparation of hybrid organic–inorganic polymers and the fabrication of distributed feedback grating using those hybrid polymers. The hybrid polymer precursors were prepared from ester-modified silicon alkoxide by using sol–gel technique. The gel precursor can be then polymerized into a solid film by photo-polymerization. The gratings were fabricated by interference laser technique by employing Lloyd’s mirror configuration. The Atomic Force Microscopy (AFM) image shows the formation of corrugated grating structure. Although the grating depth is relatively shallow compared to the thickness of the layer, the photo-pumped lasing action has been observed in those structures. In a film without grating structure, only Amplified Spontaneous Emission (ASE) was observed.

Keywords: Hybrid organic–inorganic polymer; distributed feedback grating; luminescence; photo-pumped lasing; nanostructure photonic component.

1. Introduction

In the last decades, functional polymers have attracted much attention for applications in optical and micro-optical components, photonic band gap (PBG) structures as well as for micro-electro-mechanic systems (MEMS). Easiness in fabrication process, which commonly does not require

high temperature, is one of the main advantages of using polymers, allowing the incorporation of various kinds of functional organic dyes. Acrylic and epoxy polymers, such as poly(methyl methacrylate) (PMMA) and SU-8, are examples of polymers which have been used for various optical applications, such as lenses and fiber optics.¹ These polymers