

# **Applied Nanotechnology and Nanoscience International Conference (ANNIC 2017)**

Journal of Physics: Conference Series Volume 987

Rome, Italy  
18 - 20 October 2017

**Editor:**

**Yian Tai**

ISBN: 978-1-5108-6123-7  
ISSN: 1742-6588

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

Copyright© (2017) by the Institute of Physics  
All rights reserved. The material featured in this book is subject to  
IOP copyright protection, unless otherwise indicated.

Printed by Curran Associates, Inc. (2018)

For permission requests, please contact the Institute of Physics  
at the address below.

Institute of Physics  
Dirac House, Temple Back  
Bristol BS1 6BE UK

Phone: 44 1 17 929 7481  
Fax: 44 1 17 920 0979

[techtracking@iop.org](mailto:techtracking@iop.org)

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2633  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# Table of contents

## Volume 987

Applied Nanotechnology and Nanoscience International Conference 2017 (ANNIC 2017)

18–20 October 2017, Rome, Italy

Accepted papers received: 14 March 2018

Published online: 5 April 2018

### Preface

[Applied Nanotechnology and Nanoscience International Conference 2017 \(ANNIC 2017\)](#)

[Peer review statement](#)

### Papers

[Investigation on nonlinear optical properties of MoS<sub>2</sub> nanoflake, grown on silicon and quartz substrates](#)

S Bayesteh, S Z Mortazavi and A Reyhani.....1

[Metal nanolayer deposited highly stable Ag thin films and their optical properties](#)

M Kawamura, T Kiba, Y Abe, K H Kim and H Murotani.....7

[Pd surface functionalization of 3D electroformed Ni and Ni-Mo alloy metallic nanofoams for hydrogen production](#)

A Petica, O Brincoveanu, F Golgovici, A C Manea, M Enachescu and L Anicai.....12

[The method of synthesizing of superhydrophobic surfaces by PECVD](#)

Sagi Orazbayev, Maratbek Gabdullin, Tlekkabul Ramazanov, Merlan Dosbolayev, Askar Zhunisbekov, Dulat Omirbekov and Zhuldyz Otarbay.....20

[Detection of organic vapors on sputtered and annealed thin Au films](#)

O Kvitek, V Kopacek, A Reznickova and V Svorcik.....26

[Niobium oxide nanocolumns formed via anodic alumina with modulated pore diameters](#)

A Pligovka, A Zakhlebayaeva and A Lazavenka.....32

[Formation of various types of nanostructures on germanium surface by nanosecond laser pulses](#)

S I Mikolutskiy, R R Khasaya, Yu V Khomich and V A Yamshchikov.....36

[Effects of \(Ce, Cu\) Co-doping on the Structural and Optical Properties of ZnO Aerogels Synthesized in Supercritical Ethanol](#)

D Djouadi, O Slimi, L Hammiche, A Chelouche and T Touam.....41

[Thermally induced fading of Mn-doped YAP nanoceramics](#)

Ya Zhydashchyy, N Martynyuk, A I Popov, D Sugak, P Bilski, S Ubizskii, M Berkowski and A Suchocki.....50

[Design and analysis of non-linear properties of photonic crystal fiber with Various Doping Concentration](#)

M. Benhaddad, F. Kerrou and O. Benabbes.....53

[Effect of Processing Parameters on the Morphology of PVDF Electrospun Nanofiber](#)

M A Zulfikar, I Afrianingsih, M Nasir and A Alni.....58

[Thermal and non-thermal explosion in metals ablation by femtosecond laser pulse: classical approach of the Two Temperature Model](#)

Ahmed Abdelmalek, Zeyneb Bedrane and El-Hachemi Amara.....63

[Characterization of Polycaprolactone and Rice Husk Silica Composite \(PCL-SiO<sub>2</sub>\) by E-Spinning to Apply Supporter for Drug Release](#)

Sinae Song, Askwar Hilonga and Hee Taik Kim.....70

[Indium-saving effect and physical properties of transparent conductive multilayers](#)

M Kawamura, T Kiba, Y Abe and K H Kim.....77

[Rapid thermal process by RF heating of nano-graphene layer/silicon substrate structure: Heat explosion theory approach](#)

M Sinder, J Pelleg, V Meerovich and V Sokolovsky.....82

[Electrical properties of thin films deposited from TMS/O<sub>2</sub> in Microwave Multipolar Plasma reactor](#)

M Kihel, S Sahli, Y Fermi, P Raynaud and M Benhaddad.....87

[A built-in sensor with carbon nanotubes coated by Ag clusters for deformation monitoring of glass fibre/epoxy composites](#)

P. Slobodian, P. Riha, J. Matyas, R. Olejnik, S. Lloret Pertegás, R. Schledjewski and M. Kovar.....92

[Fabrication and characterization of Aerogel-Polydimethyl siloxane \(PDMS\) Insulation Film](#)

Yeoung ah Noh, Sinae Song and Hee Taik Kim.....98

[Shift of semimetal-semiconductor bond direction on "0 1 1" to "1 1 1" Bismuth quazi-two-dimension system](#)

Ahmad Yazdani and Sajad Hamreh.....105

[Kinetics of the melting front movement in process of centrifugal induction surfacing of powder material with nanoscale modifiers](#)

I Sasnouski and A Kurylionak.....110

[Stretchable and flexible thermoelectric polymer composites](#)

P. Slobodian, P. Riha, J. Matyas and R. Olejnik.....114

[Using graphene/styrene-isoprene-styrene copolymer composite thin film as a flexible microstrip antenna for the detection of heptane vapors](#)

Robert Olejnik, Jiri Matyas, Petr Slobodian and Pavel Riha.....119

[Study of spectroscopic properties of nanosized particles of core-shell morphology](#)

T N Bzhalava and P J Kervalishvili.....124

[Suppression and enhancement of deep level emission of ZnO on Si<sup>4+</sup> & V<sup>5+</sup> substitution](#)

T Srivastava, G Bajpai and S Sen.....130

[Hydrogenization of fullerene as a method of storage of hydrogen](#)

Zh.E. Otarbay, M.T. Gabdullin, Kh.A. Abdullin, D.V. Shur, D.V. Ismailov, Ye. Yerlanuly and D.S. Kerimbekov.....135

[Comparison between layering NbSe<sub>2</sub> and rod characteristic of MgB<sub>2</sub> by investigation of elastic constants](#)

Asiye Shokri, Ahmad Yazdani and Behrad Barakati.....141

[Dynamic Consolidation and Investigation of Nanostructural W-Cu / W-Y Cylindrical Billets](#)

B. Godibadze, A. Dgebuadze, E. Chagelishvili, G. Mamniashvili and A. Peikrishvili.....147

[Decoration of wide bandgap semiconducting materials for enhancing photoelectrochemical efficiency of PEC systems.](#)

N Bakranov, A Zhabaikhanov, S Kudaibergenov and N Ibraev.....153

[Structural and optical properties of SiC-SiO<sub>2</sub> nanocomposite thin films](#)

I. Bozetine, A. Keffous, S. Kaci, H. Menari and A. Manseri.....161

[Scattering Resonances in bilayer graphene](#)

Michele Pisarra, Antonio Sindona and Pierfrancesco Riccardi.....167

[Characterization of local atomic structure in Co/Zn based ZIFs by XAFS](#)

Yulia Podkovyrina, Vera Butova, Elena Bulanova, Andriy Budnyk, Maria Kremennaya, Alexander Soldatov and Carlo Lamberti.....172

[Wireless digital pressure gauge based on nanomaterials](#)

Dilyara Abay, Zhuldyz Otarbay, Madengul Token, Nazim Guseinov, Mukhit Muratov, Maratbek Gabdullin and Daniyar Ismailov.....176

[All optical programmable logic array \(PLA\)](#)

Dawit Hiluf.....181

[Graphene like ZnO 2D structure from semiconductor to conductor behaviour by doping F](#)

Ahmad Yazdani, Behrad Barakati and Asiye Shokri.....194

[Investigation of the phase formation from Ni-modified nanostructured silicon](#)

O V Volovlikova, Y I Shilyaeva, A Y Berezkina, D I Smirnov and S A Gavrilov.....198

[Magnetic Thermometer: Thermal effect on the Agglomeration of Magnetic Nanoparticles by Magnetic field](#)

Daeseong Jin and Hackjin Kim.....204

[Determination of permeability of ultra-fine cupric oxide aerosol through military filters and protective filters](#)

E Kellnerová, Z Večeřa, J Kellner, T Zeman and J Navrátil.....210

[Magnetic, thermal and luminescence properties in room-temperature nanosecond electron-irradiated various metal oxide nanopowders](#)

S Yu Sokovnin, M E Balezin and V G Il'ves.....218

[Investigation of the Morphological Evolution and Etching Kinetics of black Silicon During Ni-Assisted Chemical Etching](#)

OV Volovlikova, G O Silakov, S A Gavrilov, A A Dudin, G O Diudbin and Y I Shilyaeva.....224

[Synthesis of nanocrystalline  \$\alpha\$ -Fe<sub>2</sub>O<sub>3</sub> by using thermal oxidation of Fe Films](#)

G Fortas, I Saidoun, H Abboud, N Gabouze, N Haine, A Manseri, M Zergoug, H Menari, S Sam, H Cheraga and I Bozetine.....232

[Simple morphological control over functional diversity of SERS materials](#)

A A Semenova and E A Goodilin.....239

[Characterization and Comparison of Photocatalytic Activity Silver Ion doped on TiO<sub>2</sub>\(TiO<sub>2</sub>/Ag<sup>+</sup>\) and Silver Ion doped on Black TiO<sub>2</sub>\(Black TiO<sub>2</sub>/Ag<sup>+</sup>\)](#)

Jin Yi Kim, Ho Hyung Sim, Sinae Song, Yeoung Ah Noh, Hong Woon Lee and Hee Taik Kim.....245

[On low-dimensional models at NMR line shape analysis in nanomaterial systems](#)

M M Kucherov and O V Falaleev.....251

[Adherence of amino acids functionalized iron oxide nanoparticles on bacterial models \*E. Coli\* and \*B. subtilis\*](#)

W. Trujillo, J. Zarría, J. Pino, L. Menacho, M. Coca and A. Bustamante.....257