

# **New Applications of Nanomaterials**

*EDITORS:*

**Alina Catrinel Ion, Dan Dascalu,  
Gabriela Carja, Magdalena Lidia Circa**



**EDITURA ACADEMIEI ROMÂNE**

**București, 2014**

Copyright © Editura Academiei Române, 2014.  
All rights reserved.

The responsibility for originality and the contents of the  
articles lies exclusively with the authors.

Address: EDITURA ACADEMIEI ROMÂNE  
Calea 13 Septembrie nr. 13, sector 5,  
050 711, București, România,  
Tel. 4021-3188146, 4021-3188106  
Fax: 4021-3182444  
E-mail: edacad@ear.ro  
Internet: <http://www.ear.ro>

Peer reviewers:

Prof. Gheorghe Brezeanu, Dr. Mihai Mihailă, m.c. al Academiei României

<p><b>Descrierea CIP a Bibliotecii Naționale a României</b> <b>New applications of nanomaterials</b> - editors: Alina Catrinel Ion, Dan Dascalu, Gabriela Carja, Magdalena Lidia Cîrea - București : Editura Academiei Române, 2014 ISBN 978-973-27-2311-1</p> <p>I. Alina Catrinel Ion (ed.) II. Dan Dascalu (ed.) III. Gabriela Carja (ed.) IV. Magdalena Lidia Cîrea (ed.)</p> <p>621.3.049.77</p>
---

Editorial assistant: Mihaela Marian  
Computer operator: Elena Trică  
Cover: Elena Trică

---

Passed for press: 03.2014. Size: 16 / 70 × 100.  
Printed sheets: 9  
D.L.C. for large libraries: 621.3.049.77  
D.L.C. for small libraries: 621.3

## CONTENTS

<b>FOREWORD</b> .....	7
<b>AuNPs/LDHS ASSEMBLIES AS NANOARCHITECTURES: FABRICATION, PROPERTIES AND SPECIFIC APPLICATION AS PHOTOCATALYSTS</b> <i>M. BIRSANU, D. MARDARE, M. PUSCASU, K. OKADA, G. CARJA</i> .....	9
<b>A NEW NANOMATERIAL FOR THE STUDY OF PROTEIN INTERACTIONS</b> <i>A. VASILESCU, I. MIHALA, A. VEZEANU, V. ANDREI, G. NEDELCU E. POPA, C. PURCAREA, P. SUBRAMANIAN, Y. COFFINIER, R. BOUKHEROUB, S. SZUNERITS</i> .....	19
<b>ENVIRONMENTAL APPLICATIONS OF CARBON-BASED NANOMATERIALS. ACETYLCHOLINESTERASE BIOSENSORS FOR ORGANOPHOSPHATE PESTICIDE ANALYSIS</b> <i>I. ION, A. CULETUA, D. GHERASE, F. SIRBU, A. C. ION</i> .....	33
<b>THE EFFECTS OF CALCINED AND DOPED SILICA NANOSTRUCTURES ON HALOTOLERANT MICROORGANISMS ISOLATED FROM ROCK SALT CRYSTAL</b> <i>M. ENACHE, S. NEAGU, C. ANASTASESCU, R. COJOC, M. ZAHARESCU</i> .....	51
<b>PULSED LASER ABLATION SYNTHESIS OF CARBON NANO-STRUCTURES: EFFECT OF TARGET COMPOSITION AND LASER ABLATION CONDITION ON THEIR YIELD AND MORPHOLOGY</b> <i>I. BOERASU, M. ENACHESCU</i> .....	61
<b>STRATEGIES FOR THE STRUCTURE AND MORPHOLOGY CONTROL OF BaTiO<sub>3</sub> NANOPARTICLES</b> <i>F. MAXIM, P. FERREIRA, P. VILARINHO</i> .....	83
<b>NANOMATERIALS FOR RESTORATION AND CONSERVATION OF HISTORICAL MONUMENTS</b> <i>R.M. ION</i> .....	99
<b>NANOSCALE DIODES WITHOUT p-n JUNCTIONS</b> <i>M. DRAGOMAN</i> .....	113
<b>PREPARATION OF POROUS CALCIUM ALGinate BEADS AND THEIR USE FOR ADSORPTION OF O-NITROPHENOL FROM AQUEOUS SOLUTIONS</b> <i>S. PERETZ, M. FLOREA-SPIROIU, D.F. ANGHIEL, D. BALA, C. STOIAN, Ghe. ZGHEREA</i> .....	123