

4th International Conference on Safe Production and Use of Nanomaterials

(Nanosafe 2014)

Journal of Physics: Conference Series Volume 617

**Grenoble, France
18 – 20 November 2014**

**ISBN: 978-1-5108-0584-2
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© (2014) 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. (2015)

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

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

NEW APPLICATIONS OF NANOMATERIALS

IN VIVO STUDY OF NOVEL NANOCOMPOSITE FOR PROSTATE CANCER TREATMENT	1
<i>C P Silveira, A J Paula, L M Apolinário, W J Fávaro, N Durán</i>	
PREPARATION, CHARACTERIZATION AND TESTS OF INCORPORATION IN STEM CELLS OF SUPERPARAMAGNETIC IRON OXIDE	8
<i>P S Haddad, T N Britos, L M Li, L D S Li</i>	

EXPOSURE

ANALYSIS OF MULTIVARIATE STOCHASTIC SIGNALS SAMPLED BY ON-LINE PARTICLE ANALYZERS: APPLICATION TO THE QUANTITATIVE ASSESSMENT OF OCCUPATIONAL EXPOSURE TO NOAA IN MULTISOURCE INDUSTRIAL SCENARIOS (MSIS)	17
<i>J M López de Ipiña, C Vaquero, C Gutierrez-Cañas, D Y H Pui</i>	
EXPOSURE SCENARIO LIBRARIES AS A TOOL FOR EXPOSURE ASSESSMENT	27
<i>Araceli Sánchez Jiménez, Shahzad Rashid, Derk Brouwer, Wouter Fransman, Carlos Fito, George Boulougouris, Martie van Tongeren</i>	
NANOPARTICLE EXPOSURE BIOMONITORING: EXPOSURE/EFFECT INDICATOR DEVELOPMENT APPROACHES	30
<i>C Desvergne, M Dubosson, M Lacombe, V Brun, V Mossuz</i>	
OCCUPATIONAL EXPOSURE TO NANO-TIO₂ IN THE LIFE CYCLE STEPS OF NEW DEPOLUTANT MORTARS USED IN CONSTRUCTION	41
<i>C Vaquero, N Gelarza, J L López de Ipiña, C Gutierrez-Cañas, I Múgica, G Aragón, M Jaen, R Pina, I Larraza, A Esteban-Cubillo, D Thompson, D Y H Pui</i>	
STRATEGY FOR THE LOWERING AND THE ASSESSMENT OF EXPOSURE TO NANOPARTICLES AT WORKSPACE - CASE OF STUDY CONCERNING THE POTENTIAL EMISSION OF NANOPARTICLES OF LEAD IN AN EPITAXY LABORATORY	48
<i>Sébastien Artous, Eric Zimmermann, Paul-Antoine Douissard, Dominique Locatelli, Sylvie Motellier, Samir Derrough</i>	
DEVELOPMENT OF EXPOSURE ASSESSMENT METHOD WITH THE CHAMBER	58
<i>N Kato, Y Koyama, H Yokoyama, Y Matsui, M Yoneda</i>	
EXPOSURE ASSESSMENT OF MWCNTS IN THEIR LIFE CYCLE	65
<i>M Ono-Ogasawara, M Takaya, M Yamada</i>	

DETECTION AND CHARACTERIZATION

PROPERTIES OF NANOPARTICLES AFFECTING SIMULATION OF FIBROUS GAS FILTER PERFORMANCE	73
<i>Paolo Tronville, Richard Rivers</i>	
DETAILED CHARACTERIZATION OF WELDING FUMES IN PERSONAL EXPOSURE SAMPLES	83
<i>B Quémerais, James Mino, M R Amin, H Golshahi, H Izadi</i>	
DESIGN OF AN EXPOSURE CHAMBER TO TEST SAMPLERS USED IN THE EVALUATION OF PERSONAL EXPOSURE TO NANOPARTICLES	93
<i>R Amin, H Izadi, B Quémerais</i>	
MULTI-INSTRUMENT MANAGER TOOL FOR DATA ACQUISITION AND MERGING OF OPTICAL AND ELECTRICAL MOBILITY SIZE DISTRIBUTIONS	99
<i>Torsten Tritscher, Amine Koched, Hee-Siew Han, Eric Filimundi, Tim Johnson, Sherrie Elzey, Aaron Avenido, Carsten Kykal, Oliver F Bischof</i>	
QUANTITATIVE MEASUREMENT OF CARBON NANOTUBES RELEASED FROM THEIR COMPOSITES USING THERMAL CARBON ANALYSIS	108
<i>I Ogura, M Shigeta, M Kotake, M Uejima, K Honda</i>	

PRELIMINARY EVALUATION OF THE ENCAPSULATION OF NEW ANTIDIABETIC SULPHONYLHYDRAZONE AND ANTITUMOR N-ACYLHYDRAZONE DERIVATIVES USING PLGA NANOPARTICLES	113
<i>F N Costa, A L Ibiapino, L P de Figueiredo, E J Barreiro, L M Lima, D N do Amaral, C E de Castro, F C Giacomelli, F F Ferreira</i>	

TOXICOLOGY

WHAT IS THE IMPACT OF SILICON CARBIDE NANOPARTICLES TO THE MINERAL COMPOSITION OF RAT LUNGS? A PIXE-μPIXE COMPARATIVE STUDY	122
<i>O Lozano, J L Colaux, J Laloy, J M Dogné, S Lucas</i>	
THE IMPACT OF INSTILLED CARBIDE NANOPARTICLES ON RAT LUNGS: AN IN VIVO PERSPECTIVE ON ACUTE INTRATRACHEAL INSTILLATION	128
<i>O Lozano, D Lison, V. Escamilla-Rivera, J Mejía, O Toussaint, J M Dogné, S Lucas</i>	
ORGAN WEIGHT CHANGES IN MICE AFTER LONG-TERM INHALATION EXPOSURE TO MANGANESE OXIDES NANOPARTICLES	134
<i>T Zeman, M Buchtová, B Dočekal, I Mišek, J Navrátil, P Mikuška, O Šerý, Z Vecera</i>	
INTERLAB STUDY ON NANOTOXICOLOGY OF REPRESENTATIVE GRAPHENE OXIDE	140
<i>Nelson Durán, Diego S T Martinez, Giselle Z Justo, Renata de Lima, Vera Lúcia de Castro, Gisela A Umbuzeiro, Edison Barbieri, Marcela Durán, Patricia S Melo, Oswaldo L Alves, Wagner J Fávaro</i>	
NITRIC OXIDE-RELEASING POLYMERIC NANOPARTICLES AGAINST TRYPANOSOMA CRUZI	149
<i>A B Seabra, N A Kitice, M T Pelegrino, C A C Lancheros, L M Yamauchi, P Pingue-Filho, S F Yamada-Ogatta</i>	
GRAPHENE OXIDE SHEETS-BASED PLATFORM FOR INDUCED PLURIPOTENT STEM CELLS CULTURE: TOXICITY, ADHERENCE, GROWTH AND APPLICATION	158
<i>Marcela Durán, Patricia F Andrade, Nelson Durán, Angela C M Luzo, Wagner J Fávaro</i>	
SYNTHESIS, CHARACTERIZATION AND CYTOTOXICITY EVALUATION OF NITRIC OXIDE-IRON OXIDE MAGNETIC NANOPARTICLES	163
<i>P S Haddad, T N Britos, M C Santos, A B Seabra, M V Palladino, G Z Justo</i>	
HSP70 AS AN INDICATOR OF STRESS IN THE CELLS AFTER CONTACT WITH NANOPARTICLES	170
<i>Šárka Hardilová, Markéta Havrdová, Aleš Panáček, Libor Kvítek, Radek Zboril</i>	
IN VIVO NANOTOXICOLOGY OF HYBRID SYSTEMS BASED ON COPOLYMER/SILICA/ANTICANCER DRUG	177
<i>C P Silveira, A J Paula, L M Apolinário, W J Fávaro, N Durán</i>	

ENVIRONMENTAL INTERACTIONS OF NANOMATERIALS

EVALUATION OF THE EFFECTS OF NITRIC OXIDE-RELEASING NANOPARTICLES ON PLANTS	184
<i>A E S Pereira, A M Narciso, A B Seabra, L F Fraceto</i>	

NANOMATERIAL RELEASE

MEASURING NANOMATERIAL RELEASE FROM CARBON NANOTUBE COMPOSITES: REVIEW OF THE STATE OF THE SCIENCE	192
<i>Stacey Harper, Wendel Wohlleben, Maria Doa, Bernd Nowack, Shaun Clancy, Richard Canady, Andrew Maynard</i>	
MEASUREMENT OF NANOPARTICLES RELEASE DURING DRILLING OF POLYMER NANOCOMPOSITES	211
<i>L Gendre, V Marchante Rodriguez, H Abhyankar, K Blackburn, J L Brighton</i>	
PARTICLE RELEASE FROM SINGLE-WALL AND MULTIWALL CARBON NANOTUBES IN POLYSTYRENE-BASED COMPOSITES DURING GRINDING	221
<i>I Ogura, M Shigeta, M Kotake, M Uejima, K Honda</i>	
NANOPARTICLE RELEASE QUANTIFICATION DURING WEAK AND INTENSE DRY DISPERSION OF NANOSTRUCTURED POWDERS	228
<i>Daniel Göhler, Michael Stintz</i>	

INDUSTRIAL PRODUCTION AND PREVENTION

TOWARDS UNDERSTANDING THE MECHANISMS AND THE KINETICS OF NANOPARTICLE PENETRATION THROUGH PROTECTIVE GLOVES	238
<i>L Vinches, C Peyrot, L Lemarchand, N Boutrigue, M Zemzem, K J Wilkinson, S Hallé, N Tufenkji</i>	

LIFE CYCLE ANALYSIS

NANOMATERIALS IN CONSTRUCTION AND DEMOLITION - HOW CAN WE ASSESS THE RISK IF WE DON'T KNOW WHERE THEY ARE?	248
<i>Wendy Jones, Alistair Gibb, Chris Goodier, Phil Bust, Jie Jin, Mo Song</i>	

REGULATION AND STANDARDIZATION

NANOMATERIALS IN FOOD - CURRENT AND FUTURE APPLICATIONS AND REGULATORY ASPECTS	257
<i>K Aschberger, S Gottardo, V Amenta, M Arena, F Botelho Moniz, H Bouwmeester, P Brandhoff, A Mech, L Quiros Pesudo, H Rauscher, R Schoonjans, M Vittoria Vettori, R Peters</i>	
NANOSTAIR: A NEW STRATEGIC PROPOSAL TO IMPULSE STANDARDIZATION IN NANOTECHNOLOGY RESEARCH	264
<i>J M López de Ipiña, O Salvi, B Hazebrouck, A Jovanovic, F Carre, A Saamanen, D Brouwer, M Schmitt, S Martin</i>	

COMMERCIAL EQUIPMENT

MINIATURE NANOPARTICLE SENSORS FOR EXPOSURE MEASUREMENT AND TEM SAMPLING	273
<i>Martin Fierz, Dominik Meier, Peter Steigmeier, Heinz Burtscher</i>	

RISK MANAGEMENT

STRATEGIES, METHODS AND TOOLS FOR MANAGING NANORISKS IN CONSTRUCTION	278
<i>J M López de Ipiña, C Vaquero, D Boutry, J F Damlencourt, P Neofytou, M Pilou, E Jankowska, I Larraza, R Pina, S Fernández, S Contreras, A Romero, M Calderon, P Swiezewsk, K Otkallo, A Pintea, C Salazar, T Oroz, B Hargreaves, R Ciobanu, A Tabrea, B Hazebrouck, O Salvi, H Stockmann-Juvala, V Vaananen, D H Y Pui, Drew Thompson</i>	
A STANDARDIZED NON-INSTRUMENTAL TOOL FOR CHARACTERIZING WORKSTATIONS CONCERNED WITH EXPOSURE TO ENGINEERED NANOMATERIALS	288
<i>Guseva Canu I, Ducros C, Ducamp S, Delabre L, Audignon-Durand S, Durand C, Iwatsubo Y, Jezewski-Serra D, Le Bihan O, Malard S, Radauceanu A, Reynier M, Ricaud M, Witschger O</i>	
QUALITATIVE RISK ASSESSMENT DURING POLYMER MORTAR TEST SPECIMENS PREPARATION - METHODS COMPARISON	294
<i>F Silva, S P B Sousa, P Arezes, P Swuste, M C S Ribeiro, J S Baptista</i>	

NANORESPONSIBLE DEVELOPMENT

REGULATION AND INNOVATION DYNAMICS FOR NANORESPONSIBLE DEVELOPMENT: THE CASE OF THE FRENCH CODE DE L'ENVIRONNEMENT L 523-1 TO L 523-5	303
<i>C Auplat, S Ben Slimane</i>	

Author Index