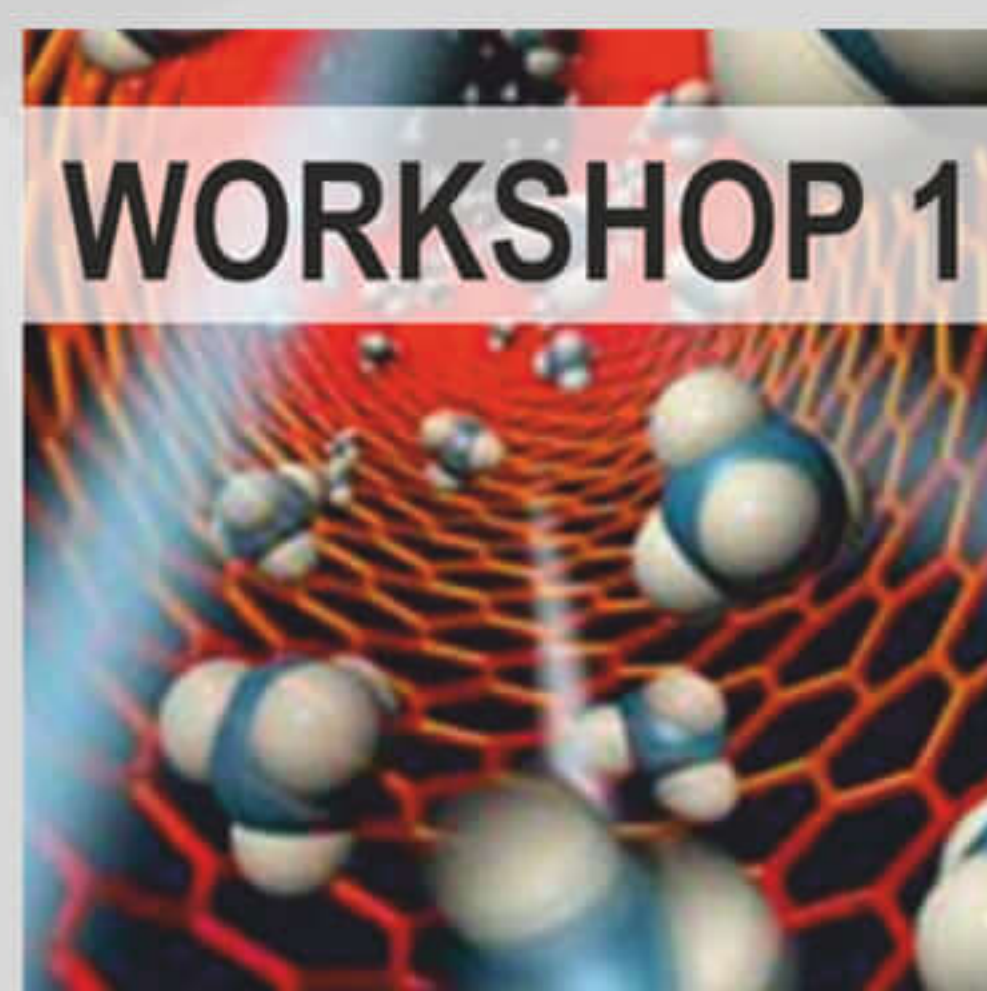


14th International Conference on Nanosciences & Nanotechnologies



4-7 July 2017, Thessaloniki, Greece

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NANOELECTRONICS, PHOTONICS, PLASMONICS & NANOENERGY

- Photonics & Nano-optoElectronics • Photonic Integrated Circuits Workshop • Energy Storage • Materials, Devices & Applications • Processes & Characterization • Theoretical & Computational approaches • Commercialization in Nanoelectronics and Energy • Special Sessions



NANOMATERIALS, NANOFABRICATION, NANOENGINEERING & NANOCONSTRUCTION

- Carbon Related Materials • Polymer Nanotechnologies • Nanomaterials • Nanofabrication & Characterization • Biomaterials at Nanoscale • Theoretical & Computational approaches • NanoConstruction & Building Materials • Special Sessions & Round Tables



NANOMEDICINE

- Basics related with Medicine, Biology & Nanotechnology • Nanomaterials in any form • Clinical Applications • Special Workshop to honor Prof. Y. Missirlis • Update on Preclinical/Clinical trials • Nanotoxicity, Risk Assessment & Ethics • Commercialization in Nanomedicine • Special Sessions & Round Tables



BIOSENSORS AND BIOELECTRONICS *

- Fundamentals from Materials to Biology & Medicine • Biosensors & Bioactuators • Biological & Clinical Applications • Commercialization in Biosensors & Diagnostic Systems • Special Sessions & Round Tables



GRAPHENE & RELATED MATERIALS *

- Graphene growth, synthesis & integration • Chemistry & Growth kinetics • Transfer of graphene to host substrates • Graphene Properties • 2D nanomaterials & heterostructures • Impurity & Doping • Interfaces & Excitons • Large area production • Applications of graphene • Market commercialization

2017 SPECIAL WORKSHOPS

- **New Business Development & Commercialization Workshop ***
- **Photonic Integrated Circuits Workshop** "Photonic Integration: Bridging Technology push with Industry needs"
- **Workshop to honor Prof. Y. Missirlis** "Cross talking of Cells with their Neighbors and other Enviromental Cues at Biointerfaces"
- **3rd NANO-GR Workshop & Round Table** "Synergies between H2020 and Greek regional funds in the framework of Smart Specialization"
- **EU-USA Workshop** "Bridging Research Cooperation in NanoManufacturing"
- **Workshop on Renewable Energy & Storage ***

*(common in NN17 & ISFOE17)

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PHYSICS DEPARTMENT



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ORAL PRESENTATIONS PROGRAM

Tuesday 4 July Porto Palace Conference Centre & Hotel

08:00 – All Day

Registration to NN17

09:00– 09:15

Welcome & Opening remarks

S. Logothetidis (NN17 Chairman)

Room: Crystal Hall

09:15 – 09:45 Keynote Talk

Deposition and photonic processing of metal oxide thin films for low temperature electronics

W. Cranton, Sheffield Hallam University

Parallel Session

WS1 Session: Photonics I –Optical Interconnects

Chair: P. Bakopoulos, D. Kalavrouziotis

Room: Crystal Hall

09:45-10:15 Invited

From Fabric to Chip: Advances in system embedded photonics in modern data centre environments

R. Pitwon, Seagate Systems Ltd, United Kingdom

Parallel Session

WS2 Session: Thin Films I

Chair: Prof. P. Keliris

Room: Dock Six I

09:45-10:15 Invited

Compositional and epitaxial strain dependence of functional properties in perovskite thin films obtained by laser techniques

M. Dinescu

National Institute of Physics and Nuclear Engineering - NIPNE, Romania

Parallel Session

Joined Session of ISFOE17 and W5: GRAPHENE I

Chair: G. Deligeorgis

Room: Dock Six 2

09:30-10:00 Invited

Graphene and related materials for perovskite solar cells

Aldo di Carlo, University of Rome Tor Vergata, Italy

10:15-10:45 Invited

Polymer-based Hybrid Photonic Components for Next-Generation Data Center and Wireless Networks

D. de Felipe Mesquida, Fraunhofer Heinrich-Hertz-Institut, Germany

10:15-10:30

Sol-gel Processed Niobium-doped Titanium Dioxide as Substitute for Indium Tin Oxide in Transparent Conductive Coatings

M. Skof

Nat. Structural Integrity Research Centre (NSIRC), UK

10:30-10:45

Hyperuniform Disordered Structures for Phonon Guiding

G. Gkantzounis, University of Surrey, UK

10:00-10:15

Quasi-Particle Method Approach for Two-Phonon Raman Scattering Intensity in Graphene

S. Melkonyan, Yerevan State University, Armenia

10:15-10:30

All-Carbon supra-structures: fullerene decorated carbon nanotubes

R. Yerushalmi –Rozen, Eng.Ben-Gurion University of the Negev, Israel

10:30-10:45

In-Situ and Real-Time Spectroscopic Ellipsometry monitoring of Graphene growth by Chemical Vapour Deposition

A. Laskarakis

Nanotechnology Lab LTFN, Greece

10:45-11:00

Hybrid graphene – quantum dot phototransistors for video frame rate applications

I. Nikitskiy ICFO - The Institute of Photonic Sciences, Spain

10:45-11:00

Optical Spectroscopy of Some Metallic Tribolayers

A. Mailian, Institute for Informatics, Armenia

10:45-11:00

Graphene-based batteries to improve the efficiency of the existing Technologies

González Teresa Raquel, GrapheneTech S.L, Spain

11:00–11:30

Coffee Break-Exhibition-Networking

POSTER SESSION I:

All participants of Workshops 1,2 (1-30),4, 5 should put their Posters to the NN17 Poster Area on Tuesday, 4 July and will remain until Thursday 6 July (Lunch Break).

Room: Grand Pietra Hall

P3-36	Encapsulation of Quercetin in Biodegradable Polymer Nanofibrous Membranes C. Panayiotou, Department of Chemical Engineering, Aristotle University of Thessaloniki, 54124 Thessaloniki, Greece
P3-37	

Workshop 4 – Bioelectronics	
P4-1	Development of ratiometric fluorescent membranes based on CdSe/ZnS QDs and a fluorescent dye for hydrogen peroxide detection Duong H.D. Rhee J.I. Chonnam National University, Republic of Korea
P4-2	Surface Functionalized Carbon Dots as Fluorescent Nanolabels Rukan Genc Mersin University, Turkey.
P4-3	As-Se-based glasses doped with rare-earth ions for biosensing applications Ya. Shpotyuk Center for Innovation and Transfer of Natural Sciences and Engineering Knowledge, Poland
P4-4	The overlooked role of a protein channel: Generation of pulsed electromagnetic wave in a biosystem F. Yang, Peking University, China;
P4-5	Hybrid gold-coated micellar composites for point-of-need biothiol sensing using consumer electronic devices Dimosthenis L. Giokas, University of Ioannina, Greece
P4-6	Smart Electrochemical Signaling of Bisphenol A with Silver-doped ZnO on Screen Printed Electrodes Krishna Bisetty, Durban University of Technology, South Africa
P4-7	To map the temperature distribution of a single cell S. Y. Xu, Peking University, China;
P4-8	Detecting a Persistent Organic Pollutant Polychlorinated Biphenyl with Biosensor Based on Total Internal Reflection Imaging Ellipsometry Y. Niu Chinese Academy of Sciences, Beijing, China
P4-9	Intrinsic Signal-to-Noise Ratio of a Single Receptor Biosensor Z. Djurić, Institute of Technical Sciences of SASA, Serbia
P4-10	Deterministic versus Stochastic Analysis of Competitive Adsorption in Microfluidic Biosensors Z. Djurić, Institute of Technical Sciences of SASA, Serbia
P4-11	Detection of E-coli with a microfluidic chip M. Filipescu, National Institute for Lasers, Plasma, and Radiation Physics, Romania
P4-12	Macroscopically Ordering Effect of Self-Assembled Monolayers by anisotropic underlying substrate for controlling the chain tilting direction Y. -C. Shin, J. -S. Park and H. -R. Kim, Kyungpook National University South Korea

Workshop 5 – Graphene And Related Materials	
P5-1	Graphenes as potential oil-spill cleaners George Z. Kyzas, Eastern Macedonia and Thrace Institute of Technology, Greece
P5-2	Air-stable Au doping of graphene by hybridizing with graphene oxide for flexible transparent electrodes Sun Sook Lee, Korea Research Institute of Chemical Technology, Korea
P5-3	In-situ Raman Spectroscopy of Solution Gated Epitaxial Graphene Field-Effect Transistors J. Binder University of Warsaw, Poland,
P5-4	Polymer-assisted large-area sublimation growth of epitaxial graphene on SiC S. Wundrack Physikalisch-Technische Bundesanstalt, Germany
P5-5	Simulation and analysis of Graphene-based nanoelectronic circuits using ANFIS method F. Djeflal University of Batna 2, Algeria.
P5-6	Shungite derived graphene nanoplatelets as multifunctional filler for polypyrrole-based hybrid nanocomposites Politi S. University of Rome Tor Vergata, Italy
P5-7	Smoke Detector based on Ultra –Violet sensitive Organic Photodiode with Graphene electrode E. M. Pechlivani, Organic Electronic Technologies (OET), Greece
P5-8	Growth, characterization and transfer of CVD Graphene V. Kyriazopoulos, Nanotechnology Lab LTFN, Greece
P5-9	Keggin Type Polyoxotungstate/ Oxy Graphene Nanocomposite Multilayer Films For Photocatalyst Application Yasemin Topal Selcuk University, Turkey

Graphenes as potential oil-spill cleaners

George Z. Kyzas, Ramonna Kosheleva, Konstantinos Kiourtzidis, Esmira e. Bibaj, Kyriaki Lysigaki,
Anastasia Rodana, Athanasios C. Mitopoulos
*Graphene Lab, Hephaestus Advanced Laboratory, Eastern Macedonia and Thrace Institute of
Technology, Kavala 65404, Greece*

Abstract: Many different types of materials have been proposed or tested for use in cleaning up oil spills, including zeolites, polymers, activated carbon, and even sawdust. Selective absorption capacity of the oil layer is of paramount importance in such an application, and the toxicity of the absorbent itself is also an important consideration. Based on our research, some graphene-structure materials were fabricated by reducing graphene oxide and then applying a hydrothermal molding procedure in order to achieve a morphology with a high surface area. Then the absorbance properties of this material was tested for removing various commercial petroleum products (including kerosene, pump oil, fats, and organic solvents) from artificial seawater. Significant results showed that those graphenes absorbed up to 15 times its weight, which was higher than all other common absorbents. The absorbed hydrocarbons were then subsequently recovered from the sponge with a 99% yield using simple heating. Using this procedure, the graphene sponge could then be regenerated and reused up to 7 times without a drop in performance. The explanation of mechanism's synthesis as well as absorption achievements, were extensively discussed by employing various characterization techniques: SEM/EDAX, FTIR, XRD, and DTA.