

Monday, DECEMBER 5, 2011

8:00 REGISTRATION

9:00 WELCOME

9:10- 13:05

SESSION 1.

FUNDAMENTAL PROPERTIES AND ADVANCED CHARACTERIZATION (PART I)

9:10-9:40

[IN1.1] *In situ* studies of the nanoelectromechanical properties of graphene membranes

E.E.B. Campbell* (1) , O. A. Nerushev (1), N. Olofsson (2), J. Svensson (2), D. Midtvedt (3), A. Isacsson (3)

(1): School of Chemistry, Edinburgh University, Edinburgh EH9 3JJ

(2): Department of Physics, Gothenburg University, 41296 Gothenburg, Sweden

(3): Applied Physics, Chalmers University of Technology, 41296 Gothenburg, Sweden

9:40-10:00

[O1.1] Three-dimensional reconstruction of graphene membrane folded edges from strain mapping

L. Ortolani (1), C. Degli Esposti-Boschi (1), C. Gatel (2), M.J. Hytch (2), M. Monthieux (2), V. Morandi (1), E. Snoeck (2), R. Rizzoli (1), G.P. Veronese (1)

(1) CNR-IMM Sezione di Bologna, via Gobetti 101, 40129 Bologna, Italy

(2) CNRS CEMES, 29 Rue Jeanne Marvig, 31055 Toulouse, France

10:00-10:20

[O1.2] Effect of graphene/substrate interface on the electronic transport properties

F. Giannazzo, E. Rimini, V. Raineri

CNR-IMM, Strada VIII, 5 95121 Catania, Italy

10:20-10:40

[O1.3] Angle-resolved energy loss spectroscopy experiments on epitaxial graphene on Pt(111): a powerful tool for investigating vibrational, elastic and electronic properties

A. Politano, A. R. Marino, V. Formoso and G. Chiarello

Dipartimento di Fisica, Università degli Studi della Calabria, 87036 Rende (Cs), Italy

10:40-10:55

COFFEE BREAK

10:55-11:25

[IN1.2] Double resonant Raman in graphene: all you wanted to know about

M. Lazzeri (1) , P. Venezuela (2), F. Mauri (1)

(1) IMPMC, Paris 6, CNRS, 4 Place Jussieu, Paris, FRANCE

(2) Instituto de Fisica, Universidade Federal Fluminense, 24210-346, Niteroi RJ, Brazil

11:25-11:45

[O1.4] Raman studies of graphene growth on Ni and Cu by Chemical Vapor Deposition

G. Messina (1) , G.Faggio (1), S. Santangelo (1), V. Morandi (2), L. Ortolani, (2), R. Rizzoli (2), G.P. Veronese (2)

⁽¹⁾ Dept. of Mechanics and Materials, University "Mediterranea" of Reggio Calabria, Italy

⁽²⁾ Nat. Res. Council - Inst. of Microelectronics & Microsystems, Bologna, Italy

11:45-12:05

[O1.5] Spin coupling in graphene around a carbon vacancy

M. Casartelli , S. Casolo, G. F. Tantardini, R. Martinazzo

Dip. Chimica Fisica ed Elettrochimica, Università degli Studi di Milano, via Golgi 19, 20133 Milano, Italy

12:05-12:25

[O1.6] Cyclotron resonance and renormalization in graphene and its bilayer

K. Shizuya

Yukawa Institute for Theoretical Physics, Kyoto University, Kyoto 606-8502, Japan

12:25-12:45

[O1.7] Dynamic RKKY interaction in graphene

M. S. Ferreira

School of Physics, Trinity College Dublin, Dublin, Ireland

12:45-13:05

[O1.8] Cyclotron resonance of K point electrons in graphite

M. Orlita (1,2), P. Neugebauer(1), F. M. D. Pellegrino (3, 4), D. M. Basko (5) and M. Potemski (5)

(1) *LNCMI, Grenoble, France*

(2) *Institute of Physics, Faculty of Mathematics and Physics, Charles University, Ke Karlovu 5, 121 16 Praha 2, Czech Republic*

(3) *Dipartimento di Fisica e Astronomia, Università di Catania, Via S. Sofia 64, I-95123 Catania, Italy*

(4) *CNISM, UdR Catania, I-95123 Catania, Italy*

(5) *Univ. Grenoble 1/CNRS, LPMMC UMR 5493, Maison des Magistères, 38042 Grenoble, France*

13:05-14:30

LUNCH BREAK (lunch not provided)

14:30- 16:55

SESSION 2.

FUNDAMENTAL PROPERTIES AND ADVANCED CHARACTERIZATION (PART II)

14:30-15:00

[IN2.1] Strain effects and nematic phase transition in bilayer graphene.

V. I. Fal'ko

Department of Physics, Lancaster University, Lancaster, LA1 4YB, United Kingdom

15:00-15:20

[O2.1] Transport properties of graphene across strain-induced nonuniform velocity profiles

F. M. D. Pellegrino (1,2), G. G. N. Angilella (1,2,3,4) , R. Pucci (1,2)

(1) *Dipartimento di Fisica e Astronomia, Università di Catania, Via S. Sofia, 64, I-95123 Catania, Italy*

(2) *CNISM, UdR Catania, I-95123 Catania, Italy*

(3) *Scuola Superiore di Catania, Università di Catania, Via Valdisavoia, 9, I-95123 Catania, Italy*

(4) *INFN, Sez. Catania, I-95123 Catania, Italy*

15:20-15:40

[O2.2] The role of defects in graphene elasticity

E. Cadelano (1), and L. Colombo (1,2)

(1) *CNR-IOM SLACS, Cagliari, Italy.*

(2) *Department of Physics, University of Cagliari, Monserrato, Italy.*

15:40-15:55
COFFEE BREAK

15:55-16:15

[O2.3] First Principle Study of Low Temperature Lattice Thermal Conductance of Graphene Antidot Lattices for Thermoelectric Applications

H. Karamitaheri (1,2) , M. Pourfath (2,3), M. Pazoki (4), R. Faez (1), and H. Kosina (2)

(1) *School of Electrical Engineering, Sharif University of Technology, Tehran, Iran*

(2) *Institute for Microelectronics, TU Wien, Austria*

(3) *Electrical and Computer Engineering Department, University of Tehran, Tehran, Iran*

(4) *Department of Physics, Sharif University of Technology, Tehran, Iran*

16:15-16:35

[O2.4] Study of thermal transport properties of CVD grown graphene membranes : a route to graphene-based thermoelectric sensing devices

V. Morandi, C. Degli Esposti-Boschi, P. Maccagnani, F. Mancarella, L. Ortolani, R. Rizzoli, A. Roncaglia, G.P. Veronese

CNR-IMM Sezione di Bologna, via Gobetti 101, 40129 Bologna, Italy

16:35-16:55

[O2.5] Raman monitoring of strain induced effects in mechanically deposited single layer graphene

P. Russo¹, G. Compagnini, C. D'Andrea², P.G. Gucciardi², O. M. Maragò²

¹*Dipartimento di Scienze Chimiche, Università di Catania, Viale A.Doria 6 Catania 95125 Italy*

²*CNR-Istituto per i Processi Chimici-Fisici, I-98158 Messina, Italy*

TUESDAY, DEC.6, 2011

9:00-12:35

SESSION 3

SENSORS AND OTHER APPLICATIONS

9:00-9:30

[IN3.1] Carbon Nanostructures for Gas Sensing Applications

M. Penza

ENEA, Italian National Agency for New Technologies, Energy and Sustainable Economic Development Technical Unit Brindisi Technologies for Materials, PO BOX 51 Br-4, I-72100 Brindisi, Italy

9:30-9:50

[O3.1] Synthesis, characterization and sensing properties of electrospun CNTs/polymer/metal oxides composites

P. Frontera (1), A. Donato* (1), S. Trocino (1), P.L. Antonucci (1), G. Neri (2)

(1)Dept. of Mechanics and Materials, University "Mediterranea" of Reggio Calabria, Italy

(2) Dept. of Industrial Chemistry and Materials Engineering, University of Messina, Italy

9:50-10:10

[O3.2] NO₂ sensor based on ultra-thin titania coating on carbon nanofibers

N. Donato (1), M. Latino (2), G. Neri* (3), D. Spadaro (3), C. Marichy (4), M.-G. Willinger (4), N. Pinna (4)

(1) Dept. of Matter Physics and Electronic Engineering, University of Messina, Italy

(2) Dept. of Chemical Science and Technologies, University of Rome Tor Vergata, Italy

(3) Dept. of Industrial Chemistry and Materials Engineering, University of Messina, Italy

(4) Dept. of Chemistry, CICECO, University of Aveiro, 3810-193 Aveiro, Portugal

10:10-10:30

[O3.3] Polymerized ionic liquids (pILs)/MWCNTs composites for sensing applications

N. Donato (1), P. Cardiano(2), S. Lo Schiavo(2), M. Latino*(3,4)

(1) Dept. of Matter Physics and Electronic Engineering, Univ. Messina, Italy

(2) Dept. of Inorganic Chemistry, Analytical Chemistry and Physical Chemistry, Univ. Messina, Italy

(3) Dept. of Industrial Chemistry and Materials Engineering, Univ. Messina, Italy

(4) Dept. of Chemical Science and Technologies, University of Rome Tor Vergata, Italy

10:30-10:45

COFFEE BREAK

10:45-11:15

[IN3.2] Functionalization of Carbon Nanotubes and Graphene for Materials Science and Nanomedical Applications

M. Prato

Dipartimento di Scienze Chimiche e Farmaceutiche, University of Trieste, Piazzale Europa 1, 34127 Trieste, Italy

11:15-11:35

[O3.4] Liquid phase functionalization of MWCNTs: morphology and surface modification

C. Milone (1), E. Piperopoulos (1), Abdul Rahim Shahul Hameed (1), M. Lanza (2), S. Santangelo(3), S. Galvagno(1)

(1)Department of Industrial Chemistry and Materials Engineering, University of Messina, I-98166 Messina, Italy

(2)CNR, Institute for Chemical Physical Processes, Messina Section, I-98158 Messina, Italy

(3) Department of Mechanics and Materials, University “Mediterranea” of Reggio Calabria, I-89122 Reggio Calabria, Italy

11:35-11:55

[O3.5] Single Wall Carbon nanotubes deposited on stainless steel foil as counter electrode for dye sensitized solar cells

G. Calogero^a, O. M. Maragò^a, P. G. Gucciardi^a, G. Di Marco^a

^a CNR-IPCF, Istituto per i Processi Chimico-Fisici, via F. Stagno-D'Alcontres 37, 98158 Messina, Italy

11:55-12:15

[O3.6] Nanodiamonds: Hints for bio-technical applications

S. Orlanducci¹, E. Tamburri¹, I. Cianchetta¹, D. Sordi¹, and M.L. Terranova^{1,3}, D. Passeri², and M. Rossi^{2,3}

¹Dept. of Chemical Science and Technology and MINIMAlab, University of Rome ‘Tor Vergata’, Roma, Italy

²Dept. of Fundamental and Applied Sciences for Engineering and CNIS, Sapienza University, Roma, Italy

³NanoShare S.r.l., a startup company for human technologies, www.nanoshare.eu, Roma, Italy

12:15-12:35

[O3.7] A new planar heterojunction-based solar cell involving thin films of organic molecules as n- and p- dopants

S.D'Agata (1), G.Li Destri (1), G. Cannella(2), G. Marletta(1), F. Ballistreri (1), G.Tomaselli (1) and S. Lombardo (2)

(1) Università degli studi di Catania, Dipartimento di Scienze Chimiche, V.le A. Doria 6, 95128, Catania, Italy

(2) Istituto per la Microelettronica e Microsistemi – CNR, Zona Industriale, Ottava Strada, 5 95121, Catania, Italy.

12:35-14:30

LUNCH BREAK (lunch not provided)

14:30-16:30

POSTER SESSION & Refreshment

20:00

SOCIAL DINNER

WEDNESDAY, DECEMBER 7, 2011
9 :15-12:20
SESSION 4.
SYNTHESIS AND PROCESSING (PART I)

9:15-09:45

[IN4.1] Synthesis of Graphene and other Carbon Nanostructures

F. Cataldo

Actinium Chemical Research srl, Via Casilina 1626/A, 00133 Rome, Italy
Osservatorio Astrofisico di Catania, Via S. Sofia 78, 95123 Catania, Italy

09:45-10:05

[O4.1] Taguchi-optimised CVD production of MWCNTs and MWCNT-based nanohybrids

S. Santangelo⁽¹⁾, E. Piperopoulos⁽²⁾, G. Faggio⁽¹⁾, M. Lanza⁽³⁾, G. Messina⁽¹⁾, C. Milone⁽²⁾

⁽¹⁾ *Dept. of Mechanics and Materials, University “Mediterranea” of Reggio Calabria, Italy*

⁽²⁾ *Dept. of Industrial Chemistry and Materials Engineering, University of Messina, Italy*

⁽³⁾ *CNR, Inst. for Chemical Physical Processes, Messina Section, Italy*

10:05-10:25

[O4.2] Use of electric fields for the synthesis and manipulation of MWCNTs.

V. Scuderi and S. Scalese

CNR-IMM, Strada VIII, 5 95121 Catania, Italy

10:25-10:45

[O4.3] Synthesis and methane adsorption characterization of High Specific Surface Area Nanostructured Activated Carbon (HSAC)

A. Policicchio*(1), E. Maccallini(1), R.G. Agostino(1), A. Aloise(2), F. Ciuchi(3) and G. Giordano (2)

(1) *Dipartimento di Fisica, Università della Calabria, Via P. Bucci Cubo 31C, 87036 Arcavacata di Rende (CS)*

(2) *Dipartimento Ingegneria Chimica e dei Materiali, Università della Calabria, Via P. Bucci - Cubo 42A, 87036 Arcavacata di Rende (CS), Italy*

(3) *CNR - IPCF LiCryL, c/o Università della Calabria, Via P. Bucci - Cubo 31C, 87036 Arcavacata di Rende (CS), Italy*

10:45-11:00
COFFEE BREAK

11:00-11:20

[O4.4] Spatially-controlled deposition of single-wall carbon nanotubes

G. Sfuncia, G. Marletta

Laboratory for Molecular Surfaces and Nanotechnology (LAMSUN), Department of Chemical Sciences – University of Catania, Viale A.Doria 6 – Catania – Italy

11:20-11:40

[O4.5] Self-assembling of graphitic nanoplatelets

S. Orlanducci¹, V. Guglielmotti^{1,3}, D. Sordi¹, E. Tamburri, M.L. Terranova^{1,3}, D. Passeri², and M. Rossi^{2,3}

¹*Dept. of Chemical Science and Technology and MINIMALab, University of Rome ‘Tor Vergata’, 00133, Roma, Italy*

²Dept. of Fundamental and Applied Sciences for Engineering and CNIS, Sapienza University, 00161, Roma, Italy

³NanoShare S.r.l., a startup company for human technologies, www.nanoshare.eu, Roma, Italy

11:40-12:00

[O4.6] Deposition of carbon nanowalls at the electrodes during electrical-field-assisted laser ablation in water

M. Sinatra¹, G.C. Messina¹, P. Russo¹, G. Compagnini¹, O. Puglisi¹, S. Scalese²

¹Dipartimento di Scienze Chimiche, Università di Catania, Viale A.Doria 6 Catania 95125 Italy

²CNR-IMM, Strada VIII, 5 95121 Catania, Italy

12:00-12:20

[O4.7] Crystallization of PVDF induced by electrospinning of PVDF/PMMA/Graphene polymer blend solution

S. Mohamadi *, N. Sharifi-Sanjani

Polymer group, School of Chemistry, University College of Science, University of Tehran, P. O.

Box: 14155-6455, Tehran, Iran

12:20-12:40

[O4.8] Systematic comparative study of thermally reduced graphene oxide

F. Perrozzi¹, S. Prezioso¹, M. Donarelli¹, F. Bisti¹, S. Santucci¹, M. Nardone², E. Treossi³, V. Palermo³, and L. Ottaviano¹

¹ Dipartimento di Fisica, Università dell'Aquila, gc-LNGS INFN, Via Vetoio, 67100, L'Aquila, Italy

² Dipartimento di Fisica, Università dell'Aquila, Via Vetoio, 67100, L'Aquila, Italy

³ CNR-ISOF, Via Gobetti 101, 40129 Bologna, Italy

12:40-14:30

LUNCH BREAK (lunch not provided)

14:30-16:00

SESSION 5

SYNTHESIS AND PROCESSING (PART II)

14:30-15:00

IN5. Organic molecules encapsulated in single wall carbon nanotubes – challenges for theoretical modeling

M. Kertesz*

Department of Chemistry, Georgetown University, Washington, DC 20057, USA

15:00-15:20

[O5.1] Ab initio predictions of covalent and metallic intercalations of epitaxial graphene systems on SiC substrates

I. Deretzis and A. La Magna

CNR-IMM, Strada VIII, 5 95121 Catania, Italy

15:20-15:40

[O5.2] Non-conventional Techniques for the Modification of Carbon Nanoforms

E. Vázquez*(1), M. Prato (1), V. León (1,2), N. Rubio (1), M. A. Herrero (1)

(1) Departamento de Química Orgánica, Facultad de Ciencias Químicas-IRICA, Universidad de

Castilla-La Mancha, 13071 Ciudad Real, Spain.

(2) Center of Excellence for Nanostructured Materials, Department of Pharmaceutical Sciences, University of Trieste, Piazzale Europa 1, 34127 Trieste, Italy

15:40-16:00

[O5.3] Shaping of diamonds in 1-D nanostructures and other strategies for fabrication of low dimensional diamond-based components.

M.L. Terranova^{1,3}, V. Guglielmotti^{1,3}, S. Orlanducci¹, V. Sessa¹, E. Tamburri¹, F. Toschi^{1,3}, and M. Rossi^{2,3}

¹*Dept. of Chemical Science and Technology and MINIMAlab, University of Rome 'Tor Vergata', Roma, Italy*

²*Dept. of Fundamental and Applied Sciences for Engineering and CNIS, Sapienza University, Roma, Italy*

³*NanoShare S.r.l., a startup company for human technologies, www.nanoshare.eu, Roma, Italy*

16:00

Conclusions and Remarks

POSTER SESSION

P1. Change of mechanical and physical properties of an epoxy resin induced by carbon nanotube presence

V. Brancato^{*a}, A.M. Visco^a, A. Pistone^a, M. Fazio^a, D. Iannazzo^b, A. Piperno^b, S. Galvagno^a

^a *Industrial Chemistry and Material Engineering Department, Engineering Faculty, Ctr. Di Dio, Vill. S. Agata, 98166, University of Messina, Italy*

^b *Dept. Farmaco-Chimico, University of Messina, I-98168, Messina, Italy*

P2. Experimental and calculated optical properties of Polyynes and Cumulenes chains prepared by laser ablation in liquids

G. Forte^{1*}, L. D'Urso², E. Fazio³, S. Patanè³, F. Neri³, O. Puglisi², G. Compagnini²

¹ *Dipartimento di Scienze del Farmaco, Università di Catania, Viale A. Doria 6, 95125 Catania*

² *Dipartimento di Scienze Chimiche, Università di Catania, Viale A. Doria 6, 95125 Catania*

³ *Dipartimento di Fisica della Materia e Ingegneria Elettronica, Università di Messina, Viale F. Stagno d'Alcontres 31, 98166 Messina*

P3. Modeling viscoelastic properties of Carbon Nanotubes polymer composites

A. Martone^{1,2*}, G. Faiella², A. Petriccione², M. Zarrelli², V. Antonucci², M. Giordano²

¹ *The Second University of Naples, Department of Aerospace and Mechanical Engineering, Via Roma 29, 81031 Aversa (CE), Italy*

² *IMCB-CNR Institute for Composite and Biomedical Materials- National Research Council, P.le E Fermi 1, 80055 Portici (NA), Italy*

P4. Synthesis of carbon nanotube/TiO₂ nano-composites film by an evaporation technique in UHV ambient and by a dispersion process

V. Pingitore^{*}, M. Barberio, P. Barone, F. Xu and A. Oliva

Dipartimento di Fisica, Università della Calabria, Via "P.Bucci" cubo31 C, 87036 Rende (CS), Italy

P5. Magnetic Fe₃O₄/MWCNTs composites: a useful platform for chemical and biochemical sensors

A. Pistone^{*(1)}, M. Fazio (1), G. Neri (1), A. Piperno (2), D. Iannazzo (2), N. Donato (3), M. Latino (4).

(1) *Dept. of Industrial Chemistry and Materials Engineering, University of Messina,*

(2) *Dept. Farmaco-Chimico, University of Messina,*

(3) *Dept. of Matter Physics and Electronic Engineering, University of Messina,*

(4) *Dept. of Chemical Science and Technologies, University of Rome Tor Vergata,*

P6. Influence of the microstructure of carbon nanotubes on the catalytic wet air oxidation of *p*-coumaric acid

E. Fazio⁽¹⁾, E. Piperopoulos⁽²⁾, A.R. Shahul Hameed⁽²⁾, M. Lanza⁽³⁾, S. Santangelo⁽⁴⁾, G. Mondio⁽¹⁾, F. Neri⁽¹⁾, C. Milone^{*(2)}

⁽¹⁾ *Dept. of Matter Physics and Electronic Engineering, University of Messina, Italy*

⁽²⁾ *Dept. of Mechanics and Materials, University "Mediterranea" of Reggio Calabria, Italy*

⁽³⁾ *CNR, Inst. for Chemical Physical Processes, Messina Section, Italy*

⁽⁴⁾ *Dept. of Industrial Chemistry and Materials Engineering, University of Messina, Italy*

P7. Towards the control of structural properties of carbon nanotubes produced by arc discharge in liquid nitrogen

S. Scalese, V. Scuderi

*Consiglio Nazionale delle Ricerche - Istituto per la Microelettronica e Microsistemi
Strada VIII n.5, Zona Industriale, I-95121 Catania (Italy)*

P8. An inkjet deposition system for water-based solutions of MWCNT/PMA for sensing applications

N. Donato* (1), D. Aloisio (1), E. Patti (1), G. Scolaro (1), G. Neri (2), D. Spadaro (2), S. Trocino (3), A. Donato (3), M. Latino (2,4)

(1) *Dept. of Matter Physics and Electronic Engineering, University of Messina, Italy*

(2) *Dept. of Industrial Chemistry and Materials Engineering, University of Messina, Italy*

(3) *Dept. of Mechanics and Materials, University "Mediterranea" of Reggio Calabria, Italy*

P9. Temperature characterization of the sheet resistance of MWCNTs/PDDAC based sensitive films

N. Donato*(1), D. Aloisio(1), D. Spadaro(2), M. Latino(2,3), A. Giberti(4) and C. Malagù(4)

(1) *Dept. of Matter Physics and Electronic Engineering, University of Messina, Italy*

(2) *Dept. of Industrial Chemistry and Materials Engineering, University of Messina, Italy*

(3) *Dept. of Chemical Science and Technologies, University of Rome Tor Vergata, Italy*

(4) *Dept. of Physics, University of Ferrara, Italy*

P10. Integrated Field Emission Diode with a Nano-Carbon Emitters Process Development and Its Electrical Characteristics Study

O.P.Gutchin (1), N.A.Zaitsev (1), P.V.Ignatov(1), S.I.Yanovich (1), S.N.Orlov (1), I.A.Khomaykov* (1), R.K.Yafarov (2), M.R.Baklanov (3)

(1) *Mikron JSC, 12/1 1st Zapadny proezd, Zelenograd, Moscow 124460, Russia;*

(2) *RAS, Kotelnikov Institute of Radio Engineering and Electronics, Saratov, Russia;*

(3) *IMEC vzw, Kapeldreef 75, B-3001, Leuven, Belgium*

P11. Raman optical trapping of carbon nanotubes and graphene

M. G. Donato* (1), P. G. Gucciardi (1), S. Vasi (1,2), M. Monaca (1,2), R. Sayed (1, 3), G. Calogero (1), P.H. Jones (4), O.M. Maragò (1)

(1) *CNR-IPCF, Istituto per i Processi Chimico-Fisici, Messina, Italy*

(2) *Dipartimento di Fisica della Materia e Ingegneria Elettronica, Università di Messina, Messina, Italy*

(3) *Dottorato di Ricerca in Fisica, Università di Messina, Messina, Italy*

(4) *Department of Physics and Astronomy, University College of London, London, UK.*

P12. Maximal fractal dimension surface in mechanics

M. Babič* (1), P. Kokol (2), M. Milfelner (3), J. Babič

1Emo-orodjarna d.o.o., Slovenia,

2 University of Maribor, Faculty of Health Sciences, Slovenia,

3Tic-Lens d.o.o. Celje, Slovenia

** E-mail:babicster@gmail.com*