

# PROGRAM

## Wednesday, June 3

10:30 – 11:30 Registration

11:30 – 11:45 Opening

### 11:45 – 13:30 SESSION I - PROPERTIES AND APPLICATIONS

(Chair: F. Biscarini)

11:45-12:30

#### **Bioferrofluids for biomedical applications**

A. Millán<sup>1</sup>, R. Piñol<sup>1</sup>, N.J.O. Silva<sup>1</sup>, L. Gabilondo<sup>1</sup>, L. Mohamed<sup>1</sup>, V. Sorribas<sup>2</sup>, M. Gutiérrez<sup>3</sup>, M.S. Romero<sup>3</sup>, F. Palacio<sup>1</sup>

<sup>1</sup>Instituto de Ciencia de Materiales de Aragón, CSIC – University of Zaragoza, 50009 Zaragoza, Spain

<sup>2</sup>Department of Toxicology, University of Zaragoza, 50009 Zaragoza, Spain

<sup>3</sup>Department of Hematology, University of Zaragoza, 50009 Zaragoza, Spain

12:30-12:50

#### **Selective patterning of cells on biocompatible inorganic and organic materials by means of soft-lithographic techniques**

M. Bianchi (1,2), C. Dionigi (1), B. Chelli (1), F. Valle (1), P. D'Angelo (1), E. Bystrenova (1), F. Biscarini (1).

<sup>1</sup> CNR-Institute for Nanostructured Materials Studies, via Gobetti 101, 40129 Bologna, Italy.

<sup>2</sup> "Alma Mater Studiorum"- University of Bologna, via Zamboni 33, 40126 Bologna, Italy.

12:50-13:10

#### **Biomedical Application of Core-Shell Magnetic Nanoparticles Fe<sub>3</sub>O<sub>4</sub>@Cu@Au**

R. Salvati(1), F. Nepi(1), A. Latini (1), M. Diociaiuti (2), M. Barteri (1)

<sup>1</sup>Dipartimento di Chimica, Università di Roma "La Sapienza", Roma 00185 (Italia)

<sup>2</sup>Dipartimento di Tecnologie e Salute, Istituto Superiore di Sanità, Roma 00185 (Italia)

13:10-13:30

#### **Dps protein as a reactor to synthesise magnetic nanoparticles: EMR and magnetic studies**

L. Castelli (1), M. Fittipaldi (1), L. Sorace (1), C. Innocenti (1), C. Sangregorio (1), D. Gatteschi (1), P.Ceci (2), E. Chiancone (2), O. Kasyutich (3), G. Bellapadrona (2)

<sup>1</sup>La.M.M.; Department of Chemistry and INSTM Research Unit, Università di Firenze, Via della Lastruccia 3, 50019, Sesto Fiorentino (FI) (Italy), Fax: (+39) 0554573372

<sup>2</sup>C.N.R. Institute of Molecular Biology and Pathology, Department of Biochemical Sciences 'A. Rossi-Fanelli', "Sapienza", University of Rome, 00185 Rome (Italy)

<sup>3</sup>University of Bristol, Physics Department, H.H. Will Physics Laboratory, Tyndall Avenues, Bristol, BS8 1TL (UK), Fax: (+44)-1179255624

13:30-14:30

Buffet

### 15:00 – 16:20 SESSION II - SYNTHESIS

(Chair: M.L. Terranova)

- 15:00-15:20      **Single-step chemical synthesis of ferrite hollow nanospheres**  
E. Lima Jr (1), J. M. Vargas (1), R. D. Zysler (1), H. R. Rechenberg (2), R. Cohen (2), J. Arbiol (3), G. F. Goya (4), A. Ibarra (4) and M. R. Ibarra (4,5)  
*1 Centro Atómico Bariloche and Instituto Balseiro, 8400 SC de Bariloche, RN, Argentina*  
*2 Instituto de Física, Universidade de São Paulo, 05315-970 São Paulo, SP, Brazil*  
*3 GAEN-CeMARC, Group of Advanced Electron Nanoscopy—Centre de Microscopia d'Alta, Resolució de Catalunya, Universitat de Barcelona, E-08028 Barcelona, CAT, Spain*  
*4 Instituto de Nanociencia de Aragón, Universidad de Zaragoza, E-50009 Zaragoza, Spain*  
*5 Instituto de Ciencia de Materiales de Aragón, Universidad de Zaragoza-CSIC, E-50009 Zaragoza, Spain*
- 15:20-15:40      **Tailoring the synthesis of new carbon nanostructures by AC Arc discharge**  
M. Vittori Antisari (1), D. Mirabile Gattia(1), L. Brandão(2), R. Marazzi(1) and A. Montone(1)  
*1FIM, ENEA, Via Anguillarese 301, 00123, Rome, Italy*  
*2LEPAE – Departamento de Engenharia Química, Faculdade de Engenharia, Universidade do Porto, R. Dr. Roberto Frias, 4200-465 Porto, Portugal*
- 15:40-16:00      **Synthesis of manganese iron oxide nanoparticles from metal salts by High Energy Ball Milling**  
M. Bellusci<sup>1</sup>, C. Aliotta<sup>1</sup>, A. La Barbera<sup>1</sup>, G. Ennas<sup>2</sup>, D. Fiorani<sup>3</sup>, F. Padella<sup>1</sup>, D. Peddis<sup>2, 3</sup>, F. Varsano<sup>1</sup>  
*1 ENEA C. R. Casaccia, Via Anguillarese 301, 00123 Roma, Italy*  
*2 Università di Cagliari, Dipartimento di Scienze Chimiche, Cittadella Universitaria di Monserrato Bivio per Sestu, 09042 Monserrato-Cagliari, Italy*  
*3 ISM-CNR, Area della Ricerca, Via Salaria Km 29,500, P.B. 10-00016, Monterotondo Scalo, Roma, Italy*
- 16:00-16:20      **Photoinduced Formation of Wrinkled Microstructures with Long-Range Order in Thin Oxide Films**  
Luca Malfatti (1), Masahide Takahashi (2), Toshinobu Yoko (2), Augusto Marcelli (3), Plinio Innocenzi(1)  
*1Laboratorio di Scienza dei Materiali e Nanotecnologie, D.A.P., Università di Sassari and CR-INSTM, Palazzo Pou Salid, Piazza Duomo 6, 07041 Alghero (SS), Italy.*  
*2Institute for Chemical Research, Kyoto University Gokasho, Uji, Kyoto 611-0011, Japan.*  
*3Laboratori Nazionali di Frascati, Istituto Nazionale di Fisica Nucleare (INFN), Via E. Fermi 40, 00044 Frascati, Rome (Italy).*
- 16:20-16:40      Coffee break

**16:40 – 18:00 SESSION III – SYNTHESIS AND PROPERTIES**  
(Chair: E. Bonetti)

- 16:40-17:00      **Pure and stable thiolate-capped silver nanoparticle solutions**  
A.Mari<sup>(1)</sup>, L. Suber<sup>(1)</sup>, P. Imperatori<sup>(1)</sup>, L. Pilloni<sup>(2)</sup>  
<sup>(1)</sup>CNR-ISM, Monterotondo Scalo (RM), 00016, Italy  
<sup>(2)</sup>ENEA-CR Casaccia, S.M.di Galeria (RM),00060, Italy
- 17:00-17:20      **Chemistry in and at Silicon Nanocavities: Evidence for H<sub>2</sub> at High Pressure after Dipping in HF Solution**  
D. Narducci (1), E. Romano (1), G.F. Cerofolini (1), F. Corni (2), S. Frabboni (2), G. Ottaviani (2), R. Tonini (2)  
<sup>1</sup> CNISM and Department of Materials Science, University of Milano Bicocca, via R. Cozzi 53, 20125 Milano (Italy)  
<sup>2</sup>Department of Physics, University of Modena, via Campi 213, 44100 Modena (Italy)
- 17:20-17:40      **Protein Immobilization on Silica Surfaces through Self Assembled Monolayers of New Pyrylium Salts Derivatives**  
Francesca A. Scaramuzzo<sup>1,2</sup>, Arantzazu Gonzalez Campo<sup>2</sup>, Pascal Jonkheijm<sup>2</sup>, Paolo Mencarelli<sup>1</sup>, Giancarlo Doddi<sup>1</sup>, Jurriaan Huskens<sup>2</sup>, Mario Barteri<sup>1</sup>  
<sup>1</sup> Department of Chemistry, University of Rome "La Sapienza", Piazzale A.Moro 5, Rome, 00185, Italy  
<sup>2</sup> MnF, University of Twente, Faculty of Science and Technology, P.O. Box 217, Enschede,7500 AE, The Netherlands
- 17:40-18:00      **Nanocatalysts for carbon nanostructures based devices**  
M.Alvisi<sup>(1)</sup>, T. Di Luccio<sup>(2)</sup>, Serena Gagliardi<sup>(3)</sup>, L. Giorgi<sup>(3)</sup>, R. Giorgi<sup>(3)</sup>, M. Penza<sup>(1)</sup>, E. Piscopiello<sup>(1)</sup>, R. Rossi<sup>(1)</sup>, \*E. Serra<sup>(3)</sup>, M.A. Signore<sup>(1)</sup>, D. Valerini<sup>(1)</sup>  
<sup>(1)</sup> Enea C.R. Brindisi, ss 7 Appia Km 712, 72100 Brindisi  
<sup>(2)</sup> Enea C.R. Portici, P.le Enrico Fermi 1, 80055 Napoli  
<sup>(3)</sup> Enea C.R. Casaccia, via Anguillarese 301, 00123 Roma
- 18:00-20:00      Poster Session & Typical Foods and Wines

## Thursday, June 4

### 9:00 – 13:00 SESSION IV – NANOMATERIALS AND NANOTECHNOLOGIES FOR INDUSTRIAL GROWTH (Chair: G. Piccaluga)

- 9:00-9:40      **The cooperation between research and enterprise in the technological districts: the case of Veneto Nanotech**  
Renato Bozio  
Università di Padova
- 9:40-10:20      **Nanoscience contribution for the conservation of cultural heritage**  
Rodorico Giorgi, Piero Baglioni  
Università di Firenze

- 10:20-10:35      **DNM (Dense Nanostructured Materials) Srl: a new spin-off of the University of Cagliari**  
Giacomo Cao, Roberto Orrù, Antonio Mario Locci, Alberto Cincotti  
*Università di Cagliari*
- 10:35-10:50      **Compumat: innovation through simulation**  
D. Baldissin, M. Palumbo, L. Battezzati, M. Baricco  
*Università di Torino*
- 10:50-11:05      Coffee break
- (Chair: A. Musinu)*
- 11:05-11:45      **Finmeccanica companies nanotechnology studies and developments**  
Carlo Falessi  
*Selex Sistemi Integrati, Finmeccanica*
- 11:45-12:15      **Silicon nanocrystals for innovative technologies**  
Michele Perego  
*Laboratorio Nazionale MDM, CNR*
- 12:15-12:45      **The european trends in Nanotechnology: opportunities for funding research and development projects**  
Martina Desole  
*Aprè, Roma*
- 13:00-14:00      Buffet
- 14:00-20:00      Conference Excursion

## Friday, June 5

### 9:00 – 10:45 SESSION V – PROPERTIES AND APPLICATIONS

*(Chair: L. Tapfer)*

- 9:00-9:45      **Dilute N-containing III/V semiconductors: materials for high-efficient solar cells**  
Kerstin Volz & Wolfgang Stolz  
*Philipps University Marburg, Material Sciences Center and Faculty of Physics, Hans Meerwein Str., 35032 Marburg, Germany*
- 9:45-10:05      **An improved approach for the *in situ* synthesis of polymer nanocomposites for optoelectronic and photovoltaic applications**  
Anna Maria Laera, Vincenzo Resta, Monica Schioppa, Emanuela Piscopiello, Anna Mevoli, Leander Tapfer

- 10:05-10:25      **Atomic-scale modeling of the hybrid metal oxide/polymer interface for photovoltaics**  
C. Melis (1, 2) , A. Mattoni (2) and L. Colombo (1, 2)  
<sup>1</sup>Department of Physics, University of Cagliari, Cittadella Universitaria Monserrato (Ca), I-09042, Italy  
<sup>2</sup>Sardinian Laboratory for Computational Materials Science SLACS (INFN-CNR) c/o Cittadella Universitaria Monserrato (Ca), I-09042, Italy
- 10:25-10:45      **Photocurrent generation in multi walled carbon nanotubes**  
P. Castrucci (1), C. Scilletta (1), F. Tombolini (3), M. Scarselli (1), E. Speiser (1), M. DeCrescenzi (1), M. Diociaiuti (2), S. Casciardi (3), M. Simeoni (4), A. Continenza (4)  
<sup>1</sup>Dipartimento di Fisica, Unità CNISM, Università di Roma Tor Vergata, 00133 Roma, Italy  
<sup>2</sup>Dipartimento di Tecnologie e Salute, Istituto Superiore di Sanità, 00161 Roma, Italy  
<sup>3</sup>Dipartimento di Igiene del Lavoro, ISPSEL, 00040 Monte Porzio Catone (Roma), Italy  
<sup>4</sup>Dipartimento di Fisica, Università degli Studi di L'Aquila, 67010 Coppito, L'Aquila , Italy
- 10:45-11:00      Coffee break
- 11:00 – 12:20 SESSION VI – PROPERTIES AND APPLICATIONS**  
(Chair: M. Vittori Antisari)
- 11:00-11:20      **Recent Achievements on Nanomaterials for Solid State Hydrogen Storage**  
G. Principi<sup>1</sup>, F. Agresti<sup>1</sup>, A. Khandelwal<sup>1</sup>, A. Maddalena<sup>1</sup>, S. Lo Russo<sup>2</sup>  
<sup>1</sup>Dipartimento di Ingegneria Meccanica, Settore Materiali and CNISM, Università di Padova, via Marzolo 9, 35131 Padova, Italy  
<sup>2</sup>Dipartimento di Fisica and CNISM, Università di Padova, via Marzolo 8, 35131 Padova, Italy
- 11:20-11:40      **Core-shell magnesium nanoparticles: a new frontier to understand the solid-state hydrogen storage**  
L. Pasquini (1), E. Callini (1), and E. Bonetti (1), A. Montone (2), E. Piscopiello (3) and M. Vittori Antisari (2)  
<sup>1</sup>Department of Physics and CNISM, University of Bologna, Bologna, 40127, Italy  
<sup>2</sup>ENEA, Center of Research Casaccia, Rome, 00123, Italy  
<sup>3</sup>ENEA, Center of Research Brindisi, Brindisi, 72100, Italy
- 11:40-12:00      **Role of nanostructures in hydrogen storage materials**  
D. Pottmaier (1), S. Garroni (2), C. Pistidda (3), M. D. Barò (2), M. Dornheim (3), M. Baricco (1)  
<sup>1</sup> Dipartimento di Chimica IFM and NIS, Università di Torino, Torino (Italy)  
<sup>2</sup> Departament de Física, Universitat Autònoma de Barcelona, Bellaterra (Spain)

<sup>3</sup> Department of Nanotechnology, Institute of Materials Research, GKSS,  
Geesthacht (Germany)

12:00-12:20 **On the role of defects and catalyst particles in speeding up the reaction of Mg with H<sub>2</sub>**

M. Vittori Antisari, A. Montone, A. Aurora, D. Mirabile Gattia  
ENEA, FIM Department, Research Centre of Casaccia, Via Anguillarese 301,  
00123 Rome, Italy

12:20-14:00 Buffet & Poster Session

## 14:00 – 15:00 SESSION VII – STRUCTURE AND PROPERTIES

(Chair: E. Agostinelli)

14:00-14:20 **Organized systems of Single Walled Carbon Nanotubes (SWCNT) bundles: electron tunneling and I-V singularities**

M. Salvato<sup>1,2</sup>, M. Cirillo<sup>1</sup>, M. Lucci<sup>1</sup>, I. Ottaviani<sup>1</sup>, M.L. Terranova<sup>3</sup>, F. Toschi<sup>3</sup>, S. Orlanducci<sup>3</sup>

<sup>1</sup> Dipartimento di Fisica and MINAS Lab., Università di Roma "Tor Vergata"

<sup>2</sup> Laboratorio Regionale "SuperMat" CNR-INFM, I-84081, Baronissi Italy

<sup>3</sup> Dipartimento di Scienze e Tecnologie Chimiche and MINAS Lab, Università di Roma "Tor Vergata"

14:20-14:40 **Microstructure and impurity phases control in the synthesis of LiFePO<sub>4</sub>**

Massarotti Vincenzo (1), Capsoni Doretta (1), Bini Marcella (1), Ferrari Stefania (1), Mozzati Maria Cristina (2), Galinetto Pietro (2)

<sup>1</sup> Department of Physical Chemistry "M. Rolla", University of Pavia, Viale Taramelli 16, Pavia, 27100, Italy

<sup>2</sup> CNISM- Department of Physics "A. Volta", University of Pavia, Via Bassi 6, Pavia, 27100, Italy

14:40-15:00 **X-ray Absorption Spectroscopy Studies of the Inversion Degree in Nanosized Spinel Ferrites**

A. Corrias (1), D. Carta (1), M.F. Casula (1), D. Loche (1), G. Navarra (1), G. Mountjoy (2), A. Boni (3), C. Sangregorio (3)

<sup>1</sup> Dipartimento di Scienze Chimiche e INSTM, S.S. 554 bivio per Sestu, 09042 Cagliari

<sup>2</sup> School of Physical Sciences, Ingram Building, University of Kent, Canterbury, CT2 7NH, UK.

<sup>3</sup> Dipartimento di Chimica and INSTM, Università di Firenze, Via della Lastruccia 3, I- 50019 Sesto Fiorentino

15:00-15:20 Coffee Break

## 15:20 – 17:00 SESSION VIII – STRUCTURE AND PROPERTIES

(Chair: D. Fiorani)

15:20-15:40 **Investigation on the phase coexistence in nano-sized (La,Ca)MnO<sub>3</sub> manganites**

Ferretti M.(1,2), Martinelli A.(2), Castellano C.(3), Cimberle M.R. (4)

<sup>1</sup>Dipartimento di Chimica e Chimica Industriale, Università di Genova, Via Dodecaneso 31, 16146 Genova, Italy

<sup>2</sup>CNR-INFN-LAMIA, Corso Perrone 24, 16152 Genova, Italy

<sup>3</sup>Dipartimento di Chimica Strutturale e Stereochimica Inorganica, Università degli Studi di Milano, Via Venezian 21, 20133 Milano, Italy

<sup>4</sup>CNR-IMEM, Via Dodecaneso 33, 16146 Genova, Italy

15:40-16:00

### **Magneto-optical spectra of spheroidal Mn-Ge nanoparticles**

F. Ricci (1), F. D'Orazio (1), A. Continenza (1), F. Lucari (1), A.J. Freeman (2)

<sup>1</sup>Dipartimento di Fisica, Università di L'Aquila, 67010 Coppito (L'Aquila), Italy

<sup>2</sup>Department of Physics and Astronomy, Northwestern University, Evanston, Illinois 60208, USA

16:00-16:20

### **Magnetic activation volume and interparticle interactions in nanoporous CoFe<sub>2</sub>O<sub>4</sub> aggregates**

S. Laureti (1), D. Peddis (2), G. Varvaro (1), D. Fiorani (1), A.M. Testa (1), E. Agostinelli (1), G. Piccaluga (2), C. Cannas (2), A. Musinu (2), A. Ardu(2)

<sup>1</sup>ISM-CNR, Area della Ricerca Roma1, Via Salaria km 29.300, Monterotondo Scalo (RM), Italy

<sup>2</sup>Dipartimento di Scienze Chimiche, Università di Cagliari, Cittadella Universitaria di Monserrato, Cagliari, 09042

16:20-16:40

### **Magnetic properties of arrays of nanostructured dots-antidots obtained by self-assembling polystyrene nanosphere lithography**

Paola Tiberto, Federica Celegato, Luca Boarino, Marco Coisson, and Franco Vinai

Electromagnetic Division, Istituto Nazionale di Ricerca Metrologica, Strada delle Cacce 91, 10135 Torino, Italy

16:40-17:00

### **Ferroelectricity and magnetism in manganites studied via ab initio calculations: The case of P<sub>1-x</sub>Ca<sub>x</sub>MnO<sub>3</sub> x~1/2**

G. Colizzi (1), A. Filippetti (1), and V. Fiorentini (1)

<sup>1</sup>INFN-SLACS and Dipartimento di Fisica, Università di Cagliari, I-09042 Monserrato (Ca), Italy

17:00-17:30

### **Conclusions**

## Poster Session

**1) Pulsed laser deposited carbonated hydroxyapatite films on titanium for biomedical applications**

J.V. Rau (1), E. Agostinelli (2), S. Laureti (2), A. Generosi (1), B. Paci (1), V. Rossi Albertini (1)

<sup>1</sup> *Istituto di Struttura della Materia, Consiglio Nazionale delle Ricerche, Via del Fosso del Cavaliere-100, Rome, 00133, Italy*

<sup>2</sup> *Istituto di Struttura della Materia, Consiglio Nazionale delle Ricerche, Via Salaria km 29.300, Monterotondo Scalo (RM), Rome, 00016, Italy*

**2) Inverse micelles for generating CoFe<sub>2</sub>O<sub>4</sub>/SiO<sub>2</sub> core-shell nanostructures**

Andrea Ardu, Anna Musinu, Federica Orrù, Davide Peddis, Giorgio Piccaluga, Carla Cannas

*Dip. di Scienze Chimiche, Università di Cagliari, Cittadella Universitaria, Monserrato, 09042 (CA) – ITALY*

**3)  $\mu$ SR investigation of tetranuclear iron (III) Fe<sub>4</sub>(OCH<sub>3</sub>)<sub>6</sub>(dpm)<sub>6</sub> molecular cluster**

D. Proccissi<sup>1</sup>, P. Arosio<sup>2</sup>, F. Orsini<sup>2,5</sup>, M. Marinone<sup>2,5</sup>, A. Cornia<sup>3</sup> and A. Lascialfari<sup>2,4,5</sup>

<sup>1</sup>*Beckman Institute, California Institute of Technology, MC 139-74, 1200 East California Boulevard, Pasadena, CA 91125*

<sup>2</sup>*Department of Molecular Science Applied to Biosystems - DISMAB, University of Milan, Via Trentacoste 2, 20134 Milan, Italy.*

<sup>3</sup>*Department of Chemistry and INSTM Research Unit, University of Modena and Reggio Emilia, via G. Campi 183, 41100 Modena, Italy*

<sup>4</sup>*Department of Physics "Volta", University of Pavia, Via Bassi 6, 27100, Pavia, Italy.*

<sup>5</sup>*S3-CNR-INFN, Modena, Italy.*

**4) Synthesis and characterization of polymeric nanocomposites with highly ordered porous silica matrix**

M. Beretta (1), S. Bracco (1), P. Valsesia (1), P. Sozzani (1)

<sup>1</sup>*Department of Materials Science, University of Milano-Bicocca, Via R. Cozzi 53, 20125 Milan, Italy*

**5) A new tool for gas-solid reactions investigation in nanoparticles: the SGR-CANTIL reactor**

A. Bartolucci Ponti (1), E. Bonetti (2), E.G. Campari (2), L. Pasquini (2)

<sup>1</sup> *Cantil srl, Bologna, 40112, Italy*

<sup>2</sup> *Department of Physics and CNISM, University of Bologna, Bologna, 40127, Italy*

**6) Time and temperature dependence of CdS nanoparticles Growth in a polymeric matrix**

Emiliano Burresti (1), Francesco Antolini (1), Monica Valli (2)

<sup>1</sup>*ENEA Dept. of Physical Technologies and New Materials, Engineering Section, Faenza, 48018, Italy*

<sup>2</sup>*ENEA Dept. of Physical Technologies and New Materials, Physics and Materials Section, Bologna, 40129, Italy*

**7) Non linear stretching elasticity of graphene.**

Emiliano Cadelano (1), Pier Luca Palla (1), Stefano Giordano (1), Luciano Colombo (1)

<sup>1</sup>*SLACS-CNR and Department of Physics, University of Cagliari, Cittadella Universitaria, S.P. Monserrato-Sestu Km 0.700, I-09042 Monserrato(Cagliari), Italy.*



- 8) **Preparation of high diamagnetic polystyrene/bismuth nanocomposites**  
E. Capezzuto, M. Palomba, G. Carotenuto  
*Institute of Composite and Biomedical Materials. National Research Council. Piazzale Tecchio, 80 – 80125 Napoli. ITALY.*
- 9) **Preparation and characterization of transparent Ce:YAG-PMMA nanocomposite**  
E. Caponetti (1,2), A. Zanutto (1), M.L. Saladino (2)  
<sup>1</sup> *Dipartimento di Chimica Fisica “F. Accascina”, Università di Palermo and INSTM-Udr Palermo, Parco d’Orleans II, Viale delle Scienze pad.17, Palermo 90128*  
<sup>2</sup> *Centro Grandi Apparecchiature, Università di Palermo, Via F. Marini 14, Palermo 90128*
- 10) **General trends in the electronic properties of fluorites.**  
Emiliano Cadelano(1), Giancarlo Cappellini (1), Vincenzo Fiorentini (1)  
<sup>1</sup> *SLACS-CNR and Dipartimento di Fisica, Cittadella Universitaria, S.P. Monserrato-Sestu Km 0.700,I-09042 Monserrato(Cagliari), Italy.*
- 11) **Synthesis and structural characterisation of FeCo alloy nanoparticles embedded in an ordered cubic mesoporous silica matrix (SBA-16)**  
Daniela Carta, Anna Corrias, Maria Francesca Casula  
*Dipartimento di Scienze Chimiche and INSTM, Università di Cagliari, S.P. Monserrato-Sestu Km 0.700, I-09042 Monserrato, Cagliari, Italy. Fax +39 0706754388.*
- 12) **Distribution of Eu<sup>3+</sup> dopant ions in C<sub>3i</sub> and C<sub>2</sub> sites of the nanocrystalline A<sub>2</sub>O<sub>3</sub>:Eu (A = Sc, Lu, Y) phosphors**  
G. Concas (1), F. Congiu (1), G. Spano (1), M. Bettinelli (2), A. Speghini (3)  
<sup>1</sup> *Dipartimento di Fisica, Università di Cagliari and CNISM, Monserrato (CA), I-09042, Italy*  
<sup>2</sup> *Laboratorio di Chimica dello Stato Solido, DB, Università di Verona and INSTM, UdR Verona, Verona, I-37134, Italy*  
<sup>3</sup> *Dipartimento di Scienze Tecnologie e Mercati della Vite e del Vino, Università di Verona and INSTM, UdR Verona, Verona, I-37134, Italy*
- 13) **Nanostructured Au/TiO<sub>2</sub> Catalysts for LowTemperature CO Oxidation**  
Sarah Lai, M. Giorgia Cutrufello, Carla Cannas, Elisabetta Rombi, Anna Musinu, Italo Ferino  
*Dipartimento di Scienze Chimiche, Università di Cagliari, Italy*
- 14) **Organomodification of Montmorillonite and its Nanocomposites**  
Borriello C. (1), De Maria A. (1), Schwarz M. (2)  
<sup>1</sup> *ENEA, C.R. Portici,P.le E. Fermi1, 80055 Napoli*  
<sup>2</sup> *ENEA, C.R. Casaccia, Via Anguillarese 301, 00060 Roma*
- 15) **Nanocrystalline MnFe<sub>2</sub>O<sub>4</sub> prepared in Water/Oil Microemulsions: Synthesis and Characterization**  
A. Scano<sup>(1,2)</sup>, F. Frongia<sup>(1)</sup>, M. Pilloni<sup>(1)</sup>, G. Marongiu<sup>(1)</sup>, G. Paschina<sup>(1)</sup>, G. Ennas<sup>(1)</sup>  
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<sup>2</sup> *Materials and Surface Science Institute (MSSI), University of Limerick, Ireland.*
- 16) **Structure and molecular evolution in nanostructured osseous biominerals as a function of combustion and incineration processes in burial rites**  
G. Piga, D. Chillura Martino, E. Caponetti, S. Enzo  
*Dipartimento di Chimica, Via Vienna n.2, 07100 Sassari*  
*Dipartimento di Chimica Fisica “F. Accascina” Viale delle Scienze – Parco d’Orleans II - Edificio 17, 90128 Palermo*

- 17) Silanization of Magnetic Nanocrystals in Microemulsion**  
Patrizia Floris, Maria Francesca Casula, Maura Monduzzi, Sergio Murgia  
*Dip. Scienze Chimiche, INSTM and CSGI, Università di Cagliari, 09042 Monserrato (CA) – ITALY*
- 18) Encapsulation of nanosized silica particles by poly(methyl methacrylate)**  
L. Freris (1), A. Mazzocut (1), P. Riello (1), A. Benedetti (1)  
<sup>1</sup>*Dipartimento di Chimica Fisica, Università Ca' Foscari di Venezia, Mestre (VE), via Torino 155/b, 30170, Italia*
- 19) Synthesis and Melting Behaviour of Bi, Sn and Sn-Bi Alloy Nanoparticles**  
F. Frongia<sup>1</sup>, A. Scano<sup>1</sup>, M. Pilloni<sup>1</sup>, S. Delsante<sup>2</sup>, D. Giuranno<sup>3</sup>, E. Ricci<sup>3</sup>,  
R. Novakovic<sup>3</sup>, G. Borzone<sup>2</sup>, G. Paschina<sup>1</sup>, G. Marongiu<sup>1</sup>, G. Ennas<sup>1</sup>  
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<sup>3</sup>*National Research Council (CNR)-Institute for Energetics and Interphases (IENI), Via De Marini 6, 16149 Genoa, Italy*
- 20) Magnetic and magneto-optical properties of Cobalt Ferrite Nanoparticles**  
César de Julián Fernández, Elvira Fantechi, Maria Fittipaldi, Dante Gatteschi,  
Claudia Innocenti, Rafael Novak, Francesco Pineider, Claudio Sangregorio  
*INSTM UdR Firenze and Dipartimento di Chimica - Università di Firenze, Sesto Fiorentino, 50019 Italy*
- 21) Nanocrystalline titanates thin films from sol-gel processing**  
Tongjit Kidchob (1), Luca Malfatti (1), Daniela Marongiu (1), Stefano Enzo (2),  
Plinio Innocenzi (1)  
<sup>1</sup>*Laboratorio di Scienza dei Materiali e Nanotecnologie, D.A.P., Università di Sassari and CR-INSTM, Palazzo Pou Salid, Piazza Duomo 6, 07041 Alghero (SS), Italy*  
<sup>2</sup>*Dipartimento di Chimica, Università di Sassari, Via Vienna 2, 07100 Sassari, Italy.*
- 22) Sub micrometric Patterning of Rotaxanes films**  
Jean Crispin Kengne, Massimiliano Cavallini and Fabio Biscarini  
*CNR – ISMN “Nanotechnology of Multifunctional Materials” Research division – Via Gobetti 101 Bologna-Italy*
- 23) Orientation, Specific Interactions, and Hydrolysis of Mononucleotides Inside Monoolein-Based Liquid Crystals.**  
Sergio Murgia (1), Sandrina Lampis (1), Debora Berti (2), Maura Monduzzi (1)  
1) *Dipartimento Scienze Chimiche, Cagliari University and CSGI, SS 554 Bivio Sestu, 09042 Monserrato (CA), Italy.*  
2) *Dipartimento Chimica, Florence University and CSGI, Via della Lastruccia 3, 50019 Sesto Fiorentino (FI), Italy*
- 24) Design of Highly Porous FeCo(Ni)–SiO<sub>2</sub> Nanocomposite Aerogels for the Catalytic CVD Production of Multiwall Carbon Nanotubes**  
A. Corrias (1), M.F. Casula (1), D. Loche (1), A. Falqui (1,2), S. Marras (2), Z. Kónya (3), D. Gozzi (4) and A. Latini (4)  
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<sup>4</sup>*Dipartimento di Chimica, Università degli Studi di Roma “La Sapienza”, Roma, 00185, Italy*

- 25) Density functional theory study of the electronic, optical, and transport properties of homologous classes of polycyclic aromatic hydrocarbons**  
G. Mallocci<sup>1</sup>, G. Mulas<sup>1</sup>, G. Cappellini<sup>2</sup>  
<sup>1</sup> INAF-Osservatorio Astronomico di Cagliari, Loc. Poggio dei Pini (Ca), I-09012, Italy  
<sup>2</sup> CNR-SLACS, Dipartimento di Fisica, Citt. Universitaria Monserrato (Ca), I-09042, Italy
- 26) DMFC Performance Enhancement Using Single Wall Nanohorns as Electro-catalyst Support**  
L. Brandão (1), D. Mirabile Gattia (2), R. Marazzi (2), M. Vittori Antisari (2), S. Licoccia (3), A. D'Epifanio (3), E. Traversa (3) and A. Mendes (1)  
<sup>1</sup> LEPAE – Departamento de Engenharia Química, Faculdade de Engenharia, Universidade do Porto, 4200-465 Porto, Portugal  
<sup>2</sup> FIM, ENEA, 00123, Rome, Italy  
<sup>3</sup> Department of Chemical Science and Technology, University of Roma "Tor Vergata", Via della Ricerca Scientifica, 00133 Rome, Italy
- 27) Numerical and metallographic comparison on the role of catalyst particles of MgH<sub>2</sub>-Mg system**  
A. Montone (1), M. Celino (1), F. Cleri (2), A. Aurora (1), D. Mirabile Gattia (1), S. Giusepponi (1), M. Vittori Antisari (1)  
<sup>1</sup> ENEA, FIM Department, CR Casaccia, Via Anguillarese 301, 00123 Rome, Italy.  
<sup>2</sup> IEMN-CNRS, Université des Sciences et Technologies de Lille, Villeneuve d'Ascq Cedex, France.
- 28) Hydrogen sorption by nanostructured materials under thermal and mechanical activation**  
Gabriele Mulas (1), Francesco Delogu (2), Renato Campesi (1), Chiara Milanese (3), Sebastiano Garroni (4)  
<sup>1</sup> Dipartimento di Chimica Università degli Studi di Sassari, Via Vienna 2, Sassari, 07100, ITALY  
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<sup>4</sup> Dept. Física, Universitat Autònoma de Barcelona, 08193, Spain
- 29) Regenerable nanostructured metal oxide sorbents for H<sub>2</sub>S removal**  
M. Mureddu<sup>1</sup>, C. Cannas<sup>1</sup>, Z. Košťálová<sup>2</sup>, M.G. Cutrufello<sup>1</sup>, A. Musinu<sup>1</sup>, E. Rombi<sup>1</sup>, G. Piccaluga<sup>1</sup>  
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<sup>2</sup> Dep. of Inorganic Chemistry, Charles University in Prague, Albertov 6, 120 00 Prague 2, Czech Republic
- 30) The Striking Phase Behavior of Aerosol-OT in an Ionic Liquid.**  
S. Murgia,<sup>1</sup> G. Palazzo,<sup>2</sup> M. Mamusa,<sup>1</sup> S. Lampis,<sup>1</sup> M. Monduzzi<sup>1</sup>  
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<sup>2</sup> Dipartimento di Chimica, Università di Bari and CSGI, via Orabona 4, I-70126 Bari, Italy
- 31) Consecutive transformation kinetics in titanium dioxide nanocrystalline powders promoted by mechanochemistry**  
E. Napolitano, F. Delogu\*, G. Mulas, R. Campesi, S. Enzo  
Dipartimento di Chimica e Unità INSTM di Sassari, via Vienna 2, I-07100 SASSARI  
\*Dipartimento di Ingegneria Chimica e Materiali, piazza d'Armi, I-09123 CAGLIARI

- 32) Monodisperse superparamagnetic nanoparticles and their encapsulation inside liposomes**  
E. Orrù<sup>1</sup>, A. Ardu<sup>1</sup>, A. Musinu<sup>1</sup>, A. Floris<sup>2</sup>, C. Sinico<sup>2</sup>, D. Peddis<sup>1</sup>, D. Fiorani<sup>3</sup>, G. Piccaluga<sup>1</sup>, C. Cannas<sup>1</sup>  
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<sup>3</sup>ISM-CNR, Area della Ricerca Roma1, Via Salaria km 29.300, Monterotondo Scalo (RM), Italy
- 33) Monodisperse iron-oxide nanoparticles from metal-oleate precursors**  
M. Bellusci<sup>1</sup>, A. La Barbera<sup>1</sup>, F. Candela<sup>1</sup>, F. Varsano<sup>1</sup>, F. Padella<sup>1</sup>, D. Peddis<sup>2,3</sup>, L. Pilloni<sup>1</sup>  
<sup>1</sup> ENEA C. R. Casaccia, Via Anguillarese 301, 00123 Roma, Italy  
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<sup>3</sup> Università di Cagliari, Dipartimento di Scienze Chimiche, Cittadella Universitaria di Monserrato Bivio per Sestu, 09042 Monserrato-Cagliari, Italy
- 34) Elastic behavior of nanoparticles embedded in a homogeneous matrix: from continuum theory to molecular dynamics**  
P. L. Palla (1,2), E. Cadelano (1,2), S. Giordano (1,2), L. Colombo (1,2)  
<sup>1</sup> Dipartimento di Fisica dell'Università di Cagliari Cittadella Universitaria, S.P. Monserrato-Sestu, Km 0.700, 09042 Monserrato (CA)  
<sup>2</sup> SLACS (INFN-CNR), Cittadella Universitaria, S.P. Monserrato-Sestu, Km 0.700, 09042 Monserrato (CA)
- 35) GOLD-POLYSTYRENE DICHROIC MIRRORS**  
G. Carotenuto<sup>1</sup>, M. Palomba<sup>1</sup>, A. Longo<sup>1</sup>  
<sup>1</sup>IMCB-CNR. Piazzale Tecchio, 80 – 80125 Napoli. Italy.
- 36) Rare-earth-doped luminescent nanoparticles for biological applications**  
A. Parma (1), I. Freris (1), F. Enrichi (2), P. Riello (1), A. Benedetti (1)  
<sup>1</sup>Dipartimento di Chimica Fisica, Università Ca' Foscari di Venezia, Mestre (VE), via Torino 155/b, 30170, Italia  
<sup>2</sup>Associazione CIVEN (Coordinamento Interuniversitario Veneto per le Nanotecnologie), Marghera (VE), via delle Industrie 5, 30175, Italia
- 37) Investigation of the Local Structure in Iron/Iron Oxide Nanoparticles by Diffraction Anomalous Fine Structure**  
C. Meneghini (1), F. Boscherini (2), L. Pasquini (2), H. Renevier (3)  
<sup>1</sup>-Department of Physics, University of Rome "Tre", Rome, 00146, Italy  
<sup>2</sup>-Department of Physics and CNISM, University of Bologna, Bologna, 40127, Italy  
<sup>3</sup>-Laboratoire des Matériaux et du Génie Physique, UMR 5628, Grenoble INP MINATEC, Grenoble, 38016, France
- 38) Magnetic Properties of Maghemite Nanochains**  
D. Peddis<sup>1</sup>, F. Congiu<sup>3</sup>, G. Spano<sup>3</sup>, A. Scano<sup>2</sup>, M. Pilloni<sup>2</sup>, G. Ennas<sup>2</sup>, G. Concas<sup>3</sup> and D. Fiorani<sup>1</sup>  
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<sup>3</sup>Dipartimento di Fisica, Cittadella Universitaria di Monserrato, bivio per Sestu, 09042 Monserrato (Cagliari)

- 39) Superspin glass behaviour in MnFe<sub>2</sub>O<sub>4</sub> nanoparticles: blocking temperature in magnetization and Mössbauer time scale**  
D. Peddis<sup>1,3</sup>, M. Bellusci<sup>2</sup>, F. Padella<sup>2</sup>, G. Ennas<sup>3</sup>, A. Scano<sup>3</sup>, J.M. Greneche<sup>4</sup>, N. Yaacoub<sup>4</sup>, E. Agostinelli<sup>1</sup> and D. Fiorani<sup>1</sup>  
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<sup>4</sup> Laboratoire de Physique de l'Etat Condensé- UMR 6087, Université du Maine, 72085 Le Mans Cedex 9, France
- 40) SYNTHESIS OF CARBON NANOTUBES BY DEFLOURATION OF PTFE**  
A. Peluso<sup>1</sup>, G. Carotenuto<sup>2</sup>, C. Camerlingo<sup>3</sup>, S. De Nicola<sup>3</sup>  
<sup>1</sup> Università degli Studi di Napoli "Federico II" – Dipartimento di Ingegneria dei Materiali e della Produzione, Piazzale Tecchio 80, 80125 Napoli  
<sup>2</sup> IMCB – CNR, Piazzale E. Fermi 1, 80055 Portici (NA)  
<sup>3</sup> I.Cib – CNR, Via Campi Flegrei 34, 80078 Pozzuoli (NA)
- 41) A Boron Nitride - Graphite nanocomposite by High Energy Ball Milling. Synthesis and characterization.**  
M. Pentimalli<sup>1</sup>, E. Imperi<sup>2</sup>, M. Bellusci<sup>1</sup>, L. Pilloni<sup>1</sup> and F. Padella<sup>1</sup>  
<sup>1</sup> ENEA, FIM MAT-COMP  
Centro Ricerche Casaccia, Via Anguillarese 301, 00123 Santa Maria di Galeria, Roma, Italia  
<sup>2</sup> LABOR s.r.l., Via Giacomo Peroni, 386 - Roma - Italia
- 42) Synthesis, Thermal Behaviour and X-Ray Characterization of Ruthenium(II) tris (1,10-phenanthroline) Complex Intercalated in  $\alpha$ - and  $\gamma$ -Zirconium Dihydrogen Phosphate**  
Carla Ferragina<sup>1</sup>, Romolo Di Rocco<sup>1</sup> and Lucantonio Petrilli<sup>2</sup>  
<sup>1</sup> CNR-IMIP, via Salaria Km. 29.300, 00016 Monterotondo (Roma), Italy  
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- 43) Fe<sub>3</sub>O<sub>4</sub>-SiO<sub>2</sub> Nanocomposites: Surface Modification and Preliminary Biocompatibility Evaluation**  
M. Pilloni<sup>1</sup>, C. Dubernet<sup>2</sup>, J. Nicolas<sup>2</sup>, K. Bouchemal<sup>2</sup>, G. Ennas<sup>1</sup>, A. Scano<sup>1</sup>, F. Frongia<sup>1</sup>  
<sup>1</sup> Università di Cagliari Dipartimento di Scienze Chimiche- Cittadella Universitaria di Monserrato, 09042 Monserrato (CA)  
<sup>2</sup> Physico-Chimie-Pharmacotechnie-Biopharmacie, Faculté de Pharmacie, UMR CNRS 8612, Univ. Paris-Sud XI, 5, Rue J. B. Clément, 92296 Châtenay-Malabry, France
- 44) Microstructural analysis of pure ceria thin films prepared by sol-gel dip coating**  
M. C. Ferrara, A. M. Laera, S. Mazzarelli, E. Pesce, E. Piscopiello, L. Tapfer  
ENEA, Department of Advanced Physical Technologies and New Materials, Brindisi Research Center, Strada Statale 7 "Appia" km 706, 72100 Brindisi, Italy.
- 45) Experimental and theoretical Magneto-optical investigation of Fe<sub>0.5</sub>Co<sub>0.5</sub> alloys**  
F. D'Orazio (1), F. Ricci (1), A. Continenza (1), F. Lucari (1), A. J. Freeman (2)  
<sup>1</sup> Dipartimento di Fisica, Università di L'Aquila, 67010 Coppito (L'Aquila), Italy  
<sup>2</sup> Department of Physics and Astronomy, Northwestern University, Evanston, Illinois 60208, USA
- 46) The behaviour of glassy precious alloys in synthetic sweat**  
P. Rizzi (1), G. Fiore (1), I. Ichim (1), I. Corazzari (2), I. Fenoglio (2), B. Fubini (2), L. Battezzati (1)

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**47) Magnetic Characterization of perovskites fine  $\text{La}_{1-x}\text{A}_x\text{FeO}_3$ , (A=Sm, Sr; x= 0.0 - 1.0) synthesized by chemical combustion.**

J. Quiñones<sup>1</sup>; J. Mantilla<sup>1</sup>; J. Jorge<sup>2</sup>; F. González<sup>2</sup>, H. Romero<sup>3</sup> and D. Fiorani<sup>4</sup>

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**48) Microscopic and Spectroscopic investigations of the biomineral Hydrozincite**

R.Sanna (1), M.Casu (1), F.Podda (2), E.Musu (2), R.Tombolini (3), C.Cannas (1), A.Musinu (1), G.De Giudici (2)

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<sup>3</sup>Department of Biomedical Science and Technology University of Cagliari, Via Porcell 4 I-09124 Cagliari, Italy

**49) Synthesis, Functionalization and Characterization of Magnetic-MPS Nanocomposites as Enzyme Supports.**

Alessandra Scano<sup>(1,2)</sup>, Guido Ennas<sup>(1)</sup>, Edmond Magner<sup>(2)</sup>.

<sup>1</sup>Università di Cagliari, Dipartimento di Scienze Chimiche, Cittadella Universitaria di Monserrato - 09042 Monserrato (CA)-Italy.

<sup>2</sup>Material and Surface Science Institute (MSSI), University of Limerick, Ireland.

**50) Study of the thermolysis of different single-source precursors for metal sulfide QDs synthesis**

L. Stroea (1,2), E. Buresi (1), F. Antolini (1)

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<sup>2</sup>Petru Poni Institute of Macromolecular Chemistry, Iasi, 700487, Romania

**51) Quartz Crystal Nano-balance for hydrogen sensing at room temperature using carbon nanotubes aggregates**

F.Toschi<sup>1</sup>, M. Lucci<sup>2</sup>, S. Orlanducci<sup>1</sup>, E.Tamburri<sup>1</sup>, M. L. Terranova<sup>1</sup>

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