

# XXXII Panhellenic Conference on Solid State Physics and Materials Science

Ioannina, 18-21 September 2016

## Scientific Program

### Sunday, Sept 18th

16:00	Registration
	<b>Opening ceremony</b>
18:50	Eleferios Lidorikis (Conference Chair)
18:55	Thomas Bakas (Vice Rector of the University of Ioannina)
19:00	<b>Andrea C. Ferrari</b> (Cambridge University) <i>(plenary) The Roadmap to Applications of Graphene, Layered Materials and Hybrid Systems</i>
20:00	<b>Welcome Reception</b>

### Monday, Sept 19th

#### Session 1: Surfaces, Interfaces and Nanomaterials I

chair: S. Agathopoulos (U. Ioannina)

T11	9:00	<b>Wayne D. Kaplan</b> (Technion-Israel)	<i>(keynote) Adsorption Transitions and Microstructural Evolution</i>
T12	9:40	Thomas Kehagias (AUTH)	<i>Strain and composition variations in the (211)B GaAs/InAs quantum dot heterostructure</i>
T13	9:55	Maria Katsikini (AUTH)	<i>GaN nanocrystal formation in a SiO<sub>2</sub> matrix</i>
T14	10:10	<b>Theodoros Leontiou</b> (Frederic-Cyprus)	<i>(invited) Stress and Composition of SiGe Nanostructures on Curved Substrates</i>
T15	10:40	Theodore Pavloudis (AUTH)	<i>Hydrogen diffusion through the Pd/Mg interface of Pd nanoparticles deposited on Mg nanofilms</i>
10:55	Coffee break		

#### Session 2: Ceramics, composites, minerals and metals

chair: W. Kaplan (Technion-Israel)

T21	11:30	<b>Athanasios Godelitsas</b> (U. Athens)	<i>(invited) Mineral Nanoparticles, Nanominerals and Natural Nanoporous Oxide Materials</i>
T22	12:00	George Litsardakis (AUTH)	<i>Low temperature synthesis of ferrites for LTCC applications</i>
T23	12:15	Petros Nikolaou (Cyprus U. Techn.)	<i>Hydrogenated amorphous carbon with embedded plasmonic NPs of silver/gold: nanocomposite films for selective and broadband optical absorption</i>
T24	12:30	Maria Karampiperi (AUTH)	<i>Radiophotoluminescence for medical dosimetry</i>
T25	12:45	Simeon Agathopoulos (U. Ioannina)	<i>The influence of wetting phenomena, thermodynamics and kinetics in the production of ceramic/metal composites</i>
13:00	Lunch break		

#### Session 3: 2D Materials

chair: A. Laskarakis (AUTH)

T31	14:30	<b>Emmanuel Kymakis</b> (TEI-Crete)	<i>(invited) Graphene and other 2D-based materials for organic and hybrid solar cells</i>
T32	15:00	George Kioseoglou (U. Crete)	<i>Spin relaxation and intervalley scattering in 2D semiconductors</i>
T33	15:15	Georgios Kopidakis (U. Crete)	<i>Electronic properties engineering of transition metal dichalcogenides: strained monolayers and nanoribbons</i>
T34	15:30	John Parthenios (ICEHT-FORTH)	<i>Near field Raman scattering in Molybdenum disulfide</i>
T35	15:45	Maria Kandyla (NHRF)	<i>Properties of graphene supported on gold-coated black silicon</i>
T36	16:00	George Kalosakas (U. Patras)	<i>Controlled formation of carbon nanostructures through defect engineering in graphene</i>
16:15	Coffee break		

#### Session 4: Photonics and Optoelectronics

chair: P. Patsalas (AUTH)

T41	16:45	<b>Ioannins Raptis</b> (NCSR-Demokritos)	<i>(invited) Monolithically integrated optoelectronic platform for Point-of-Need application in health &amp; food safety</i>
T42	17:15	Georgios Kakarantzas (NHRF)	<i>Silica nanowires with a highly nonlinear glass thin coating for flat extra-wide supercontinuum generation</i>
T43	17:30	Konstantinos Vyrsoinos (AUTH)	<i>Investigation of Silicon Photonics pn junctions for fast Electro-Optical Switching</i>
T44	17:45	D. Chatzitheocharis (AUTH)	<i>Investigation of Silicon Nanophotonic Single-Mode Polarization Insensitive Waveguides</i>
T45	18:00	Thomas Christopoulos (AUTH)	<i>Graphene-Based Nonlinear Resonators for Optical Bistability: A Coupled Mode Theory Approach</i>

#### Special Session I: Sponsor Presentations

chair: K. Prouskas (U. Ioannina)

E1	18:20	Vector Technologies LTD
E2	18:28	Anelis E.E.- SPECS Surface Nano Analysis GmbH
E3	18:36	LaborScience S.A.

#### Poster Session I: Topics 2, 4, 6

chair: Ch. Lekka (U. Ioannina), D. Anagnostopoulos (U. Ioannina)

18:45		
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## Tuesday, Sept 20th

### Session 5: Low dimensional materials and systems

chair: J. Kallitsis (U. Patras)

T51	9:00	Kyriakos Porfyrakis (Oxford-UK)	<b>(keynote) Fullerenes: Production, Properties and Applications</b>
T52	9:40	Argiris Laskarakis (AUTH)	<b>(invited) In-line high precision optical metrology for mass production of Organic Electronics</b>
T53	10:10	Ioanna Zergioti (NTUA)	<i>Laser fabrication of a hybrid platform combining electrical and optical interconnects</i>
T54	10:25	Dimitris Tsikritzis (U. Patras)	<i>Energy level alignment regimes at P3HT and modified ITO interfaces: The influence of the substrate work function</i>
T55	10:40	Periklis Papadopoulos (U. Ioannina)	<i>Wetting states on superoleophobic surfaces</i>
T56	10:55	Theodoros E. Karakasidis (U. Thessaly)	<i>Molecular Dynamics to extract friction factor at the nanoscale</i>

11:10 Coffee break

### Session 6: Structural and mechanical properties

chair: P. Kelires (Cyprus U. Techn.)

T61	11:40	Gregory Abadias (U. Poitiers-France)	<b>(invited) Uncovering thin film growth dynamics from in situ and real-time diagnostics</b>
T62	12:10	George Dimitrakopoulos (AUTH)	<b>(invited) Plastic strain relaxation in heteroepitaxy: A critical comparison of mechanisms and processes in III-Nitride epilayers</b>
T63	12:40	Panagiotis Pappas (NTUA)	<i>GIXRD Study of multiferroic EuTiO<sub>3</sub> with in-situ application of electric field</i>
T64	12:55	Marios Constantinou (Cyprus U. Techn.)	<i>Nanomechanical characteristics of pulsed-laser deposited DLC films with metallic (Ag, Mo) nano-inclusions</i>
T65	13:10	Christina Kyrou (U. Athens)	<i>Polarized micro-Raman Study of the impact of Nanoparticle Shape and Concentration on the Nematic Liquid Crystalline Orientational Order</i>

13:25 Lunch break

### Session 7: Polymers and organic materials

chair: K. Porfyrakis (Oxford-UK)

T71	15:00	Joannis K. Kallitsis (U. Patras)	<b>(invited) Polymeric Semiconductors and their Carbon Nanostructure Hybrids for Organic Photovoltaics</b>
T72	15:30	Athanasios Katsouras (U. Ioannina)	<i>Chemical structure optimization in high performance electron donor conjugated polymers based on indacenodithiophene and indacenodithienothiophene for organic photovoltaic applications</i>
T73	15:45	Georgios Constantinides (Cyprus U. Techn.)	<i>Buckling-Induced Patterning of PDMS Surfaces Through Argon Ion Bombardment</i>
T74	16:00	Alexandros Vanakaras (U. Patras)	<i>Surface-induced alignment of liquid crystalline dendrimers</i>
T75	16:15	Efthymia Ramou (U. Patras)	<i>Liquid Crystalline Behaviour of Dimeric Systems Exhibiting Two Nematic Phases</i>
T76	16:30	Apostolos Koutsoukios (U. Patras)	<i>A simple route to increase electrical conductivity of Graphene/CNTs thin films by compression.</i>

16:45 Coffee break

### Session 8: Surfaces, Interfaces and Nanomaterials II

chair: G. Dimitrakopoulos (AUTH)

T81	17:15	Kalliopi Trohidou (NCSR-Demokritos)	<i>Numerical Study of the effect of the Antiferromagnetic matrix on the Exchange Bias properties of diluted nanoparticle system</i>
T82	17:30	Dimitris Kehrakos (ASPETE)	<i>Modeling domain wall velocity in bi-magnetic nanowires</i>
T83	17:45	Andreas Kaidatzis (NCSR-Demokritos)	<i>Structural and magnetic properties of L10 FePt/(MgO, W, or Pt)/L10 FePt trilayers</i>
T84	18:00	Georgios Giannopoulos (NCSR-Demokritos)	<i>Combinatorial sputtering method: Producing L10-FeNi films with coercivity in excess of 1 kOe</i>
T85	18:15	Loukas Kastanis (NTUA)	<i>Electrical and structural characterization of memory devices with laser fabricated nanocrystals</i>
T86	18:30	Fotis Priftis (U. Patras)	<i>On the role of entropy in the emergence of chirality in systems of achiral particles.</i>
T87	18:45	Alexandra Stamateri (AUTH)	<i>A DFT study on the interface of prototype organic semiconductors and the silver surface</i>

19:00

### Poster Session II: Topics 1, 3, 5

chair: Ch. Lekka (U. Ioannina), D. Anagnostopoulos (U. Ioannina)

21:00

**Conference Dinner at "Frontzu Politia"**

## Wednesday, Sept 21st

### Session 9: Strongly correlated systems and magnetism

chair: I. Panagiotopoulos (U. Ioannina)

T91	9:30	Manfred Albrecht (U. Augsburg, Germany)	<i>(keynote) Future concepts and materials for magnetic data storage</i>
T92	10:10	Vassilios Kapaklis (U. Uppsala, Sweden)	<i>(invited) Thermal fluctuations in artificial spin ice</i>
T93	10:40	Margaritis Gjoka (NCSR-Demokritos)	<i>Structure and magnet properties of R1-xZrxFe10Si2 alloys with R = Nd, Sm</i>
T94	10:55	Eirini Myrovali (AUTH)	<i>Arranging at the nanoscale: Effect on magnetic particle hyperthermia</i>
T95	11:10	Antonios Makridis (AUTH)	<i>Dancing with magnetism: An attempt to control cell fate</i>
11:25		Coffee break	

### Session 10: Biomaterials

chair: G. Kalosakas (U. Patras)

T101	12:00	Maria Chatzinikolaïdou (U. Crete)	<i>(invited) Engineering biomaterials for tissue engineering with controlled immunomodulation</i>
T102	12:30	Marianna Vasilakaki (NCSR-Demokritos)	<i>Monte Carlo Study of core/shell nanoparticles for enhanced hyperthermia performance</i>
T103	12:45	Maria Tassi (U. Athens)	<i>Extra Carrier Transfer Oscillations in DNA Monomers, Dimers and Trimers</i>
T104	13:00	Stavros X. Drakopoulos (U. Patras)	<i>Variation of Energy Density in Thermoplastic Starch-Cellulose Microcomposites with Humidity and Temperature. A new sensing capability?</i>

13:15 Coffee break and light snack

### Student presentation awards

chair: E. Lidorikis (U. Ioannina)

### Special Session II: Presentation of the new calls on materials and round-table with GSRT

chair: D. Niarchos (NCSR-Demokritos)

### Special Session III: Meeting of the "Hellenic Society for the Science and Technology of Condensed Matter"

chair: I. Zergioti (NTUA)

15:30 Conference closing

## Monday Sept 19th, Poster Session 1 (18:45-20:30): Topics 2, 4, 6

chair: Ch. Lekka (U. Ioannina), D. Anagnostopoulos (U. Ioannina)

### Topic 2: Structural-dynamical and mechanical properties of condensed matter

P201	Theocharis Angeletos (U. Athens)	<i>Infrared Study of Defects in Nitrogen-Doped Electron Irradiated Silicon</i>
P202	K. Filintoglou (AUTH)	<i>High pressure Raman and photoluminescence studies of In<sub>x</sub>Al<sub>1-x</sub>N (x= 0.72)</i>
P203	S. Misopoulos (AUTH)	<i>Pressure response of the FC70 Fluorinert<sup>TM</sup> studied by Raman spectroscopy</i>
P204	F. Sebro (AUTH)	<i>High pressure Raman study of Kevlar-29 aramide fibres</i>
P205	Calliope Bazioti (AUTH)	<i>Structural properties and strain relaxation in high alloy content InGaN films grown on AlN/Al<sub>2</sub>O<sub>3</sub> templates by MBE</i>
P206	Marios Constantinou (Cyprus U. Techn.)	<i>PECVD/PVD hybrid deposition technology for developing Ag- and Ti-reinforced hydrogenated amorphous carbon nanocomposite coatings</i>
P207	Aikaterini Boutzi (AUTH)	<i>On the High Pressure Consolidation of Bi<sub>2</sub>Te<sub>3</sub></i>

### Topic 4: Surfaces, nanomaterials and low-dimensional materials & systems

P401	Anastasios Kotoulas (AUTH)	<i>Solvothermal synthesis of carbon encapsulated cobalt nanoparticles and their response in magnetic hyperthermia.</i>
P402	Mattheos Kamaratos (U. Ioannina)	<i>Yttrium and oxygen adsorption on silicon Si(100)2x1 surface</i>
P403	Athanasios B. Bourlinos (U. Ioannina)	<i>Fluidized Carbon Nanotubes through Novel Modification Pathways</i>
P404	M. K. Niora (AUTH)	<i>Variation in the anomalous fading behavior of various luminescence signals from Durango apatite versus grain sizes; from micro to nano scale</i>
P405	Vassiliki Belessi (TEI-Athens)	<i>Gravure printing of highly conductive ink made by Graphene/MWNTs nanohybrids in polyacrylic resins</i>
P406	Athina Alevizaki (U. Le Havre, France)	<i>Hypersonic phononic crystals made of poroelastic spheres</i>
P407	Adam Stimoniari (TEI W. Macedonia)	<i>Thermodynamic characterization and behavior of epoxy / fly ash composites</i>
P408	Adam Stimoniari (TEI W. Macedonia)	<i>Structure – Properties Relationship of Thermoset and Thermoplastic Nanocomposites Filled with Fly Ash</i>
P409	Alexandra Ioannidou (NCSR-Demokritos)	<i>A novel one step synthesis and sintering of skutterudite CoSb<sub>3</sub></i>
P410	E.C Stefanaki (AUTH)	<i>The effect of synthesis technique on the microstructure of high performance PbSe thermoelectric materials</i>
P411	Georgios Skoulatakis (U. Patras)	<i>Chemical and electrical characterization of high-k ultra-thin films on Ge substrates.</i>
P412	Nikoletta Florini (AUTH)	<i>Finite Element Analysis of Quantum Nanostructures</i>
P413	Stavros Kozakos (AUTH)	<i>Study of structural characteristics of polycrystalline Si thin films, grown by Al metal induced crystallization of amorphous-Si, for solar cell applications by electron microscopy techniques</i>
P414	Martha A. Botzakaki (U. Patras)	<i>Al<sub>2</sub>O<sub>3</sub>/HfO<sub>2</sub>/p-Si MOS structures: Electrical and structural characterization</i>
P415	Karanasios Anastasios-Nikolaos (AUTH)	<i>C-doped TiO<sub>2</sub> powder characterization via XRD-analysis and Photo-Electrochemical experiments</i>
P416	A. Konstantopoulou (U. Patras)	<i>Phononic band gaps in nanostructures</i>
P417	Marianna Vasilakaki (NCSR-Demokritos)	<i>Magnetic properties of FePt films in CD and Si patterned substrates</i>
P418	Philomela Kominou (AUTH)	<i>Strain distribution in ultra-thin In(Ga)N/GaN quantum wells</i>
P419	Carla Cutrano (U. Ioannina)	<i>Structural, magnetic and electronic properties of CuFe nanoclusters by density functional theory calculations</i>
P420	Nikolaos Pliatsikas (AUTH)	<i>Enhanced Photocatalytic Activity of Composite Semiconducting/Plasmonic Materials: Towards Withholding of Heavy Metal Ions from Aqueous Solutions</i>
P421	John Nikolaides (AUTH)	<i>A material scientist's guide to fractal analysis</i>
P422	Dimitris Bellas (U. Ioannina)	<i>Modification of Nanoparticle Arrays by Laser-Induced Self Assembly (MONA-LISA)</i>
P423	Ch. Trapalis (U. Ioannina)	<i>Molecular Modelling of the OPV Active Material in the Vicinity of Ag Nanoparticles</i>

### Topic 6: Ceramics, composites, minerals and metals

P601	Tomara Georgia (U. Patras)	<i>Dielectric characterisation of PA6/ Boehmite alumina nanocomposites. The effect of compounding method.</i>
P602	Antonios Theodorakakos (AUTH)	<i>Electrical Properties and Thermal Imaging of Commercial NiTi wires</i>
P603	Angeliki G. Lekatou (U. Ioannina)	<i>Surface degradation of aluminium matrix composites reinforced by WC nanoparticles and aluminide particles</i>
P604	Angeliki G. Lekatou (U. Ioannina)	<i>Corrosion and wear behaviour of HVOF WC-Co-Cr nanostructured and conventional coatings</i>
P605	Ioanna Maria Zougrou (AUTH)	<i>XAFS study of hydroxyapatite and fossil bone apatite</i>
P606	Theodoros Karakostas (AUTH)	<i>Vitrification and devitrification treatment for the stabilization of chromium containing tannery ash</i>
P607	Aristotelis Kazakopoulos (TEI-Thessaloniki)	<i>Ionic Conductivity comparative study of LiZnVO<sub>4</sub> and LiMgVO<sub>4</sub></i>
P608	Andreas Delimitis (CPERI-CERTH)	<i>Structural Analysis of Waste Material from Mafic Rock Quarries Used for CO<sub>2</sub> Sequestration</i>

## Tuesday Sept 20th, Poster Session 2 (19:00-20:30): Topics 1, 3, 5

chair: Ch. Lekka (U. Ioannina), D. Anagnostopoulos (U. Ioannina)

### Topic 1: Electronics, photonics and optoelectronics

P101	Joseph Kioseoglou (AUTH)	<i>Ab-initio structure prediction and electronic properties of [SixSn1-x]3N4 ternary nitrides</i>
P102	Dodoleri Loukia (AUTH)	<i>Comparison between beta and ultraviolet (UV) induced Thermoluminescence in Lithium Fluoride (LiF)</i>
P103	Tilemachos Georgakopoulos (U. Patras)	<i>Photoconductive properties of nanocrystalline TiO2 powders prepared in acidic environment</i>
P104	Kesidou Panagiota (AUTH)	<i>Deconvolution on CaF:N glowcurves induced by ultraviolet (UV)</i>
P105	P. Konstantinidis (AUTH)	<i>Prompt Isothermal Decay Study of CaSO4:Dy and CaSO4:Tm</i>
P106	Vasilis Lionas (U. Patras)	<i>Electrical conductivity mechanisms of nanocrystalline TiO2 powders prepared in acidic environment</i>
P107	Karagiannis Ioannis (AUTH)	<i>EIS studies in incandescent lamps' tungsten wires</i>
P108	C. Petridis (TEI-Crete)	<i>Solution-processed reduced graphene-based electrodes for organic photovoltaics</i>
P109	Spyros Doukas (U. Ioannina)	<i>Spectrometer free molecular sensing with graphene plasmons</i>
P110	I. Vangelidis (U. Ioannina)	<i>Optimal designs of plasmonic organic photovoltaics</i>

### Topic 3: Strongly correlated systems, magnetism & superconductivity

P301	Konstantinos G. Efthimiadis (AUTH)	<i>Finite Elements Micromagnetic Simulation of the domain wall resonance</i>
P302	Nikolaos Maniotis (AUTH)	<i>Numerical simulations of interactions between magnetic nanoparticles and living matter through magnetothermal and magnetomechanical experimental setups</i>
P303	Zoi Kalpaxidou (AUTH)	<i>Magnetic nanoparticle heating in an AC magnetic field; an ex vivo approach</i>
P304	Panagiotopoulos Ioannis (U. Ioannina)	<i>Study of Magnetization Reversal in Layered Heterostructures by Vector-Magnetometry</i>
P305	George Sempros (AUTH)	<i>Synthesis, processing and characterization of FeMnGa nanoparticles for permanent magnet applications</i>
P306	Charalampos Sarafidis (AUTH)	<i>Processing of MnBi particles by high energy surfactant assisted ball milling</i>
P307	Kostas Georgalas (U. Athens)	<i>Magnetic ordering and low field CMR in La(Mn, Cr)O3+δ (δ≈0.09, 0.12) compounds</i>
P308	Theodorou Andreas (U. Athens)	<i>Electrical properties of VO2 layers on Y-ZrO2 substrates</i>
P309	K. Trohidou (NCSR-Demokritos)	<i>Numerical Study of the Exchange Bias properties of MnFe2O4/γ-Fe2O3 core/disordered shell nanoparticles</i>
P310	Sophia Karamanou (TEI-Crete)	<i>A novel approach for Plastic Bonded Magnets of the type MQU-F melt spun NdFeGaB -type alloys</i>
P311	Tzartzas Thanos (U. Ioannina)	<i>Motion of Magnetic Bubbles by Electric Currents in Perpendicular Anisotropy Films</i>
P312	Ioannis Hanis (AUTH)	<i>Critical temperature investigation in high temperature superconductors by means of magnetic susceptibility measurements</i>

### Topic 5: Polymers, organic materials and biomaterials

P501	Sotirios Sakkopoulos (U. Patras)	<i>Conductivity Degradation Study of Polypyrrole and Polypyrrole/5% w/w TiO2 nanocomposite under Heat Treatment in He and Atmospheric Air</i>
P502	Ioanna Zergioti (NTUA)	<i>Laser Induced Forward Transfer technique for the immobilization of biomaterials</i>
P503	Achilleas Pipertzis (U. Ioannina)	<i>Ionic Conductivity in Discotic Liquid Crystals of hexa-peri-benzocoronenes (HBC) doped with lithium triflate (LiTf)</i>
P504	Georgia K. Pouroutzidou (AUTH)	<i>Synthesis of a glass-ceramic nano-material in the ternary system SiO-CaO-MgO-CuO: effect of ball milling on the particle size, morphology and bioactive behavior</i>
P505	Aristoula Selevou (U. Ioannina)	<i>Effect of Confinement on the Structure and Dynamics of two Rod-like Liquid Crystals</i>
P506	Stelios Alexandris (U. Ioannina)	<i>Glass Transitions of Amorphous Polymers Confined in Nanopores: Dependence on Interfacial Energy and Thickness</i>
P507	Maria Katsikini (AUTH)	<i>Spectroscopic study of the role of Br and Sr in colored parts of the Callinectes sapidus crab claw</i>
P508	Thomas Nevolianis (U. Ioannina)	<i>Liquid Crystals of Hexasubstituted Benzenes bearing ultra strong dipole moments</i>
P509	George Kalosakas (U. Patras)	<i>Modeling and quantifying drug release kinetics</i>
P510	Christina Zacharaki (U. Athens)	<i>Electronic structure of purines, pyrimidines and similar molecules with LCAO</i>
P511	Evaggelia Efthymiou Zavvou (U. Patras)	<i>Mesomorphic Behaviour and dielectric response of symmetric difluoroterphenyl methylene-linked dimers</i>
P512	Eleni V. Christidi (U. Patras)	<i>Modelling of drug particles behavior near the release boundary: a classical and fractional dynamics approach</i>
P513	Violetta Georgiadou (AUTH)	<i>CoFe2O4 Nanoassemblies as Dual agents: Carriers of Anti-inflammatory Drug and Imaging Probes</i>