



European Materials Research Society

2023 Spring Meeting May 29 | June 2

40th Anniversary

Congress & Exhibition Centre, Strasbourg, France

SYMPOSIUM E

Carbon- and/or nitrogen-containing thin films and nanomaterials

Symposium Organizers:

Jean-François PIERSON, Institut Jean Lamour, Nancy, France

Carla BITTENCOURT, University of Mons, Belgium

Eloisa SARDELLA, CNR - NANOTEC, Bari, Italy

Sigitas TAMULEVICIUS, Kaunas University of Technology, Lithuania



Monday May 29

E01

Sensors 1

Chairperson(s) : PIERSON Jean-François - SARDELLA Eloisa

Madrid 2 (Ground floor)

10:30	2320	INV	Functional and responsive thin polymer films deposited from initiated chemical vapor deposition	COCLITE Annamaria
11:00	42		Preparation of bio-based carbon nanomaterials via plasma arc discharge and their application as humidity sensors	ABBEL Robert
11:15	427		The use of Carbon Black fillers in epoxy-based nanocomposites for moisture detection	FAUCHE Rémy
11:30	2700		Developing novel conductive MOFs for chemiresistive greenhouse gas sensors	FORT GRANDAS Ignasi
11:45	1849		Sensing molecules with metal-organic framework functionalised graphene transistors	KUMAR Sandeep

Monday May 29

E02

Monolayer and multilayer C-based materials

Chairperson(s) : BITTENCOURT Carla - SCHNEIDER Grégory

Madrid 2 (Ground floor)

13:30	2803	INV	From polycyclic aromatic hydrocarbons to two dimensional devices: nanopores, nanogaps and fuel cells	SCHNEIDER Grégory
14:00	1079		Conductance of electrostatic wire junctions in bilayer graphene	SERRA Llorenç
14:15	1282		Functionalization and exfoliation of graphite with low temperature pulse plasma in distilled water	FONTANA Sebastien
14:45	1418		Influence of the functionalization treatment on thermal conductivity and stability of carbon-based nanofluids.	PAVÍA Mauricio
15:15	1275		Deformation response mechanism and transfer process of GO stack film under gradient humidity	ZHAO Yue

15:30	2405	Semiconducting Graphene Nanoribbons based on Edge-Directed Self-Assembly of Block Copolymer	JIN Hyeong Min
15:45	2203	A novel and large-scale rapid green synthesis of few-layer and multi-layer graphene	NOWDURU Ravikiran

Monday May 29
E_P
Poster session

Etoile (1st floor) - 4.30 p.m to 6.30 p.m

01_98	Study of boron doped silicon nanocrystals embedded in amorphous SiNx Matrix	BOURIDAH Hachemi
02_207	Growth of high quality GaN-based LED on boron nitride nanotube as a heat sinking layer	SEO Tae Hoon
03_217	Nondestructive visualization of grain boundaries in monolayer two- dimensional materials by assembling and disassembling of stacked bilayer	MOON Ji-Yun
04_341	Study of electrophilic surface functional groups on ageing amorphous carbon films using immersion IRRAS	RAEV Vitaly
05_424	Oxidation of Wear Resistant Multilayer Nanolaminate Coating Based on (TiAlCrSiY) N / (TiAlCr)N for cutting tools During dry cutting and Annealing	VAKHRUSHEV Valdimir
06_459	Features of tribooxidation of a high - entropy coating (AlCrZrTiTa)N during dry high-speed cutting	KONOVALOV Egor
07_477	Tailored electrode architectures based on carbon nitride functionalized with cobalt and cobalt-iron oxides for water splitting applications	GASPAROTTO Alberto
08_511	Biocompatibility Experiments of Albumin & Fibrinogen on Conductive Metal Nitride Nanocomposites	ODUTOLA Tamara
09_693	Graphene-manganite structures for magnetic sensors applications	JANKAUSKAS Šarunas
10_753	The electronic and dielectric properties of SrTiO3 perovskite crystals with oxygen vacancies and nitrogen impurities: First principles simulations	RUSEVICH Leonid

11_762	Properties of Silver Nanoparticles Partially Imbedded Carbon Nanowalls	KIM Chulsoo
12_786	Highly Conductive and Printable Elastic Composite Films using Single-walled Carbon Nanotube-embedded Silver Nanoparticles	LEE Geon-Woong
13_803	Ti ₃ C ₂ Tx/TiO ₂ /CuO nanocomposite-based gas sensors with high- performance ethanol sensing at room temperature	MING ZHOU Ming
14_901	Cathodic arc synthesis of CrSiCN protective coatings used for stainless steel improved performance in industrial woodworking application	CONSTANTIN Lidia Ruxandra
15_1099	Reduced graphene oxide thin films thickness dependency for Chemical warfare agents detection	BITRI Nabila
16_1127	Transient absorption spectroscopy quality study of graphene grown on a seeding layer of nickel	MONSHI Marjan
17_1130	Enhanced photoelectroactivity of hydrothermally annealed titania nanotubes covered with melamine derived C ₃ N ₄ nanomaterial	MASZCZAK Agata
18_1163	Tuneable Plasmonic and Luminescent Properties of Laser-Synthesized Carbon-Based Nanocomposites	RYABCHIKOV Yury
19_1165	Characteristics of high entropy alloy thin films grown by pulsed laser deposition	CRACIUN Valentin
20_1289	A Microscopic and Spectroscopic Approach on the Inhibition of Fibrillation of Single Amino Acids and Amino Acid Derivatives in Presence of Cellulose Nanocrystals.	LAYEK Souvik
21_1331	The prediction of coating microstructure in plasma spray process	BENOUMSAAD Kamel
22_1344	numerical and theoretical study of different structures of the cis-trans transition of substituted octadecanona-ene by dft and mp2 (td-mp2) methods	BOUZAHER Yassine
23_1488	Microwave electromagnetic properties of epoxy composites with nanocarbon/Co ₃ O ₄ filler	VOVCHENKO Ludmila
24_1510	Melt growth of bulk tris(8-quinoline) aluminium single crystal	AVETISOV Igor
25_1570	Chemical inhomogeneity Evaluation of PS-b-PMMA Thin Films by X-ray Scattering and s-SNOM Analysis	AHN Hyungju

26_1607	The effect of solvent combinations on coating solution of epoxy-acrylate and SiNx deposited hybrid film for moisture barrier properties	KIM Kiho
27_1668	Ti3C2Tx MXene/cellulose nanocrystal (CNC) composite film for high-performance supercapacitors	YUK Seoyeon
28_1745	Large-scale Synthesis of 3D Nanonetworked Silica Film for Polymer-free Drug-eluting Stent	JEON Eunyoung
29_1772	Nanoscale morphology and sensor properties of a-CN _x thin films deposited by magnetron plasma enhanced chemical vapor deposition	NAZAROV Alexei
30_1858	Solvent Driven Optical features variations of Selective Enrichment of Single Walled Carbon Nanotubes Dispersions by Flavin Surfactant	HWANG Seongjoo
31_1860	A novel multilayered surface-functionalized microneedle platform for local gene delivery	GONZÁLEZ-SÁENZ Patricia
32_1877	Multi-Band Photoluminescence of Silicon Nitride Nanocomposites for Optical Nanothermometry	RYABCHIKOV Yury
33_2049	The use of a novel biographene for glucose detection in biological fields	GOURNIS Dimitrios
34_2118	Electrochemical detection of neurotransmitters using microelectrodes based on electropolymerized organic polymers	CHILIBON Irinela
35_2167	Intra-architecture of molecular nanotubes	KRISHNASWAMY Sundar Raj
36_2191	Controlled molecular doping of artificial light-harvesting complexes for photoluminescence localization	KUEVDA Aleksei, V.
37_2262	DFT computational studies of interatomic interactions in cellulose-carbon nanocomposite materials	NEDILKO Sergii
38_2268	Solidification dynamics of two molten droplets in plasma spray forming process	BENOUMSAAD Kamel
39_2366	Obtaining of gadolinium endofullerenes	AKHANOVA Nazym
40_2640	A novel reduced graphene oxide/carbon dots/graphitic carbon nitride (rGO/CDs/g-C ₃ N ₄) nanocomposite for CO ₂ detection using microwave resonators	OBREJA Alexandru Cosmin
41_2805	Development of multifunctional coatings for dental implants	FERNANDES CARVALHO Sandra Maria

Tuesday May 30

E03

Nitride thin films & nanomaterials

Chairperson(s) : TAMULEVICIUS Sigitas

Madrid 2 (Ground floor)

10:00	1993	Non-reactive magnetron sputtering of Ti-Al-N coatings	HAJAS Balint Istvan
10:15	908	Sputter-based preparation of plasmonic and photoluminescent ZrN nanofluids	SHUKUROV Andrey
10:30	689	Ge nitrides as perspective cheap host materials for other thin film nitrides: Growth, chemistry and properties	CICHON Stanislav
10:45	1552	Effect of the substrate temperature on the depth concentration profile of reactively sputtered ZnGeN ₂ thin films.	PIERSON Jean-François
11:00	717	Correlation between crystallization and oxidation process in ScN films, effect on microstructure, optical and vibrational properties	MORE-CHEVALIER Joris
11:30	316	Using the cluster route to prepare nanometric transition metal nitrides and carbides	TESSIER Franck
11:45	2052	Fabrication of High-Quality Refractory Titanium Nitride Nanostructures	PANOS Stavros

Tuesday May 30

E04

Carbon nanomaterials

Chairperson(s) : BITTENCOURT Carla - SARDELLA Eloisa

Madrid 2 (Ground floor)

13:30	186	INV	Mitigation of the impact of carbon nanomaterials through surface chemistry modifications	FLAHAUT Emmanuel
14:00	99		Highly selective partitioning of complex mixtures of single-walled carbon nanotubes	JANAS Dawid
14:15	2010		Selforganization of carbonaceous nanoparticles over polymer interface	SARKAR Jayati

14:30	2174	Probing the electrical properties of graphene and hexagonal boron nitride multi-layers at nanoscale via Scanning Probe Microscopy techniques	KLASEN Alexander
14:45	2673	In-situ Synthesis of Nanodiamond on polyester fabric Surface	CHANDRAKAR Karan

Tuesday May 30

E05

Hybrid materials

Chairperson(s) : FLAHAUT Emmanuel

Madrid 2 (Ground floor)

15:00	232	Trimetallic Oxides/GO Composites Optimized with Carbon Ions Radiations for Supercapacitive Electrodes	ALSHOAIBI Adil
15:15	2462	Preparation of atomic layer deposition alumina/graphene porous hybrids with high adsorption capacity of Congo red	VIGOLO Brigitte
15:30	680	Novel SiOxNy protective coatings with aligned carbon nanotubes network	SHMAGINA Elizaveta
15:45	334	Thermal and light-induced electrical properties in nanocomposites of reduced graphene oxide and silver nanoparticles	GURUNG Sweta

Tuesday May 30

E06

Carbon-based thin films 1

Chairperson(s) : FERNANDES CARVALHO Sandra Maria

Madrid 2 (Ground floor)

16:30	2104	Nano indentation mechanical testing of Boron Carbonitride	JAHN Yarden
17:00	705	Low-temperature spin arrangement in magnetic MAX phase Mn ₂ GaC thin film - NMR study.	WOJCIK Marek
17:15	704	Carbon superstructure formed by the preferential site penetration in Mn ₅ Ge ₃ C _{0.5} epitaxial films	JEDRYKA Ewa
17:30	2340	Pt carbide formation during graphitic carbon growth studied using in situ TEM	NERL Hannah

17:45	2725	Effect of different thickness of copper nanolayer on nucleation of CVD diamond	SHAHSAVARI Fatemeh
18:00	808	Synthesis and application of carbon nitride film and nanomaterials deposited on metal substrates	SONG Zihan
18:15	791	The role of C/N ratio in corrosion behavior of TiSi-based carbonitrides obtained by cathodic arc evaporation	VLADESCU (DRAGOMIR) Alina

Wednesday May 31

E07

Carbon-based thin films 2

Chairperson(s) : SARDELLA Eloisa - TAMULEVICIUS Sigitas

Madrid 2 (Ground floor)

10:00	2295	INV	Carbon- & Nitrogen-containing Nanostructured Thin Films for Health and Medical Devices	MANTOVANI Diego
10:30	1393		Diamond like carbon film wettability control: superhydrophilic and highly hydrophobic surfaces	MEŠKINIS Šarunas
10:45	2342		An Insight Into Improved Mechanical and Thermal Stability of a-C:H:Si:O coatings	CAVALEIRO Albano
11:00	1111		Influence of molybdenum concentration on the microstructure and tribological properties of diamond like carbon thin films	ZHAIRABANY Hassan
11:15	1187		Industrial Deposition of Hard and Moderately Ductile Coatings: Properties and Process Modelling	VAŠINA Petr
11:30	1909		Experimental and numerical investigation of a low-temperature/large-area microwave process based on distributed antenna array plasma used for nanocrystalline diamond film synthesis	MAHI Chaimaa
11:45	2601		Molecular dynamics simulations of hydrocarbon film deposition in an Ar/CH ₄ low-pressure plasma	OTAKANDZA KANDJANI Glenn Christopher

Wednesday May 31

E08

Carbon-based nanomaterials for energy applications

Chairperson(s) : MANTOVANI Diego - PIERSON Jean-François

Madrid 2 (Ground floor)

13:30	723	INV	Carbon-nitrogen cold-plasma-deposited nanomaterials – a new step forward in photocatalysis	FRONCZAK Maciej
14:00	1299		Hybrids cobalt-based catalysts and carbon nitride/carbon quantum dots for the catalytic oxidation of water into dioxygen.	AVIGNON Frédéric

14:15	2401	Mesoporous Carbon Thin Films as Electrocatalyst Support for the Oxygen Evolution Reaction	WAGNER Lysander Quentin
14:30	290	Remarkable CO ₂ photoreduction and photoelectrochemical water-splitting performance using narrow bandgap carbon-rich carbon nitride nanosheets	CHAULAGAIN Narendra
14:45	970	Near-percolation Nanodielectrics of Conductive Carbon-based Nanoparticles for High-voltage Structural Composite Capacitors	WINDEY Ruben
15:00	1255	Carbon model electrodes for the kinetics investigation of vanadium redox couples	COSTA DE OLIVEIRA Maida Aysla
15:15	749	Conformal carbon nitride thin film inter-active interphase heterojunction with sustainable carbon enhancing sodium storage performance	EREN Enis Oguzhan
15:30	1950	Synthesis of CoxPy-based carbon composite nanofibers as a lithium-storage anode using polyvinylpyrrolidone as a carbon source	BERIKBAIKYZY Samal
15:45	1657	Liquid crystalline Ti ₃ C ₂ T _x MXene fiber-electrodes for flexible supercapacitors	KIM Seulgi

Wednesday May 31

E09

Carbon-based nanomaterials for bio applications

Chairperson(s) : TAMULEVICIUS Sigitas

Madrid 2 (Ground floor)

16:30	2341	INV	How carbon-based matrix determines the functional behaviour of antimicrobial nanomaterials?	FERNANDES CARVALHO Sandra Maria
17:00	663		SiOCH-based plasma surface functionalization of photocatalytic metal oxides for antimicrobial applications	NAVASCUÉS Paula
17:15	1946		Detection of carbon-containing micro- and nanoplastic materials in carbon-rich biological matrices for biomedical applications	SARAU George
17:30	1852		Laser synthesis of nanometric-sized silicon carbide and nanodiamonds containing silicon vacancy centers	PICCOLI Alessandro
17:45	54		Bioresource-Derived Colloidal Nitrogen-Doped Graphene Quantum Dots as Ultrasensitive and Stable Nanosensors for Cancer and Neurotransmitter Biomarkers	CHEN Yan-Yi

Thursday June 1

E10

Thin Films and Nanomaterials 1

Chairperson(s) : PIERSON Jean-François

Madrid 2 (Ground floor)

10:00	2402	INV	Nanocomposites and polymer thin films: from gas phase synthesis to functional applications	FRANZ Faupel
11:00	513		Carbon Nitride Thin Films: an Innovative Platform for Energy Conversion and Storage	GIUSTO Paolo
11:15	878		Performance Enhancement of P3HT:PCBM Polymer Solar Cell by Doping with Phosphorus Doped Carbon Dots Additive	KIRBIYIK KURUKAVAK Çisem
11:30	2235		NH ₃ -induced activation of atomically dispersed Fe-N-C cubic nanobox for enhanced oxygen reduction reaction	WU Bin
11:45	720		High Performance Zinc Ion Capacitor Enabled by Pseudocapacitance of Doped Nitrogen Active Sites	LIU Kunlun

Thursday June 1

E11

Sensors 2

Chairperson(s) : COCLITE Annamaria - TAMULEVICIUS Sigitas

Madrid 2 (Ground floor)

13:45	2489		Laser-induced graphene functionalised with carboxymethyl cellulose for real-time ambient sensing of volatile organic compounds	HOQUE Md Khairul
14:00	1369		Controlled growth of 1D TiO ₂ nanotubes and their coupling with reduced graphene oxide for efficient sensing applications	GALSTYAN Vardan
14:15	2023		Quick large-area detection of thin silicone films with Coherent-Anti Stokes Raman Scattering (CARS) Microscopy	NASER Julian
14:30	2156		Room temperature sensing of volatile organic compounds using hybrid SnO nanoflower and Laser-Induced Graphitic carbon devices.	MURRAY Richard

Thursday June 1

E12

Optical, electrical and thermal applications

Chairperson(s) : BITTENCOURT Carla

Madrid 2 (Ground floor)

15:00	2020	Exploring the Complex Structure and Luminescent Properties of Nitrogen-doped Carbon Dots via Optical and Nuclear Magnetic Resonance Spectroscopies	OLLA Chiara
15:15	2399	Thermal and electrical properties of nanographene-coated mesoporous silicon	NAR Sibel
15:30	992	Photoresponse enhancement of C nanofiber-based photodetector on CuNi nanoparticle inclusion	SHUKLA Shivam
15:45	1856	Microelectronic technology on patterned ultra-thin reduced graphene oxide films.	MAJUMDER Sudarsan

Thursday June 1

E13

Thin Films and Nanomaterials 2

Chairperson(s) : PIERSON Jean-François

Madrid 2 (Ground floor)

16:30	482	Exploration of Cu functionalized MXene in aqueous urea adsorption	YEN Zhihao
16:45	974	Tailoring the photophysics of atomically-precise distorted nanographenes by structural engineering	REALE Marco
17:00	665	In situ actuation of Gallium liquid metal alloys on polypyrrole coated electrodes	BHAGWAT Sagar

