


PERSONAL INFORMATION **Apostol (Gheorghe) Nicoleta Georgiana**



 National Institute of Materials Physics

Brainmap UEF – ID: U-1700-039K-3342

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 [nicoleta.apostol@infim.ro](mailto:nicoleta.apostol@infim.ro)

Sex F | Date of birth 23/03/1985 | Nationality Romanian

WORK  
EXPERIENCE

July 2017 – present

**Scientific Researcher II**

National Institute of Materials Physics, 405 Atomistilor Str., 077125, Magurele, Romania  
[www.infim.ro](http://www.infim.ro)

- Thin layer growth by Molecular Beam Epitaxy, characterization of surfaces by means of specific techniques: Auger and XPS spectroscopy, Reflection High Energy Electron Diffraction-RHEED, Low Energy Electron Diffraction-LEED, Scanning Tunneling Microscopy-STM; Analysis by EXAFS and XANES spectroscopy.

**Business or sector** Research / Laboratory of Nanoscale Condensed Matter

July 2014 – June 2017

**Scientific Researcher III**

National Institute of Materials Physics, 405 Atomistilor Str., 077125, Magurele, Romania  
[www.infim.ro](http://www.infim.ro)

- Thin layer growth by Molecular Beam Epitaxy, characterization of surfaces by means of specific techniques: Auger and XPS spectroscopy, Reflection High Energy Electron Diffraction-RHEED, Low Energy Electron Diffraction-LEED, Scanning Tunneling Microscopy-STM; Analysis by EXAFS and XANES spectroscopy.

**Business or sector** Research / Laboratory of Nanoscale Condensed Matter

March 2014 – March 2015

**PostDoc**

**Elettra - Sincrotrone Trieste S.C.p.A. SuperESCA beamline**, Strada Statale 14 - km 163,5 in AREA Science Park 34149 Basovizza, Trieste, Italy.

[www.elettra.trieste.it](http://www.elettra.trieste.it)

- Growth and characterization of low-dimensional systems such as graphene, hexagonal boron nitride and supported nanoclusters, as well as surface and thin-film structure determination, fast XPS, X-ray absorptions (XAS) measurements, X-ray photoelectron diffraction (XPD), users support.

**Business or sector** Research/ SuperESCA beamline

**June 2011 – July 2014 Scientific Researcher**

National Institute of Materials Physics, 405 Atomistilor Str., 077125, Magurele, Romania  
[www.infim.ro](http://www.infim.ro)

- Thin layer growth by Molecular Beam Epitaxy, characterization of surfaces by means of specific techniques: Auger and XPS spectroscopy, Reflection High Energy Electron Diffraction-RHEED, Low Energy Electron Diffraction-LEED, Scanning Tunneling Microscopy-STM; Analysis by EXAFS and XANES spectroscopy.

**Business or sector** Research/ Laboratory of Nanoscale Condensed Matter

**January 2009 – May 2011 Assistant researcher**

National Institute of Materials Physics, 405 Atomistilor Str., 077125, Magurele, Romania  
[www.infim.ro](http://www.infim.ro)

- Thin layer growth by Molecular Beam Epitaxy, characterization of surfaces by means of specific techniques: Auger and XPS spectroscopy, Reflection High Energy Electron Diffraction-RHEED, Low Energy Electron Diffraction-LEED, Scanning Tunneling Microscopy-STM; Analysis by EXAFS and XANES spectroscopy.

**Business or sector** Research/ Laboratory of Nanoscale Condensed Matter

**April 2006 – Decembre 2008 Technician (part-time)**

National Institute of Materials Physics, 405 Atomistilor Str., 077125, Magurele, Romania  
[www.infim.ro](http://www.infim.ro)

- Working with equipment of thermal analysis TG-DTA and DSC; Working with FTIR; Data processing; Optical microscopy for monitoring phase transitions in liquid crystals; Documentation in liquid crystals, IR spectroscopy and thermal analysis;

**Business or sector** Research/ Laboratory of Optical Processes in Nanostructured Materials

**EDUCATION  
AND TRAINING**

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**2010 - 2013 PhD**

“Ilie Murgulescu” Institute of Physical Chemistry of the Romanian Academy

- Thesis Title: “Study of oxidic systems and/or mezoporous semiconductors. General characterization and specific features determined by electron spectroscopy and x-ray absorption spectroscopy”, public dephense 17.10.2013

**2008-2010 MSc**

Bucharest University, Romania

- Optical, spectroscopy, plasma and lasers

**2003-2008 Bachelor in Physics**

Bucharest University, Romania

- Physics

**PERSONAL SKILLS**

Mother tongue(s) Romanian

Other language(s)	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	B2	B2
French	A2	A2	A2	A2	A2
Italian	A2	A2	A2	A2	A2

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2 Proficient user  
[Common European Framework of Reference for Languages](#)

**Communication skills** ▪ good communication skills gained through my experience as project leader

**Organisational / managerial skills** ▪ leadership Projects: **PN-II-RU-TE-2014-4-0456** - „Chemistry and Photochemistry on ferroelectric surfaces”; **PN-III-P1-1.1-PD-2016-1322** – „Origin of resistance hysteresis in graphene layers on ferroelectric substrates”; **PN-III-P1-1.1-TE-2019-0916** - „Molecular adsorption and reactions under two-dimensional shells”

**Job-related skills**

- materials characterization and electron spectroscopy:
  - MBE: LEED, RHEED, AES, SIMS, RGA, TDA
  - STM: STM, STS
  - PES: XPS, XPD, AES, UPS, ARUPS, SR-UPS, MEIS, EELS
  - MOKE, FTIR, PEEM, AFM
- hard working, serious, committed, team-player, problem-solving skills

**Digital competence**

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem solving
Independent user	Independent user	Independent user	Independent user	Independent user

[Digital competences - Self-assessment grid](#)

- good command with most Microsoft Office programmes and IGOR program
- good command of photo editing software gained as an amateur photographer

**Driving licence** B

ADDITIONAL  
INFORMATION

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- Publications** **79 scientific publications – 13 publication as first author or corresponding author**
- Presentations** **30 presentations**, seminars and conferences
- Projects** Projects leader **PN-II-RU-TE-2014-4-0456** – „Chemistry and Photochemistry on ferroelectric surfaces”; **PN-III-P1-1.1-PD-2016-1322** – „Origin of resistance hysteresis in graphene layers on ferroelectric substrates”; **PN-III-P1-1.1-TE-2019-0916** - „Molecular adsorption and reactions under two-dimensional shells”
- Book Chpaters** **7**
- Honours and awards** **“Radu Grigorovici” Prize of the Romanian Academy, 2014;**  
**Romania National Fellowship L’Oréal-UNESCO For Women in Science 2018;**  
**1<sup>st</sup> Prize of the “Rada Mihalcea” awards for young researchers in science and engineering, Cluj-Napoca, August 2019.**
- Citations** **1100** (present on ISI Web of Knowledge and without self - citations)  
**H – index:21**  
**Covers:** 1 - N.G. Gheorghe, G.A. Lungu, R.M. Costescu, C.M. Teodorescu, *Significantly different contamination of atomically clean Si(001) when investigated by XPS and AES*, **Phys. Stat. Solidi B**, 2011, **248**, p. 1919-1924. IF - 1.316

**Annexes** Short description, Publications list, Book chapters list, List of national/international conferences, Research projects under contract/grant.

## Annex 1 Short description

Nicoleta G. Apostol (Gheorghe), b. 1985, earned her PhD degree in Chemistry at the Institute of Physical Chemistry of the Romanian Academy in 2013, is hired since 2009 in the National Institute of Materials Physics (NIMP) Măgurele, in the group of Surfaces and Interfaces. Between 2014-2015 she obtained a Post-Doctoral position at Elettra - Sincrotrone Trieste in Italy, at the SuperESCA beamline (Dr. Silvano Lizzit).

She earned the "Radu Grigorovici" Prize of the Romanian Academy for 2012, awarded for the group of works "Surface and interface phenomena highlighted by electron spectroscopies XPS/Auger and other characterization techniques of surfaces and interfaces", date of award 19<sup>th</sup> December 2014, is one of the winners of the L'Oréal - UNESCO National scholarship "For Women in Science", section Physical Sciences, 9<sup>th</sup> edition, 2018 and she earned the 1<sup>st</sup> prize at the "Rada Mihalcea" awards for young researchers in science and engineering, in August 2019.

Currently, is employed as Senior Scientist II, is author or co-author for 79 papers published in ISI quoted journals and 7 book chapters, 27 oral presentations or invited to national/international conferences, project manager for 3 national projects: a Post-Doctoral Project (2018-2020) and 2 Young Research Team project: 1 from 2015-2017 and another one started in January 2021. The published works have accumulated about 1080 citations (self-citation excluded) and a Hirsch index of 21. These are elements defining a solid scientific reputation at international level and the ability to extract the maximum information from X-ray Photoelectron Spectroscopy.

Internationally significant achievements of the candidate. (\* = first or corresponding author)

- a) Highlighting the presence of higher order reconstructions (4 x 2, 6 x 2) of Si (001) ultraclean and the fact that the reconstruction (2 x 1) attributed to clean Si (001) assumes the adsorption of a CO molecule on each dimer of Si on the surface. Investigation of Si (001) surfaces with electron beam (LEED and AES) leads to much faster surface contamination than XPS analysis (Physical State Solid B 2011\*);
- b) Realization of ferromagnetic interfaces between magnetic metals, Fe, Sm and Si(001) through molecular beam epitaxy, studied in situ with LEED, AES and XPS and ex situ with Kerr Magnetometry (J. Mater. Sci. 2012\*, J. Mater. Sci. 2012, Appl. Surf. Sci. 2013\*);
- c) Validation of the XPS method for the analysis of band bending in metal-semiconductor contacts and free ferroelectric semiconductor surfaces (Appl. Surf. Sci. 2013\*, Mater. Sci. Eng. B 2013\*);
- d) Study of metal/ferroelectric interfaces using surface science methods, corroborated by other *ex situ* methods (AFM, PFM, electrical measurements, high resolution transmission electron microscopy - HRTEM). Highlighting correlations between the morphology of the metal layer (the continuity of the film) and the persistence of ferroelectric polarization perpendicular to the surface (Thin Solid Films 2013\*, J. Mater. Sci. 2014\*, ACS Appl. Mater. Interf. 2014, Appl. Surf. Sci. 2015\*);
- e) Reactivity of ferroelectric surfaces. The NIMP group obtained the first results on surfaces thoroughly characterized with surface science methods: non-contaminated surfaces with well-defined structure, visible from LEED images, and well defined polarization. It was shown that polar molecules attach preferentially to the areas with outward polarization (J. Mater. Chem. A 2014) and the adsorption, dissociation and desorption of carbon monoxide take place on areas with inwards polarization on single crystal lead zirconate titanate PZT(001), free (Sci. Rep. 2016) and decorated with gold nanoparticles (Catal. Today, submitted in 2019\*);
- f) Evidence of the "self-doping" effect in ferroelectric thin films, in order to create mobile charge carriers which compensate the depolarization field (Sci. Rep. 2015);
- g) Epitaxial growth and characterization of 2D hexagonal boron nitride (Sci. Rep. 2015);
- h) Water decomposition and hydrogen production using graphene (ACS Nano 2016);
- i) Encapsulation of noble gas "bubbles" between graphene layers and the transition metals, a result that has applications in thermomechanics, nanotribology, optoelectronics etc. (Nano Lett. 2016);
- j) Assessment of the polarization effects in the chemical decomposition of the lead zirconate titanate surface induced by soft X-ray radiation through photoelectron spectromicroscopy (Nanoscale 2017);
- k) Study of silicon adsorption on Ir substrate excluding silicene growth (Nanoscale 2018);
- l) Epitaxial growth of high quality MoS<sub>2</sub> monolayers with single orientation (2D Materials 2018);
- m) First evidence of hysteretic and anti-hysteretic resistance dependence on graphene-like layers deposited on atomically clean ferroelectrics, ruling out any possible influence of contaminants (RSC Adv. 2016\*, RSC Adv. 2020\*);
- n) Evidence by high resolution photoelectron spectroscopy of CO insertion, oxidation and desorption between graphene and Pt(001) (Catal. Today 2021\*, Catal. Today 2021).

## Annex 2 - Publication list

1. *Mesoporous Tin-Triflate Based Catalysts for Transesterification of Sunflower Oil*, M. Verziu, J. El Haskouri, D. Beltran, P. Amoros, D. Macovei, N.G. Gheorghe, C.M. Teodorescu, S.M. Coman, V. I. Parvulescu, **Top. Catal.** **53**, p. 763-772 (2010).
2. *Involvement of cyan and ester groups in surface interactions of aerosil - cyanophenyl alkylbenzoate systems with high silica density. FTIR and TGDTA investigations*, L. Frunza, S. Frunza, I. Zgura, T. Beica, N. Gheorghe, P. Ganea, D. Stoenescu, A. Dinescu, A. Schonhals, **Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy** **75**, 1228-1235, (2010).
3. *Nanostructured gold layers. III. Functionalization of gold layers obliquely deposited onto polystyrene substrate*, I. Zgura, T. Beica, S. Frunza, L. Frunza, C. Cotarlan-Simioniuc, F. Ungureanu, N. Gheorghe, O. Rasoga, T. Velula, C. Zaharia, **J. Optoelectron. Adv. Mater.**, **12** (8), 1729-1738 (2011).

4. *Substrate-target distance dependence of structural and optical properties in case of Pb(Zr,Ti)O<sub>3</sub> films obtained by Pulsed Laser Deposition*, A.C. Galca, V. Stancu, M.A. Husanu, C. Dragoi, N.G. Gheorghe, L. Trupina, M. Enculescu, E. Vasile, **Appl. Surf. Sci.** **257**, 5938-5943 (2011).
5. *Novel Pd heterogeneous catalysts for cycloisomerisation of acetylenic carboxylic acids*, F. Neatu, L. Protesescu, M. Florea, V.I. Parvulescu, C.M. Teodorescu, N. Apostol, P.Y. Toullec, V. Michelet, **Green Chemistry** **12**, p. 2145-1219 (2010).
6. *Atomic structure and magnetic properties of cobalt doped ZnO thin films prepared by sol-gel method*, J. Neamtu, G. Georgescu, T. Malaeru, N.G. Gheorghe, R.M. Costescu, I. Jitaru, J. Ferré, D. Macovei, C.M. Teodorescu, **Digest J. Nanomater. Biostr.** **5**, p. 873-885 (2010).
7. *Structural investigations of Ge nanoparticles embedded in an amorphous SiO<sub>2</sub> matrix*, I. Stavarache, A.M. Lepadatu, N.G. Gheorghe, R.M. Costescu, G. Stan, D. Marcov, A. Slav, G. Iordache, T.F. Stoica, V. Iancu, V.S. Teodorescu, C.M. Teodorescu, M.L. Ciurea, **J. Nanopart. Res.** **13**, p. 231-232 (2011).
8. *Enhanced contamination of Si(001) when analyzed with AES with respect to XPS*, N.G. Gheorghe, G.A. Lungu, R.M. Costescu, D.G. Popescu, C.M. Teodorescu, **Optoe. Adv. Mater. - Rapid Commun.** **5**, p. 499-504 (2011).
9. *Significantly different contamination of atomically clean Si(001) when investigated by XPS and AES*, N.G. Gheorghe, G.A. Lungu, R.M. Costescu, C.M. Teodorescu, **Phys. Stat. Solidi B** **248**, p. 1919-1924 (2011).
10. *Spectroscopic analysis of the interstitial anions in some layered double hydroxide materials*, L. Frunza, N. Gheorghe, F. Iova, P. Ganea, F. Neatu, V.I. Parvulescu, **Revista de Chimie** **62**, 766-772 (2011).
11. *X-ray Absorption Fine Structure Investigations on Heat-Treated Cr-doped Titania Thin Films*, D. Mardare, V. Nica, V. Pohoata, D. Macovei, N. Gheorghe, D. Luca, C.M. Teodorescu, **Thin Solid Films** **520**, p. 1348-1352 (2011).
12. *Atomic structure and reactivity of ferromagnetic Fe deposited on Si(001)*, N.G. Gheorghe, M.A. Husanu, G.A. Lungu, R.M. Costescu, D. Macovei, C.M. Teodorescu, **J. Mater. Sci.** **47**, p. 1614-1620 (2012).
13. *Interface characterization and atomic intermixing processes in Be/W bilayers deposited on Si(001) substrates with Fe buffer layers*, V. Kuncser, P. Palade, G. Schinteie, S.G. Sandu, L. Trupina, G.A. Lungu, N.G. Gheorghe, C.M. Teodorescu, C. Porosnicu, I. Jepu, C.P. Lungu, G. Filoti, **J. Alloys Compds.** **512**, p. 199-206 (2012).
14. *Atomic structure and magnetism of PLD deposited TiO<sub>2</sub>:Fe*, R.M. Costescu, G.A. Lungu, G. Socol, N.G. Gheorghe, D. Macovei, C.C. Negrila, C. Logofatu, M.A. Husanu, D.G. Popescu, C.A. Tache, C.M. Teodorescu, **Dig. J. Nanomater. Biostr.** **7**(1), p. 73-78 (2012).
15. *Matrix assisted pulsed laser evaporation of Mn<sub>12</sub>(Propionate) thin films*, M. Pervolaraki, F. Sima, G. Socol, C.M. Teodorescu, N.G. Gheorghe, M. Socol, I.N. Mihăilescu, E.E. Moushi, A.J. Tasiopoulos, G.I. Athanasopoulos, Z. Viskadourakis, J. Giapintzakis, **Appl. Surf. Sci.** **258**(23), p. 9471-9474 (2012).
16. *Interface charge transfer in polypyrrole coated perovskite manganite magnetic nanoparticles*, O. Pana, M.L. Soran, C. Leostean, S. Macavei, E. Gautron, C.M. Teodorescu, N.G. Gheorghe, O. Chauvet, **J. Appl. Phys.** **111**, 044309 (2012).
17. *Magnetization Enhancement Of Magnetic Nanoparticles Coated With Polypyrrole*, O. Pana, C. Leostean, M.L. Soran, M. Stefan, S. Macavei, N.G. Gheorghe, C.M. Teodorescu, in **Processes in Isotopes and Molecules** (PIM 2011, edited by M.D. Lazar), **AIP Conf. Proc.** **1425**, p. 135-138 (2012).
18. *X-ray photoelectron spectroscopy of pulsed laser deposited Pb(Zr,Ti)O<sub>3-δ</sub>*, C. Dragoi, N.G. Gheorghe, G.A. Lungu, L. Trupina, A.G. Ibanescu, C.M. Teodorescu, **Phys. Stat. Solidi A** **209**(6), p. 1049-1052 (2012).
19. *Reactivity, magnetism and local atomic structure in ferromagnetic Fe layers deposited on Si(001)*, N.G. Gheorghe, M.A. Husanu, G.A. Lungu, R.M. Costescu, D. Macovei, D.G. Popescu, C.M. Teodorescu, **Digest J. Nanomater. Biostruct.** **7**(1), p. 373-384 (2012).
20. *Epitaxial ferromagnetic samarium and samarium silicide synthesized on Si(001)*, R.M. Costescu, N.G. Gheorghe, M.A. Husanu, G.A. Lungu, D. Macovei, I. Pintilie, D.G. Popescu, C.M. Teodorescu, **J. Mater. Sci.** **47**, p. 7225-7234 (2012).
21. *The Meyer-Neldel rule in Fe-doped TiO<sub>2</sub> amorphous films*, D. Mardare, A. Yildiz, R. Apetrei, P. Rambu, D. Florea, N.G. Gheorghe, D. Macovei, C.M. Teodorescu, D. Luca, **J. Mater. Res** **27**(17), p. 2271-2277 (2012).
22. *Sn-Doped hydroxylated MgF<sub>2</sub> catalysts for the fast and selective saccharification of cellulose to glucose*, S. Wuttke, A. Negoi, N.G. Gheorghe, V. Kuncser, E. Kemnitz, V. Parvulescu, S.M. Coman, **ChemSusChem** **5**(9), p. 1708-1711 (2012).
23. *Catalytic hydroprocessing of lignin under thermal and ultrasound conditions*, K.B.H. Finch, R.M. Richards, A. Richel, A.V. Medvedovici, N.G. Gheorghe, M. Verziu, S.M. Coman, V.I. Parvulescu, **Catal. Today** **196**(1), p. 3-10 (2012).
24. *Band ferromagnetism in systems with linear density of states*, G.A. Lungu, N.G. Apostol, M. Morariu, C.M. Teodorescu, **Digest J. Nanomater. Biostruct.** **7**(4), p. 1615-1626 (2012).
25. *Oxidation activity of horseradish peroxidase hosted in molecular sieves: spectroscopic investigations show hindering of the enzyme activity*, L. Frunza, N. Gheorghe, C. P. Ganea, R. Eckelt, H. Kosslick, **Reac. Kinet. Mech. Cat.** **105**(1), 195-205 (2012).
26. *Manganese-based room temperature ferromagnetism in gallium arsenide*, V. Vasilache, N.G. Apostol, G.A. Lungu, D. Macovei, C.M. Teodorescu, **Optoe. Adv. Mater. - Rapid Commun.** **6**(11-12), p. 1054-1060 (2012).
27. *Structure, reactivity, electronic configuration and magnetism of samarium atomic layers deposited on Si(001) by molecular beam epitaxy*, N.G. Gheorghe, G.A. Lungu, M.A. Husanu, R.M. Costescu, D. Macovei, C.M. Teodorescu, **Appl. Surf. Sci.** **267**, p. 106-111 (2013).
28. *Room temperature ferromagnetic, anisotropic, germanium rich FeGe(001) alloys*, G.A. Lungu, N.G. Apostol, L.E. Stoflea, R.M. Costescu, D.G. Popescu, C.M. Teodorescu, **Materials** **6**, p. 612-625 (2013).
29. *Charge transfer and band bending at Au/Pb(Zr,Ti)O<sub>3</sub> interfaces investigated by photoelectron spectroscopy*, N.G. Apostol, L.E. Stoflea, G.A. Lungu, C. Chirila, L. Trupina, R.F. Negrea, C. Ghica, L. Pintilie, C.M. Teodorescu, **Appl. Surf. Sci.** **273**, p. 415-425 (2013).

30. *Band bending at free Pb(Zr,Ti)O<sub>3</sub> surfaces analyzed by X-ray photoelectron spectroscopy*, N.G. Apostol, L.E. Stoflea, G.A. Lungu, C.A. Tache, D.G. Popescu, L. Pintilie, C.M. Teodorescu, **Mater. Sci. Eng. B** **178**, p. 1317-1322 (2013).
31. *Band bending in Au/Pb(Zr,Ti)O<sub>3</sub> investigated by X-ray photoelectron spectroscopy: dependence on the initial state of the film*, N.G. Apostol, L.E. Stoflea, G.A. Lungu, L.C. Tanase, C. Chirila, L. Frunza, L. Pintilie, C.M. Teodorescu, **Thin Solid Films** **545**, 13–21 (2013).
32. *Co environment and magnetic defects in anatase Co<sub>x</sub>Ti<sub>1-x</sub>O<sub>2</sub> nanopowders*, M.N. Grecu, D. Macovei, D. Ghica, C. Logofatu, S. Valsan, N.G. Apostol, G.A. Lungu, R.F. Negrea, R.R. Piticescu, **Appl. Phys. Lett.** **102**, 161909 (2013).
33. *Ru based magnetic nanoparticles (MNP) for succinic acid synthesis from levulinic acid*, I. Podolean, V. Kuncser, N. Gheorghe, D. Macovei, V.I. Parvulescu, S.M. Coman, **Green Chem** **15**(11), p. 3077-3082 (2013).
34. *Schottky barrier versus surface ferroelectric depolarization at Cu/Pb(Zr,Ti)O<sub>3</sub> interfaces*, L.E. Stoflea, N.G. Apostol, C. Chirila, L. Trupina, R. Negrea, L. Pintilie, C.M. Teodorescu, **J. Mater. Sci.** **49**, p. 3337-3351 (2014).
35. *Polarization-control of the potential barrier at the electrode interfaces in epitaxial ferroelectric thin films*, I. Pintilie, C.M. Teodorescu, C. Ghica, C. Chirila, A.G. Boni, L. Hrib, I. Pasuk, R. Negrea, N.G. Apostol, L. Pintilie, **ACS Adv. Mater. Interf.** **6**, p. 2929-2939 (2014).
36. *Selective adsorption of contaminants on Pb(Zr,Ti)O<sub>3</sub> surfaces investigated by XPS*, L.E. Stoflea, N.G. Apostol, L. Trupina, C.M. Teodorescu, **J. Mater. Chem. A** **2**, p. 14386-14392 (2014).
37. *Evidence of A-B site cooperation in the EuFeO<sub>3</sub> perovskite from Eu-151 and Fe-57 Mossbauer spectroscopy, EXAFS, and toluene catalytic oxidation*, M. Florea, M. Alifanti, V. Kuncser, D. Macovei, N. Apostol, P. Granger, V.I. Parvulescu, **J. Catal.** **316**, p. 130-140 (2014).
38. *Structural, down- and phase selective up-conversion emission properties of mixed valent Pr doped into oxides with tetravalent cations*, C. Tiseanu, V. Parvulescu, D. Avram, B. Cojocaru, N. Apostol, A.V. Vela-Gonzalez, M. Sanchez-Dominguez, **Phys. Chem. Chem. Phys.** **16**(12), p. 5793-5802 (2014).
39. *Epitaxial Growth of a Single-Domain Hexagonal Boron Nitride Monolayer*, F. Orlando, P. Lacovig, L. Omicciolo, N.G. Apostol, R. Larciprete, A. Baraldi, S. Lizzit, **ACS Nano** **8** (12), p. 12063 – 12070 (2014).
40. *Study of formation of LiCoO<sub>2</sub> using a modified Pechini aqueous sol-gel process*, L. Predoana, A. Jitianu, M. Voicescu, N.G. Apostol, M. Zaharescu, **J. Sol – Gel Sci. Techn.** **74** (2), p. 406-418 (2015).
41. *Photoelectron spectroscopy and spectro-microscopy of Pb(Zr,Ti)O<sub>3</sub>(111) thin layers: Imaging ferroelectric domains with binding energy contrast*, M.A. Husanu, D.G. Popescu, C.A. Tache, N.G. Apostol, A. Barinov, S. Lizzit, P. Lacovig, C.M. Teodorescu, **Appl. Surf. Sci.** **352**, p. 73-81 (2015).
42. *Polarization induced self-doping in epitaxial Pb(Zr<sub>0.20</sub>Ti<sub>0.80</sub>)O<sub>3</sub> thin films*, L. Pintilie, C. Ghica, C. M. Teodorescu, I. Pintilie, C. Chirila, I. Pasuk, L. Trupina, L. Hrib, A.G. Boni, N. G. Apostol, L. E. Abramiuc, R. Negrea, M. Stefan, D. Ghica, **Sci. Rep.** **5** (14974), DOI: 10.1038/srep14974
43. *Band bending at copper and gold interfaces with ferroelectric Pb(Zr,Ti)O<sub>3</sub> investigated by photoelectron spectroscopy*, N.G. Apostol, L.E. Stoflea, L.C. Tanase, I.C. Bucur, C. Chirila, R.F. Negrea, C.M. Teodorescu, **Appl. Surf. Sci.** **354** (B), p. 459-468 (2015)
44. *Self-assembly of graphene nanoblisters sealed to a bare metal surface*, R. Larciprete, S. Colonna, F. Ronci, R. Flammini, P. Lacovig, N. Apostol, A. Politano, P. Feulner, D. Menzel, S. Lizzit, **NanoLett.** **16** (3), p. 1808–1817 (2016).
45. *Unveiling the Mechanisms Leading to H-2 Production Promoted by Water Decomposition on Epitaxial Graphene at Room Temperature*, A. Politano, M. Cattelan, D.W. Boukhvalov, D. Campi, A. Cupolillo, S. Agnoli, N.G. Apostol, P. Lacovig, S. Lizzit, D. Farias, G. Chiarello, G. Granozzi, R. Larciprete, **ACS Nano** **10**(4), p. 4543-4549 (2016).
46. *Lignin fragmentation over magnetically recyclable composite Co@Nb<sub>2</sub>O<sub>5</sub>@Fe<sub>3</sub>O<sub>4</sub> catalysts*, C. Opris, B. Cojocaru, N. Gheorghe, M. Tudorache, S.M. Coman, V.I. Parvulescu, B. Duraki, F. Krumeich, J.A. van Bokhoven, **J. Catal.** **339**, p. 209-227 (2016).
47. *Non-interacting sp<sup>2</sup> carbon on a ferroelectric lead zirco-titanate: towards graphene synthesis on ferroelectrics in ultrahigh vacuum*, N.G. Apostol, G.A. Lungu, I.C. Bucur, C.A. Tache, L. Hrib, L. Pintilie, D. Macovei, C.M. Teodorescu, **RSC Adv.** **6**, p. 67883-67887 (2016).
48. *Ferroelectric triggering of carbon monoxide adsorption on lead zirconate (001) surfaces*, L.C. Tănase, N.G. Apostol, L. E. Abramiuc, C.A. Tache, L. Hrib, L. Trupina, L. Pintilie, C. M. Teodorescu, **Sci. Rep.** **6**, 35301 (2016).
49. *Long-range magnetic interaction in Mn<sub>x</sub>Ge<sub>1-x</sub>: structural, spectromicroscopic and magnetic investigations*, L.C. Tănase, G.A. Lungu, L.E. Abramiuc, I.C. Bucur, N.G. Apostol, R.M. Costescu, C.A. Tache, D. Macovei, A. Barinov, C.M. Teodorescu, **J. Mater. Sci.** **52**(6), p. 3309-3320 (2017).
50. *Lignin Fragmentation onto Multifunctional Fe<sub>3</sub>O<sub>4</sub>@Nb<sub>2</sub>O<sub>5</sub>@Co@Re Catalysts: The Role of the Composition and Deposition Route of Rhenium*, C. Opris, B. Cojocaru, N. Gheorghe, M. Tudorache, S.M. Coman, V.I. Parvulescu, B. Duraki, F. Krumeich, J.A. van Bokhoven, **ACS Catalysis** **7**(5), p. 3257-3267 (2017).
51. *High hexitols selectivity in cellulose hydrolytic hydrogenation over platinum (Pt) vs. ruthenium (Ru) catalysts supported on micro/mesoporous carbon*, P.A. Lazaridis, S.A. Karakoulia, C. Teodorescu, N. Apostol, D. Macovei, A. Panteli, A. Delimitis, S.M. Coman, V.I. Parvulescu, K.S. Triantafyllidis, **Appl. Catal. B** **214**, p. 1-14 (2017).
52. *Polarization landscape effects in soft X-ray-induced surface chemical decomposition of lead zirco-titanate, evidenced by photoelectronspectromicroscopy*, L.E. Abramiuc, L.C. Tănase, A. Barinov, N.G. Apostol, C. Chirilă, L. Trupina, L. Pintilie, C.M. Teodorescu, **Nanoscale** **9**, p. 11055-11067(2017).
53. *Low-energy electron diffraction from ferroelectric surfaces: Dead layers and surface dipoles in clean Pb(Zr, Ti)O<sub>3</sub>(001)*, C.M. Teodorescu, L. Pintilie, N.G. Apostol, R.M. Costescu, G.A. Lungu, L.M. Hrib, L. Trupina, L.C. Tanase, I. C. Bucur, A.E. Bocirnea, **Phys. Rev. B** **96**, 115438 (2017).

54. *Oriented Au nanoplatelets on graphene promote Suzuki-Miyaura coupling with higher efficiency and different reactivity pattern than supported palladium*, N. Candu, A. Dhakshinamoorthy, N. Apostol, C. Teodorescu, A. Coma, H. Garcia, V.I. Parvulescu, **J. Catal.** **352**, p. 59-66 (2017).
55. *Aging phenomena and wettability control of plasma deposited carbon nanowall layers*, S. Vizireanu, M.D. Ionita, R.E. Ionita, S.D. Stoica, C.M. Teodorescu, M.A. Husanu, N.G. Apostol, M. Baibarac, D. Panaitescu, G. Dinescu, **Plasma Process. Polym.** **14** (11), DOI: 10.1002/ppap.201700023 (2017).
56. *Band bending at magnetic Ni/Ge(001) interface investigated by X-ray photoelectron spectroscopy*, A.E. Bocirnea, L.C. Tanase, R.M. Costescu, N.G. Apostol, G.A. Lungu, C.M. Teodorescu, **Appl. Surf. Sci.** **424**, 269-274 (2017).
57. *Lignin Fragmentation onto Multifunctional Fe<sub>3</sub>O<sub>4</sub>@Nb<sub>2</sub>O<sub>5</sub>@Co@Re Catalysts: The Role of the Composition and Deposition Route of Rhenium*, C. Opris, B. Cojocaru, N. Gheorghe, M. Tudoreache, S.M. Coman, V.I. Parvulescu, B. Duraki, F. Krumeich, J.A. von Bokhoven, **ACS Catalysis** **7**(5), p. 3257-3267 (2017).
58. *Triggering surface ferroelectric order in Pb(Zr,Ti)O<sub>3</sub>(001) by deposition of platinum*, I.C. Bucur, L.C. Tănase, L.E. Abramiuc, G.A. Lungu, C. Chirilă, L. Trupină, N.G. Apostol, R.M. Costescu, R.F. Negrea, L. Pintilie, **Appl. Surf. Sci.** **432**, 27-33 (2018).
59. *The adsorption of silicon on an iridium surface ruling out silicene growth*, M. Satta, P. Lacovig, N. Apostol, M. Dalmiglio, F. Orlando, L. Bignardi, H. Bana, E. Travaglia, A. Baraldi, S. Lizzit, R. Larciprete, **Nanoscale** **10** (15), 7085-7094 (2018).
60. *Epitaxial growth of single-orientation high-quality MoS<sub>2</sub> monolayers*, H. Bana, E. Travaglia, L. Bignardi, P. Lacovig, C.E. Sanders, M. Dendzik, M. Michiardi, M. Bianchi, D. Lizzit, F. Presel, D. De Angelis, N. Apostol, P.K. Das, J. Fujii, I. Vobornik, R. Larciprete, A. Baraldi, P. Hofmann, S. Lizzit, **2D Materials** **5** (3), 035012 (2018).
61. *Highly Efficient, Easily Recoverable, and Recyclable Re-SiO<sub>2</sub>-Fe<sub>3</sub>O<sub>4</sub> Catalyst for the Fragmentation of Lignin*, M. Tudorache, C. Opris, B. Cojocaru, N.G. Apostol, A. Tirsoaga, S.M. Coman, V.I. Parvulescu, B. Duraki, F. Krumeich, J.A. Bokhoven, **ACS Sustain. Chem. Eng.** **6**, p. 9606-9618 (2019)
62. *Polarization Orientation in Lead Zirconate Titanate (001) Thin Films Driven by the Interface with the Substrate*, L.C. Tanase, L.E. Abramiuc, D.G. Popescu, A.M. Trandafir, N.G. Apostol, I.C. Bucur, L. hrib, L. Pintilie, I. Pasuk, L. Trupina, C.M. Teodorescu, **Phys. Rev. Appl.** **10** (3), 10.1103/PhysRevApplied.10.034020 (2018).
63. *Room temperature ferromagnetism and its correlation to ferroelectricity of manganese embedded in lead zirconate titanate*, I.C. Bucur, N.G. Apostol, L.E. Abramiuc, L.C. Tanase, C.A. Tache, G.A. Lungu, R.M. Costescu, C.F. Chirila, L. Trupina, L. Pintilie, C.M. Teodorescu, **Thin Solid Films** **669**, p. 440-449 (2019).
64. *Efficient glucose dehydration to HMF onto Nb-BEA catalysts*, N. Candu, M. El Fergani, M. Verziu, B. Cojocaru, B. Jurca, N. Apostol, C. Teodorescu, V.I. Parvulescu, S.M. Coman, **Catalysis Today** **325**, SI p.109-116 (2019).
65. *Radial heterojunction based on single ZnO-Cu<sub>x</sub>O core-shell nanowire for photodetector applications*, A. Costas, C. Florica, N. Preda, N. Apostol, A. Kuncser, A. Nitescu, I. Enculescu, **Sci. Rep.** **9**, DOI: 10.1038/s41598-019-42060-w (2019).
66. *Growth of Ag(111) on Si(111) with nearly flat band and abrupt interface*, A.E. Bocirnea, R.M. Costescu, N.G. Apostol, C.M. Teodorescu, **Appl. Surf. Sci.** **473**, p. 433-441 (2019).
67. *Direct Immobilization of Biomolecules through Magnetic Forces on Ni Electrodes via Ni Nanoparticles: Applications in Electrochemical Biosensors*, M.M. Barsan, T.A. Enache, N. Preda, G. Stan, N.G. Apostol, E. Matei, A. Kuncser, V.C. Diculescu, **ACS Appl. Mater. Inter.** **11**, p. 19867-19877 (2019).
68. *Palladium/palladium oxide coated electrospun fibers for wearable sweat pH-sensors*, V.C. Diculescu, M. Beregoi, A. Evangelidis, R.F. Negrea, N.G. Apostol, I. Enculescu, **Sci. Rep.** **9**, DOI: 10.1038/s41598-019-45399-2 (2019).
69. *Physical properties of the ferroelectric capacitors based on Al-doped HfO<sub>2</sub> grown via Atomic Layer Deposition on Si*, S. Vulpe, F. Nastase, M. Dragoman, A. Dinescu, C. Romanitan, S. Iftimie, A. Moldovan, N. Apostol, **Appl. Surf. Sci.** **483**, p. 324-333 (2019).
70. *Core-shell nanowire arrays based on ZnO and Cu<sub>x</sub>O for water stable photocatalysts*, C. Florica, A. Costas, N. Preda, M. Beregoi, A. Kuncser, N. Apostol, C. Popa, G. Socol, V. Diculescu, I. Enculescu, **Sci. Rep.** **9**, 17268 10.1038/s41598-019-53873-0 (2019)
71. *Resistance hysteresis correlated with synchrotron radiation surface studies in atomic sp<sup>2</sup> layers of carbon synthesized on ferroelectric (001) lead zirconate titanate in ultrahigh vacuum*, N.G. Apostol, D. Lizzit, G.A. Lungu, P. Lacovig, C.F. Chirilă, L. Pintilie, S. Lizzit, C.M. Teodorescu\*, **RSC Adv.** **10** (3), p. 1522-1534 (2020).
72. *Functionalization of eggshell membranes with CuO-ZnO based p-n junctions for visible light induced antibacterial activity against Escherichia coli*, N. Preda, A. Costas, M. Beregoi, N. Apostol, A. Kuncser, C. Curutiu, F. Iordache, I. Enculescu, **Sci. Rep.**, accepted (2020)
73. *CO adsorption and oxidation at room temperature on graphene synthesized on atomically clean Pt(001)*, N.G. Apostol, I.C. Bucur, G.A. Lungu, C.A. Tache, C.M. Teodorescu\*, accepted 6 Feb 2020, available online 7Feb 2020, **Catal. Today** 366 p. 155-163 (2021). <https://doi.org/10.1016/j.cattod.2020.02.006>
74. *CO adsorption, reduction and oxidation on Pb(Zr,Ti)O<sub>3</sub>(001) surfaces associated with negatively charged gold nanoparticles*, N.G. Apostol, M.A. Husanu, D. Lizzit, I.A. Hristea, C.F. Chirila, L. Trupina, C.M. Teodorescu\*, accepted 28 Feb 2020, available online 2 March 2020, **Catal. Today** **366**, p. 141-154 (2021) <https://doi.org/10.1016/j.cattod.2020.02.042>
75. *Thermal behavior of Cu-doped TiO<sub>2</sub> gels synthesized by the sol-gel method*, J. Pandelescu-Cusu, Irina Atkinson, A. Rusu, N. Apostol, V. Teodorescu, L. Predoana, I.M. Szilagyi, G. Pokol, M. Zaharescu, **Rev. Roum. Chim.** **66** (3), p. 219-229 (2021). <https://doi.org/10.33224/rrch.2021.66.3.01>
76. *Influence of Ce addition and Pt loading upon the catalytic properties of modified mesoporous PtTi-SBA-15 in total oxidation reactions*, M. Ciobanu, G. Petcu, E.M. Anghel, F. Papa, N.G. Apostol, D.C. Culita, I. Atkinson, S.



- Teodorova, M. Shopska, A. Naydenov, R. Velinova, V. Parvulescu, **Appl. Catal. A-Gen.** **619**, 118123 (2021) <https://doi.org/10.1016/j.apcata.2021.118123>
77. *Monodispersed nanoplatelets of samarium oxides for biosensing applications in biological fluids*, R.J.B. Leote, E. Matei, M. Enculescu, I. Enculescu, V.C. Diculescu, **Electrochim. Acta** **402**, 139532 (2022) <https://doi.org/10.1016/j.electacta.2021.139532>
78. *Comparative study of the dopants (Mn vs. V) influence on the properties of sol-gel ZnO films*, M. Zaharescu, M. Anastasescu, H. Stroescu, J.M. Calderon-Moreno, N. Apostol, S. Preda, C.M. Vladut, S. Mihaiu, P. Petrik, M. Gartner, **J. Solgel Sci. Technol.** **104** (1), p. 67-77 (2022) <https://doi.org/10.1007/s10971-022-05909-7>
79. *Photocatalytic and Antibacterial Properties of Doped TiO<sub>2</sub> Nanopowders Synthesized by Sol-Gel Method*, S. Preda, J. Pandle-Cusu, S.V. Petrescu, E.M. Ciobanu, G. Petcu, D.C. Culita, N.G. Apostol, R.M. Costescu, I. Raut, M. Constantin, L. Predoana, **GELS** **8** (10), 673 (2022) <https://doi.org/10.3390/gels8100673>

#### Annex 3 – Book chapters list

1. **N.G. Gheorghe**, M.A. Husanu, G.A. Lungu, D. Macovei, V. Kuncser, R.M. Costescu, D.G. Popescu, C.M. Teodorescu, *Growth and characterization of ultrathin Fe magnetic layers deposited on atomically clean Si(001) by molecular beam epitaxy*, **Nanomaterials and nanostructures for various applications**, G. Brezeanu, H. Iovu, C. Cobianu, D. Dascălu (Eds.), Ed. Academiei Române, Bucharest, pp. 225-244 (2012) ISBN: 978-973-27-2169-8.
2. **Nicoleta G. Apostol**, Cristian M. Teodorescu, *Chapter III.2. Reactivity and magnetism at metal-semiconductor interfaces, From size effects to specific applications of nanostructures*, Springer Series in Materials Science, V. Kuncser and L. Miu (Eds.), Springer, Berlin, p. 239-291 (2014) ISBN 978-3-662-44478-8.
3. George A. Lungu, **Nicoleta G. Apostol**, Cristian M. Teodorescu, *Basic concepts in ferromagnetism of diluted magnetic semiconductors. The case of manganese embedded in Ge(001)*, **Nanomagnetism**, J. M. Gonzalez Estevez (Ed.), One Central Press, Manchester, p. 74-110 (2014), ISBN: 978-1-910086-05-6.
4. Amanda Muraca, Naphtali O'Connor, Ravnit Kaur-Bhatia, **Nicoleta Apostol**, Andrei Jitianu, Mihaela Jitianu, "Titanium dioxide nanocomposites – Synthesis and photocatalysis", *Processing and Properties of Advanced Ceramics and Composites VI: Ceramic Transactions*, 2014, Volume 249, pages 123-135, Ceramic Transactions Series, Hoboken : John Wiley & Sons, ISBN: 978-1-118996-55-3, DOI: [10.1002/9781118996553.ch13](https://doi.org/10.1002/9781118996553.ch13)
5. **Nicoleta G. Apostol**, Cristian M. Teodorescu, *Band bending at metal-semiconductor interfaces, ferroelectric surfaces and metal-ferroelectric interfaces investigated by photoelectron spectroscopy*, **Surface Science Characterization Techniques for Nanomaterials**, Springer Series on Characterization Tools for Nanoscience & Nanotechnology, Vol. 4, C. Kumar (Ed.), Springer, Berlin, in press <http://www.springer.com/chemistry/book/978-3-662-44550-1> (2015) ISBN: 978-3-662-44550-1.
6. L. Pintilie, A.G. Boni, C. Chirila, L.M. Hrib, A. Iuga, L. Trupina, I. Pintilie, I. Pasuk, R.F. Negrea, C. Ghica, M. Botea, **N.G. Apostol**, C.M. Teodorescu, *Interfaces in Epitaxial Ferroelectric Layers/Multilayers and Their Effect on the Macroscopic Electrical Properties*, **Nanoscale Ferroelectrics and Multiferroics: Key Processing and Characterization Issues and Nanoscale Effects**, Volume I & II, Editori: Miguel Algueró, J.Marty Gregg and Liliana Mitoseriu, John Wiley & Sons, Ltd, Toronto, Canada (2016)
7. M. Zaharescu, S. Mihaiu, C.M. Vladut, E. Tenea, S. Preda, J.M. Calderon-Moreno, M. Anastasescu, H. Stroescu, I. Atkinson, **N. Apostol**, C. Moldovan, M. Gartner, "Sol-Gel and Hydrothermal derived Mn-doped ZnO films with optical and piezoelectric properties", **Recent Developments in Engineering Research, Vol.1**, Dr. M. Basu Chief Managing Editor, Book Publisher International, Print ISBN number: 978-93-90149-67-4, E- ISBN number: 978-93-90149-19-3 (2020)

#### Annex 4 - List of national/international conferences - most recent first

1. N.G. Apostol, A. Nicolaev, R.M. Costescu, D. Lizzit, E. Tosi, C. Bucur, P. Lacovig, S. Lizzit, C.M. Teodorescu, *Surface reactions of CO and H<sub>2</sub> on 0.5 ML Gr/Pt(001)-hex at room temperature*, **The 13<sup>th</sup> International Symposium of the Romanian Catalysis Society (RomCat Conference 2022)**, June 22-24, Baile Govora, Romania, 2022 **Oral presentation**
2. R.M. Costescu, N.G. Apostol, A. Nicolaev, D. Lizzit, E. Tosi, C. Bucur, C.A. Tache, G.A Lungu, A. Pena, P. Lacovig, S. Lizzit, C.M. Teodorescu, *Adsorption, dissociation and desorption of carbon monoxide on Pt(001)-hex*, **The 13<sup>th</sup> International Symposium of the Romanian Catalysis Society (RomCat Conference 2022)**, June 22-24, Baile Govora, Romania, 2022 **Oral presentation**
3. A. Nicolaev, N.G. Apostol, R.M. Costescu, D. Lizzit, E. Tosi, C. Bucur, C.A. Tache, G.A Lungu, A. Pena, P. Lacovig, S. Lizzit, C.M. Teodorescu, *Intercalation of carbon monoxide in sub-monolayer graphene on Pt(001)-hex*, **The 13<sup>th</sup> International Symposium of the Romanian Catalysis Society (RomCat Conference 2022)**, June 22-24, Baile Govora, Romania, 2022 **Oral presentation**
4. N.G. Apostol, L.C Tănase, L.E. Abramiuc, L. Hrib, L. Trupina, L. Pintilie, C.M. Teodorescu, *Carbon monoxide adsorption on lead zirconate(001) surfaces*, **17<sup>th</sup> International Balkan Workshop on Applied Physics and Materials Science, IBWAP 2017**, Constanța, România, 2017 **Oral presentation**
5. A.E. Bocirnea, M.R. Costescu, L.C. Tanase, N.G. Apostol, C.M. Teodorescu, *Growth mechanisms and band bending effects in Ni on Ge(001) investigated by XPS and LEED*, **11<sup>th</sup> International Conference on Physics of Advanced Materials (ICPAM-11)**, September 8<sup>th</sup> - 14<sup>th</sup> Cluj-Napoca, Romania, 2016 **Oral presentation**
6. L.C. Tănase, L.E. Abramiuc, N.G. Apostol, G. A. Lungu, I.C. Bucur, D.G. Popescu, M.A. Hușanu, L. Hrib, L.

- Trupină, L. Pintilie, C.M. Teodorescu, *Surface reactions on ferroelectrics single crystal films*, **The 11<sup>th</sup> International Symposium of the Romanian Catalysis Society (RomCat 2016)**, June 6<sup>th</sup> – 8<sup>th</sup>, Timișoara, Romania, 2016, **Oral presentation**
7. N.G. Apostol, *Chemistry of carbon and carbon monoxide on Pb(Zr,Ti)O<sub>3</sub>(001) surfaces*, **International Workshop of Materials Physics**, May 22<sup>th</sup> – 25<sup>th</sup>, Măgurele, Romania, 2016, **Oral presentation**
  8. N.G. Apostol, F. Orlando, L. Omiciuolo, P. Lacovig, R. Larciprete, A. Baraldi, S. Lizzit, *Epitaxial growth of single-domain hexagonal boron nitride*, **The 8<sup>th</sup> International Conference on Advanced Materials: ROCAM 2015**, July 7-10, Bucharest, Romania, 2015 **Oral presentation**
  9. N.G. Apostol, *Adsorption on ferroelectric surfaces of simple polar molecules*, **EMAST 1<sup>st</sup> European Symposium on Surface Science**, November 26-28, Rome, Italy, 2014, **Oral presentation**
  10. L.E. Ștoflea, L.C. Tănase, D.G. Popescu, M.A. Hușanu, N.G. Apostol, A. Barinov, C.M. Teodorescu, *Photoelectron Spectroscopy and Spectromicroscopy on Ferroelectric Single Crystal Layers*, **TIM 14 - Physics without frontiers**, November 20-22, Timișoara, Romania 2014 **Invited**
  11. N.G. Apostol, *Band bending at ferroelectric surfaces and at metal/ferroelectric heterostructures investigated by photoelectron spectroscopy*, **ECOSS 30, 30<sup>th</sup> European Conference on Surface Science**, Aug. 31 - Sep. 05, Antalya, Turkey 2014 **Oral presentation**
  12. N.G. Apostol, *Band bending at ferroelectric surfaces and interfaces investigated by X-ray photoelectron spectroscopy*, **TIM 2013 – International Physics Conference**, November 21-25, Timisoara, Romania 2013 **Invited**
  13. N.G. Apostol, *X-ray photoelectron spectroscopy utilization for direct band bending measurements at metalsemiconductor interfaces, free ferroelectric surfaces, and metal-ferroelectric heterostructures*, **New Trends in Nanophysics and Solar Energy Conversion**, September 23- 25, Magurele, Romania 2013 **Invited**
  14. N.G. Apostol, L.E. Ștoflea, G.A. Lungu, C.A. Tache, L.C. Tanase, C. Chirila, L. Pintilie, C.M. Teodorescu, *Selective adsorption of polar organic molecules on ferroelectric*, **Biomimetic sensing using nano-objects (BioSUN)**, June 17-19, Magurele, Romania 2013 **Invited**
  15. N.G. Apostol, *Reactivitate si magnetism in stratURI subtiri feromagnetice depuse pe semiconductori prin epitaxie in fascicul molecular*, **Workshop exploratoriu WE5 "Teorie si experiment in fizica suprafetelor, interfetelor si nanoparticulelor"**, Conferinta Diaspora 2012, Magurele, Sept. 26-27 (2012) **Invited**
  16. Nicoleta G. Apostol, Dan Macovei, Cristian M. Teodorescu, *Quantification of pre-edge peaks in near-edge X-ray absorption fine structure spectroscopy of transition metal oxides*, **9<sup>th</sup> International Conference on Physics of Advanced Materials**, Sept. 20-23 2012., Iasi, Romania **Oral Presentation**
  17. Nicoleta G. Apostol, Laura E. Ștoflea, George A. Lungu, Cristina Dragoi, Lucian Trupina, Lucian Pintilie, Cristian M. Teodorescu, *In situ X-ray photoelectron spectroscopy analysis of Au growth on PZT(001) surfaces*, **9<sup>th</sup> International Conference on Physics of Advanced Materials**, Sept. 20-23 2012, Iasi, Romania **Oral Presentation**
  18. N.G. Apostol, G.A. Lungu, R.M. Costescu, M.A. Husanu, D.G. Popescu, L.E. Ștoflea, C.M. Teodorescu, *Ferromagnetic compounds stabilized on Ge(001) and Si(001) by molecular beam epitaxy*, **9<sup>th</sup> International Conference on Physics of Advanced Materials**, Sept. 20-23, 2012, Iasi, Romania **Invited**
  19. Nicoleta G. Apostol, George A. Lungu, Laura E. Ștoflea, Marius A. Husanu, Cristina Dragoi, Lucian Trupina, Corneliu Ghica, Lucian Pintilie, Cristian M. Teodorescu, *Molecular Beam Epitaxy Growth and X-ray Photoelectron Spectroscopy Analysis of Au/PZT Heterostructures*, **Romanian Conference on Advanced Materials ROCAM 2012**, Sept. 28-31, (2012), Brasov, Romania, **Oral Presentation**.
  20. N.G. Gheorghe, G.A. Lungu, D. Macovei, R.M. Costescu, D.G. Popescu, I. Pasuk, C.M. Teodorescu, *Ferromagnetic Mn-Ge(001) layers synthesized by Molecular Beam Epitaxy*, **10th International Conference on Global Research and Education (inter-Academia 2011)**, 26-29 Septembrie, 2011, Sucevita, Romania, **Poster**
  21. N.G. Gheorghe, M.A. Husanu, G.A. Lungu, R.M. Costescu, D. Macovei, C.M. Teodorescu, *Atomic structure and reactivity of ferromagnetic Fe deposited on Si(001)*, **E-MRS Spring Meeting**, May 9-13, 2011, Nice, France **Oral Presentation**
  22. N.G. Gheorghe, R.M. Costescu, M.A. Husanu, G.A. Lungu, D. Macovei, I. Pintilie, C.M. Teodorescu, *Growth and characterization of ferromagnetic Sm layers on Si(001) by molecular beam epitaxy*, **E-MRS Spring Meeting**, May 9-13, 2011, Nice, France **Poster**
  23. O. Pana, **N.G. Gheorghe**, C. Leostean, M. L. Soran, S. Macavei, N. Aldea, C.M. Teodorescu, *Interface charge transfer of polypyrrole coated manganite nanoparticles and magnetization enhancement studied by XANES and EXAFS*, **E-MRS Spring Meeting**, May 9-13, 2011, Nice, France **Oral Presentation**
  24. R.M. Costescu, N.G. Gheorghe, A. Aldea, C.M. Teodorescu, *Relaxation time and transport coefficients in two-dimensional conductive layers*, **E-MRS Spring Meeting**, May 9-13, 2011, Nice, France **Poster**
  25. N.G. Gheorghe, G.A. Lungu, D.G. Popescu, R.M. Costescu, D. Macovei, C.M. Teodorescu, *Photoemission and X-ray absorption fine structure studies of ferromagnetic MnGe(001) alloys*, **11<sup>th</sup> International Conference on Atomically Controlled Surfaces, Interfaces and Nanostructures (ACSIN11)**, Oct. 3-7, 2011, Sankt Petersburg (Russia), **Poster**
  26. C.M. Teodorescu, N.G. Gheorghe, G.A. Lungu, M.A. Husanu, R.M. Costescu, D. Macovei, *Structure, reactivity, electronic configuration and magnetism of samarium atomic layers deposited on Si(001) by molecular beam epitaxy*, **11th International Conference on Atomically Controlled Surfaces, Interfaces and Nanostructures (ACSIN11)**, Oct. 3-7, 2011, Sankt Petersburg (Russia) **Oral presentation**

27. A.G. Lungu, M.A. Husanu, R.M. Costescu, N.G. Gheorghe, *Ferromagnetic Fe layers onto Si(001): Reactivity, local atomic structure, magnetism*, **Conf. Humboldt-Kolleg-Timisoara**, 23-28 Nov. 2010, Romania, **Poster**
28. M. A Husanu, R.M. Costescu, A.G. Lungu, N.G. Gheorghe, C.M. Teodorescu *Magnetic properties of Iron silicide revealed by first principles calculations*, **Conf. Humboldt-Kolleg-Timisoara**, 23-28 Nov. 2010, Romania, **Oral presentation**
29. N.G. Gheorghe, G.A. Lungu, M.A. Husanu, R.M. Costescu, *Successful cleaning and study of contamination of  $\text{Si}(001)$  in ultrahighvacuum*, **Conf. Humboldt-Kolleg-Timisoara**, 23-28 Nov. 2010, **Poster**
30. N.G. Gheorghe, R.M. Costescu, M.A. Husanu, G.A. Lungu, D. Macovei, I. Pintilie, C.M. Teodorescu, *Ferromagnetic samarium silicide grown on  $\text{Si}(001)$  by molecular beam epitaxy*, **Conferinta Nationala de Fizica**, sept., Iasi, Romania, 2010 **Oral presentation**

#### Annex 5 - Research projects under contract / grant

Nr.	Project title	Project type, no. and year	Team member
1.	„Molecular adsorption and reactions under two-dimensional shells”	PN-III-P1-1.1-TE-2019-0916	<b>Project leader</b>
2.	"Doing Research Midnight in Romania" DoReMi-RO	H2020-MSCA-NIGHT-2020: nr. 954638/2020	Team member
3.	Installations and Special Objectives of National Interest: National network of complex XPS / ESCA installations	IOSIN 2020	Team member
4.	Theoretical and experimental research in the field of advanced multifunctional materials for economic competitiveness and sustainable development	PN19-21N/2019 (CORE Programme)	Team member
5.	Adsorption, desorption and oxidation of carbon monoxide in a 2D nanoreactor formed by graphene on Pt(001)-hex: fast XPS, STM, NEXAFS and TPD	ELETTRA PROPOSAL 20195158/2019	<b>Project leader</b>
6.	Institutional Development for Research of Excellence in the Field of Advanced Materials	PFE12/2018	Team member
7.	"Handle with Science" Romania, HSciRO	H2020-MSCA-NIGHT-2018 nr. 818795/2018	Team member
8.	Origin of resistance hysteresis in graphene layers on ferroelectric substrates	PN-III-P1-1.1-PD-2016-1322 no. 117/2018	<b>Project leader – postdoc project</b>
9.	Technologic paradigms in synthesis and characterization of variable dimensionality systems	75 PCCDI/2018	<b>responsible for project component no 4</b>
10.	NEW METHODS OF DIAGNOSIS AND TREATMENT: CURRENT CHALLENGES AND TECHNOLOGIC SOLUTIONS BASED ON NANOMATERIALS AND BIOMATERIALS	47 PCCDI/2018	Team member
11.	Tunable acid-base mesoporous hollow spheres advanced materials for rubber intermediates	TE 64/2018 PN-III-P1-1.1-TE-2016-2116	Team member
12.	The development of nanocomposite systems for photoelectrocatalytic applications	TE 61/2018 PN-III-P1-1.1-TE-2016-1924	Team member
13.	Revealing the origins of the resistance antihysteresis exhibited by graphene sheets on ferroelectric gates by working in absence of contaminants	ELETTRA PROPOSAL 20175286	Team member
14.	A general methodology for bio-polymers precursors synthesis: Mono- and di- aromatic carboxylic acids by catalytic routes	PED 98/2017	<b>Postdoc researcher</b>
15.	Nanostructured electrochemical biosensors for Medical Diagnosis and Drug Discovery: development, surface characterization and applications (NANOBIOSURF)	POC 27/2016	Team member
16.	Chemistry and Photochemistry on ferroelectric surfaces (FERROCHEM)	PN-II-RU-TE-2014-4-0456 no. 147/2015	<b>Project leader</b>
17.	Adsorption, desorption and molecular reactions at ferroelectric surfaces	ELETTRA PROPOSAL 20155416/2015	<b>Project leader</b>
18.	Surface Science with Positrons: Optimization of solid Ne Moderators and First PAES Experiments (SuSciPo)	ELI-NP No. 18/2016	Team member

19.	Functional materials and structures with technologic impact, new devices and methods of synthesis/analysis – phase 2: Adaptation of the low energy electron diffraction (LEED) technique for in situ studies of ferroelectric polarization of single crystal structures.	PN 16-480/2016 (CORE Programme)	<b>Principal investigator</b>
20.	Complex approaches in the study of processes and phenomena in condensed matter - phase 4: Adsorption, desorption and photodesorption at ferroelectric surfaces	PN 09-450/2015 (CORE Programme)	Team member
21.	Materials with induced magnetisation, controlled by external parameters (MAMAINCOPAE)	PN2-Partnerships 71-63/2007	Team member
22.	Surface and interface science: physics, chemistry, biology, applications	PN2-PCCE ID_76/2010	Team member
23.	Ferroelectric and diluted magnetic semiconductor based multiferroic heterostructures for energy applications (MULTIFERRODMS)	IFA-CEA C1-08/2010	Team member
24.	Investigation of metal-ferroelectric interfaces at micro- and nanometer level	IFA-CEA C1-09/2010	Team member
25.	Effect of interfaces on the charge transport in ferroelectric/multiferroic heterostructures	PN2-PCCE ID 006/2012	Team member
26.	Chemical switching of ferroelectric surface topology (CHEM-SWITCH)	RO-FR 6/2013	Team member
27.	Hiperthermic magnetic nanoparticle ablation of liver and pancreatic tumors	PN2 - Partnerships No. 128/2012	Team member
28.	High-speed field effect devices based on graphene on epitaxial ferroelectric oxides: in-situ investigation of ferroelectric-graphene interface formation and properties by XPS and XAS combined with STM.	ELETTRA PROPOSAL 20130333	Team member
29.	Imaging and spectromicroscopy of ferroelectric domains in BaTiO <sub>3</sub> and Pb(Zr,Ti)O <sub>3</sub> single crystal layers	ELETTRA PROPOSAL 20135077	Team member
30.	Ultrafast laser Facility with Optimized high order harmonics UltraViolet sources	PN2-Partnerships 1/2012	Team member
31.	Ultrafast charge transfer at 2D hexagonal BN monolayers supported on strongly and weakly coupled substrates.	ELETTRA PROPOSAL 20145034	Team member
32.	High temperature, high stability, low cost evaporation cells for molecular beam epitaxy (HITEVACE)	PN2-Partnerships 152/2012	Team member