

Personal information

First names / Surname **Adela Nicolaev**
Email adela.nicolaev@infim.ro
Telephone +4074316774
Nationality Romanian
Date of birth 2.08.1986

Work experience **01.03.2018 - Present** - National Institute of Materials Physics , Laboratory of Nanoscale Condensed Matter, Group of Surfaces and Interfaces – Researcher III

- Ferroelectric surfaces: interplay structure – composition – polarization
- Techniques : Photoelectron spectroscopy based: X-ray photoelectron spectroscopy (XPS), Synchrotron radiation, surface cleaning and synthesis of epitaxial thin films by molecular beam epitaxy (MBE), Low energy electron diffraction (LEED) Chemical Vapor Deposition (CVD)
- Numerical simulations and optimization problems, statistical analysis and modelling, *ab initio* modelling (SIESTA) of nanostructures, devices and materials, quantum transport in low dimensional nanostructures, photovoltaic devices, theoretical spectroscopy.

31.05.2011– 31.01.2018- University of Bucharest, Faculty of Physics, “Materials and Devices for Electronics and Optoelectronics” Research Center – Researcher

01.06.2014 – 30.06.2019 - University of Bucharest, Faculty of Physics – part-time teaching position

Seminars and lectures:

- Introduction to parallel programming (C, MPI-C)
- Introduction to numerical computing (MIPS architecture, Verilog)
- Digital Logic Design

Education and training

10.2010 - 09.2013 - University of Bucharest, Faculty of Physics – Doctor of Philosophy in Physics (scholarship POSDRU /1.5/107/S/80765)

10.2008 - 06.2010 - University of Bucharest, Faculty of Physics – Master's degree in Computational Physic

10.2005 - 06.2008 - University of Bucharest, Faculty of Physics – Bachelor's degree in Computational Physic

Research stages :

- ☐ 01.07.2015-31.10.2015- Visiting researcher at University of Oslo, Norway- Center for materials and nanotechnology (SMN)
- ☐ 15.01.2012- 15.10.2012- research stage- Laboratoire des Solides Irradies, Ecole Polytechnique, Palaiseau, France

Projects involved in :

- ☐ 8SEE/2014 Perovskites for efficient energy conversion technology for photovoltaic
- ☐ STAR 64 /2013 Stability tests of new photovoltaic structures for space applications against the protons and alpha particles irradiation
- ☐ 159/2012 High efficiency electrospinning
- ☐ 72-149/2009 Oxide heterostructure materials with applications in nano and optoelectronics
- ☐ 12-111/2008 Nonlinear features in new photonic nano-structured materials for information technologies
- ☐ 72-162/2008 New materials with variable band gap based on InN for applications in optoelectronics

Personal skills and competences

Mother tongue Romanian

Other languages English , French

Computer skills and competences

Experienced with:

- ☐ C, MPI-C, parallel programming, Python
- ☐ SCAPS, SIESTA, ABINIT
- ☐ Assembler (MIPS), Verilog

User skills: Linux/Windows, LaTeX, Open Office/Microsoft Office

Communication and organisational skills

Good communication and organisational skills gained by working in a research team, giving multiple scientific presentations and through teaching experience.

Involved in science promotion activities in schools, summer camp and different exhibitons .

Driving license

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Appendix 1

List of publications

Appendix 2

Conferences

Appendix 1- List of publications

1. ISI Papers

1. Catalytic Hydrotreatment of Humins Waste over bifunctional Pd-based Zeolite Catalysts, ME Fergani, N Candu, I Podolean, B Cojocaru, **Adela Nicolaev**, CM Teodorescu, M Tudorache, VI Parvulescu, SM Coman, *Catalysts* 12, 1202 (2022)
2. Investigating the effect of N-doping on carbon quantum dots structure, optical properties and metal ion screening, KG Nguyen, IA Baragau, R. Gromicova, **Adela Nicolaev**, SAJ Thomson, A Rennie, NP Power, MT Sajjad, S Kellici, *Scientific Reports* 12, 13806 (2022)
3. Antimicrobial Properties of TiO₂ Microparticles Coated with Ca- and Cu-Based Composite Layers, R. Bucureşteanu, M. Ionita, V. Chihaiia, A. Ficai, RD Trusca, CI Ilie, A Kuncser, AM Holban, G Mihaiescu, G Petcu, **Adela Nicolaev**, et al., *Int. J. Mol. Sci.* 23, 6888 (2022)
4. Preliminary study on light-activated antimicrobial agents as photocatalytic method for protection of surfaces with increased risk of infections, R. Bucureşteanu, L.M. Ditu, M. Ionita, I. Calinescu, V. Rădiţoiu, B. E. Cojocaru, L. O. Cinteza, C. Curutiu, A. M. Holban, M. Enachescu, L. B. Enache, G. Mustatea, V. Chihaiia, **Adela Nicolaev**, E. L. Borcan, G. Mihăescu, *Materials* 14 (2021)
5. Optimization of the structural configuration of ICBA/P3HT photovoltaic cells, G.A. Nemnes, S. Iftimie, A. Palici, **Adela Nicolaev**, T.L. Mitran, A. Radu, S. Antohe, *Applied Surface Science* 424,264-268 (2017)
6. Optimization of halide perovskite solar cells based on nanocolumnar ZnO , **Adela Nicolaev**, T. L. Mitran, S. Iftimie, G. A. Nemnes, *Sol. Energy Matter. Sol. Cell* 158, 202-208 (2016)
7. Band alignment and charge transfer in rutile-TiO₂/CH₃NH₃PbI₃-xCl_x interfaces, G.A. Nemnes, C. Goehry, T. L. Mitran , **Adela Nicolaev** , L. Ion, S. Antohe, N. Plugaru, A. Manolescu , *Phys. Chem. Chem. Phys.* 17, 30417 (2015)
8. Transport in ferrocene single molecules for terahertz applications, G.A. Nemnes and **Adela Nicolaev**, *Phys. Chem. Chem. Phys.* 16, 18478 (2014)
9. Magnetic behavior and clustering effects in Mn-doped boron nitride sheets, T.L Mitran, **Adela Nicolaev**, G.A. Nemnes, L. Ion and S. Antohe, *J. Phys.: Condens. Matter* 24, 326003 (2012)
10. Ab initio vibrational and thermal properties of AlN nanowires under axial stress, T.L. Mitran, **Adela Nicolaev**, G.A. Nemnes, L. Ion, S. Antohe, *Comput. Mat. Sci.* 50, 2955 (2011)
11. Ab initio study of point-like defects influence on charge transport in AlN nanowires, C. Visan, T.L. Mitran, **Adela Nicolaev**, G.A. Nemnes, L. Ion, S. Antohe, *Digest J. Nanomater. Biostruct.* 6, 1173 (2011)
12. Photovoltaic properties of the CdS/CdTe heterojunction solar cells before and after proton irradiation, Radu M., Ghenescu V., Besleaga C., **Adela Nicolaev**, T. L. Mitran et al. *Chalcogenide Letters*, 8, 477-485 ,2011

2. Conference Proceedings

1. Enhanced thermopower of GaN nanowires with transitional metal impurities, G.A. Nemnes, Camelia Visan, T.L. Mitran, **Adela Nicolaev**, L. Ion and S. Antohe, 2013 MRS Spring Meetings Proceedings
2. Ab-initio investigation of point-like defects in AlN nanowires, **Adela Nicolaev**, T.L. Mitran, G.A. Nemnes, L. Ion, S. Antohe, *J. Phys.: Conf. Series* 338, 012014 (2012)

Appendix 2 - Conferences

1. RomCat2022, The 13th International Symposium of Romanian Catalysis Society, June 22-24, 2022, Baile Govora, Romania, Intercalation of carbon monoxide in sub-monolayer graphene on Pt(001)-*hex*, **Adela Nicolaev**, Nicoleta G. Apostol, Ruxandra M. Costescu, Daniel Lizzit, Ezequiel Tosi, Cristina Bucur, Cristian A. Tache, Adrian G. Lungu, Adrian Pena, Paolo Lacovig, Silvano Lizzit, Cristian M. Teodorescu (Oral presentation)
2. RomCat2019, The 12th International Symposium of Romanian Catalysis Society, June 5-7, 2019, Bucharest, Romania, Coupling ferroelectric PZT(001) surfaces with noble metals (Ag) for dissociation of adsorbed molecules (CO), **Adela Nicolaev**, Nicoleta G. Apostol, Ruxandra M. Costescu, Amelia E. Bocîrnea, Ioana A. Hristea, Cristina F. Chirilă, Cristian M. Teodorescu (Oral presentation)
3. 4th edition of the International Workshop of Materials Physics (IWMP), May 28-29, 2019, Bucharest, Romania, Carbon monoxide adsorption, dissociation and oxidation on ferroelectric surfaces decorated with nanoparticles of noble metals, **Adela Nicolaev**, Marius A. Huşanu, Nicoleta G. Apostol, Ruxandra M. Costescu, Amelia E. Bocîrnea, Ioana A. Hristea, Daniel Lizzit, Cristina F. Chirilă, Lucian Trupina, Cristian M. Teodorescu (Oral presentation)
4. Nanotechnology for Next Generation High Efficiency Photovoltaics 2nd Spring International School and Workshop, Maó, Menorca, Balearic Islands (Spain) April 20-24, 2015, Optimization of perovskite solar cells based on nanocolumnar ZnO, **Adela Nicolaev**, T.L. Mitran, Sorina Iftimie, G.A. Nemnes (Oral presentation)
5. Advanced workshop in solar energy conversion and nanophysics, Magurele - Bucharest, 01-03 September 2014 Transport in ferrocene single molecules with spinning rings, **Adela Nicolaev** and G.A. Nemnes (Oral presentation)
6. How Exciting! Hands-on Workshop on Excitations in Solids, 31 July-8 August 2014, Berlin, Germany, Transport in ferrocene single molecules with spinning rings, **Adela Nicolaev** and G.A. Nemnes (Poster)
7. 18th ETSF Workshop on Electronic Excitations, Applications to functional and energy materials, Luxembourg, 1-4 October 2013, Magnetic behavior and clusterin effects in Mn- doped boron nitride sheets, **Adela Nicolaev**, T.L. Mitran, G.A. Nemnes, L. Ion, S. Antohe (Poster)
8. APS March Meeting , 18-22 March 2013, Ab initio investigation of thermoelectric properties of AlN nanowires under axial stress, G.A. Nemnes, T.L. Mitran, **Adela Nicolaev**, Camelia Visan, L. Ion, S. Antohe (Poster)
9. APS March Meeting , 18-22 March 2013, Magnetic properties and spin transport in hybrid boron-nitrogen -carbon nanoribbons with transitional metal impurities, G.A. Nemnes, T.L. Mitran , **Adela Nicolaev**, Camelia Visan, L. Ion, S. Antohe (Poster)
10. MRS Spring Meeting & Exhibit, 1-5 April 2013, Microscopic charge fluctuations in hexagonal boron nitride, **Adela Nicolaev**, Claudia Rodl, Giulia Pegolotti, Ralf Hambach, Lucia Reining (Poster)
11. MRS Spring Meeting & Exhibit, 1-5 April 2013, Magnetic Behavior and Clustering Effects in Manganese-doped Boron Nitride Sheets, T.L. Mitran, **Adela Nicolaev**, G.A. Nemnes, L. Ion, S. Antohe (Poster)
12. 16th Workshop on Computational Physics and Material Science : Total Energy and Force Methods” 9-14 January, Trieste, Italy, Microscopic charge fluctuations in hexagonal boron nitride, **Adela Nicolaev**, Claudia Rodl, Giulia Pegolotti, Ralf Hambach, Lucia Reining (Poster)
13. 17th ETSF Workshop on Electronic Excitations, Advanced Green’s function methods, Coimbra, October 2-5, 2012 , A study of the microscopic charge fluctuations in hexagonal boron nitride, **Adela Nicolaev**, Giulia Pegolotti, Ralf Hambach, Lucia Reining (Poster)
14. 9th ETSF Young Researcher’s Meeting, Revolutions in Ab initio - closing the circle between theory and experiment, Brussels, May 21-25, 2012 , What can we learn from the IXS experiment, **Adela Nicolaev**, Giulia Pegolotti, Ralf Hambach, Lucia Reining (Oral presentation)

15. 12th International Balkan Workshop on Applied Physics, July 06-08, 2011, Constanta, Romania, Ab initio study of defects in aluminium nitride nanowires, **Adela Nicolaev**, T.L. Mitran, G.A. Nemnes, L. Ion, S. Antohe (Poster)
16. Advanced many-body and statistical methods in mesoscopic systems, June 27-July2, 2011 Constanta, Romania, Ab initio investigation of point-like defects formation energy and charge transport in AlN nanowires, **Adela Nicolaev**, Camelia Visan, T.L. Mitran, G.A. Nemnes, L. Ion, S. Antohe (Oral Presentation)
17. Advanced many-body and statistical methods in mesoscopic systems, June 27-July2, 2011 Constanta, Romania, Ab initio vibrational and thermal properties of AlN nanowires under axial stress, T.L. Mitran, G.A. Nemnes, **Adela Nicolaev**, L. Ion, S . Antohe (Poster)
18. E-MRS 2011 Spring & Bilateral Meeting, 8-14 May, 2011, Defects in aluminium nitride nanowires using ab initio calculations, **Adela Nicolaev**, T.L. Mitran, G.A. Nemnes, L. Ion, S. Antohe (Poster)
19. E-MRS 2011 Spring & Bilateral Meeting, 8-14 May, 2011, Configuration and thermal properties of AlN nanowires under axial stress , T.L. Mitran, G.A. Nemnes, **Adela Nicolaev**, L. Ion, S. Antohe (Poster)

