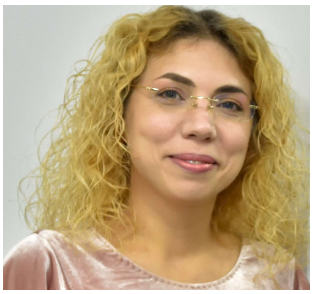
PERSONAL INFORMATION

Petronela Garoi



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Sex Female| Date of birth 09/06/1977| Nationality Romanian

WORK EXPERIENCE

2019 - present

Scientific Researcher (CS II)
Study of transparent conductive oxides integrated into solar cells structures; analysis of structural (HR-XPS, XRD, HR-SEM&EDX), optical (transmission and reflection spectra) and photoelectrical properties of the photovoltaic cells.

2007 - 2018

Implementation of noble metals nanofilms from metamaterial engineering.
Scientific researcher (CS III)

Thin films deposition by modern techniques, such as: magnetron sputtering, vacuum thermal evaporation, etc.; analysis of structural and optical properties of the components of CIGS solar cells; preparation of laboratory experiments for undergraduates students.
Coordinator of a PD ongoing project

National Institute for Laser, Plasma and Radiation Physics, 409 Atomistilor Street, Magurele 077125, Ilfov, Romania

2003 - 2007

Scientific researcher (CS)

Thin films deposition by vacuum thermal evaporation; study of optical, electrical and photoelectrical properties of some binary semiconductors, preparation of laboratory experiments for undergraduates students; publication of several scientific papers on the above topics.

Al. I. Cuza University/ Faculty of Physics, Department of Thin Films Layers, Iasi, Romania

EDUCATION AND TRAINING

2003 - 2007

PhD

Preparation techniques of advanced materials
Experimental methods in physics of materials
Transparent and conducting thin films based on oxide semiconductors
Study of some binary semiconductors, such as: ZnTe, CdS, CdSe, etc.
Experience in using the vacuum and deposition installation

Al. I Cuza University, Faculty of Physics, Iasi, Romania

2001 - 2003

MSc

Physical processes in semiconductor thin films
Study of physical properties of CdSe thin films

Al. I Cuza University, Faculty of Physics, Iasi, Romania

1997 - 2001 BSc

Study of the recombination mechanisms of charge carriers in semiconductors
General and applied physics

Al. I Cuza University, Faculty of Physics, Iasi, Romania

PERSONAL SKILLS

Mother tongue(s) Romanian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1
French	A2	A2	A2	A2	B1

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

Communication skills

- I have worked in various research teams in the native country and also I worked with students and attended professional tutorials communication

Organisational / managerial skills

Good managerial skills proved in the financial and technical implementation of 12 scientific projects, as well in the organization of 2 scientific conferences. Much experience with various vacuum and deposition installations, structural analysis equipment (HR-XPS, XRD, HR-SEM&EDX) and the measure and control instruments.

Research Projects

1. Project Director – TD 458/2007 Grant financed by CNCSIS (Grant TD no. 4, CNCSIS code: 458). Project theme: "Study of electrical and optical properties of some binary semiconductors (CdSe, ZnTe) in thin films used in photovoltaic cells technology".
2. Project Director – PD52/2011 Project in October 2012 (PD 52/5.10.2011), with mentor Dr. Valentin Craciun. The project is entitled "Transparent and conductive oxide thin films deposited on flexible substrates for efficient solar cells", was successfully completed in September 2014.
3. Project Director - In July 2017 she won, a project - STAR 178/20.07.2017 - 2018, namely: SPACEPHOTONICS, for 18 months, at INFLPR, in the group of "Advanced Technologies in Thin Films"

Job-related skills

Knowledge of general physics with application to metamaterials and photovoltaic cells.

- Much experience with vacuum deposition installations, with control and measurement instruments and the structural analysis equipments

Digital competence

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

Levels: Basic user - Independent user - Proficient user
Digital competences - Self-assessment grid

- Knowledge of Windows OS, Microsoft Office, HTML, Origin, Maple 7, PHP, Web design

Driving licence I am a holder of a Romanian drivers license. Category B vehicle

ADDITIONAL INFORMATION

3 – 7 November 2008
I perfected in the field of X-ray diffraction following the ***XRD training course***, in Almelo, Netherlands within the PANalytical firm
8 – 12 May 2017
I perfected in the field of X-ray photoelectron spectroscopy following the ***XPS training course***, inINFLPR.
5 – 15 June 2018
I perfected in the field of scanning electron microscopy following the ***SEM training course***, in INFLPR.
19 June 2020
I perfected in the field of scanning electron microscopy following the ***Sciencetech Photovoltaic Testing System training course***, in INFLPR.

- I attended ***two summer schools:***
  - on this subject: within the ***SOCRATES/ERASMUS program*** during June 28 – July 9, 2004 (with a scholarship) at Summer School on Physics of Advanced Materials, organized by Aristotle University from Thessaloniki, Greece***;***
  - ***DAAD Summer School***, during September 26 – October 8, 2005 held in Sinaia, Romania.

ANNEXES PUBLICATIONS LIST

Books

Petronela Garoi, *On the study of physical properties of some heterojunctions,* Lambert Academic Publishing GmbH & Co., Saarbrüchen, Deutscheland, ISBN: 978-3-659-56661-5 (2014);

Patents

1. Petronela Garoi, Cristian Viespe, Florin Garoi, Valentin Craciun, *Thermal treatment procedure of oxide thin films for photovoltaic cell electrodes*, Patent RO-BOPI 5/2018, No. 130768B1

2. Petronela Garoi, Cristian Viespe, Doina Craciun, Florin Garoi, Valentin Craciun, *Rapid heating/ cooling process applied to doped transparent contacts used in chalcogenide solar cells*, Patent application, RO approved patent 2019, No. a 2019/00235.

3. Petronela Garoi, Cristian Viespe, Florin Garoi, Valentin Craciun, *Procedeu de depunere a unui multistrat uniform de filme subtiri de Ag/SiO_2*, Patent RO BOPI 8/2023, No. 135754B1.

4. Garoi Florin, Ionut andrei, Ionut Nicolae, Garoi Petronela, Viespe Cristian, *Procedeu de control al starii de polarizare intr-un interferomeru de scanare*, Patent application, RO approved patent 2023, No. A 2023/00437.

Scientific papers

** ISI Web of Knowledge*

1. Petronela Prepelita, G.I.Rusu, C.Parghie, "*The Structural and Optical Characterization of Thin-Film ZnTe/CdSe Heterojunctions",* Journal of Optoelectronics and Advanced Materials **9**(10) (2007) 3200.
2. C.Baban, G.I.Rusu, Petronela Prepeliţă, "*On the Optical Properties of Polycrystalline CdSe Thin Films",* Journal of Optoelectronics and Advanced Materials **7** (2005) 817.
3. G.I.Rusu, Petronela Prepeliţă, N. Apetroaei, G. Popa, "*On the Optical ElectronicTransport and Optical Properties of ZnTe thin films*", Journal of Optoelectronics and Advanced Materials **7** (2005) 829.
4. G. I. Rusu, Petronela Prepeliţă, R. S. Rusu, N. Apetroaie, G. Oniciuc, A. Amariei, "*On the Structural and Optical Characteristics of Zinc Telluride Thin Films",* Journal of Optoelectronics and Advanced Materials **8** (2006) 996.
5. P. Prepelita, C. Baban, F. Iacomi, "The study of the influence of Al and Sn doping on the optical and electrical properties of ZnO thin films", Journal of Optoelectronics and Advanced Materials **9** (2007) 2166.
6. M. Purica, F. Iacomi, C. Baban, P. Prepeliţă, N. Apetroaei, D. Mardare, D. Luca, "*Investigation of structural properties of ITO thin films deposited on different substrates,"* Thin Solid Films, **515** (2007) 8674-8678.

7. G. I. Rusu, A. Airinei, M. Rusu, Petronela Prepeliţă, L. Marin, V. Cozan, I.I.Rusu, " *On the electronic transport mechanism in thin films of some new poly(azomethine sulfone)s",* Acta Materialia **55** (2007) 433.
8. F.Iacomi, M.Purica, E. Budianu, Petronela Prepeliţă, D.Macovei, *"Structural studies of some doped CdS thin films deposited by thermal evaporation",* Thin Solid Films **515** (2007) 6080.
9. Budianu E Purica M, Iacomi F Baban C, Prepelita P, Manea E, "*Silicon metal-semiconductor-metal photodetector with zinc oxide transparent conducting electrodes",* Thin Solid Films, 516 7 (2008) 1629-1633.
10. Rusu GI, Sunel V, Rusu GG, Diciu M, Moise M, Pintilie O, Dulea N, Prepelita P., "*On the electronic transport properties of some new esters of n-(p-nitrobenzoyl)- d,l- phenylalanine in thin films*, Journal of Optoelectronics and Advanced Materials, **10** 9 (2008) 2405-2412.
11. Rusu GI, Airinei A, Hamciuc V, Rusu GG, Rambu P, Diciu M, Garoi P, Rusu M, "*Electronic and Optical Properties of Some Polysulfone-Polydimethylsiloxane Copolymers in Thin Films",* Journal of Macromolecular Science Part B-Physics, **48** 2 (2009) 238-253.
12. Petronela Prepelita, R. Medianu, Beatrice Sbarcea, F. Garoi, Mihaela Filipescu, "*The influence of using different substrates on the structural and optical characteristics of ZnO thin films"*, Applied Surface Science 256 (6) (2010) 1807–1811.
13. Petronela Prepelita, R. Medianu, N.Stefan, F. Garoi, F. Iacomi,"On the structural and electrical characteristics of zinc oxide thin films",Thin Solid Films 518 (16) (2010) 4615-4618.
14. Petronela Prepeliţă, G.G.Rusu, G.I.Rusu, "*Effect of Heat Treatment on the Structural and Optical Characteristics of Polycrystalline ZnTe Thin Films",* ROMOPTO 2006, Sibiu, Romania, Proceeding of SPIE 6785(2006)1Y.
15. F.Iacomi, C.Baban, N.Iftimie, P.Prepelita and D.Luca, "*Influence of Substrate Nature and Anneling on Electro-Optical Properties of ZnO Thin Films"*, Sixth International Conference of the Balkan Physical Union, Istambul, Turcia, AIP Conference Proceedings 899 (2007) 253.
16. Petronela Prepeliţă, C. Pirghie, G. I. Rusu, "*Effects of Post-Deposition Heat Treatment on the Optical Characteristics of ZnTe Thin Films",* Sixth International Conference of the Balkan Physical Union, Istambul, Turcia, AIP Conference Proceedings 899 (2007) 641.
17. Petronela Prepelita, R. Medianu, F. Garoi, A. Moldovan, A.M. Vlaicu, "*Effects of layer by layer deposition on the structural and optical characteristics of thin films"*, ROMOPTO 2009, Sibiu, Romania, Proc. SPIE, Vol**.** 7469**,** (2009) 74690T 1- 6.
18. Petronela Prepelita, R. Medianu, F.Garoi, A. Moldovan, "*Growth of ZnO:Al thin films onto different substrates*", EMRS, AIP Conference Proceedings, 1292 (2010) 213-216.
19. Petronela Prepelita, Rares Medianu, Felicia Iacomi, Ion Sandu, Physico-chemical Properties of CuInGa-ZnS Heterostructure Deposited, REV. CHIM. (Bucharest) 62 9 (2011) 905-908.
20. Petronela Prepelita, N. Stefan, C. Luculescu, F. Garoi, R. Birjega, *Evolution of the properties of ZnO thin films subjected to heating treatments*, Thin Solid Films 520 (2012) 4689–4693.
21. P. Prepelita, V. Craciun, M. Filipescu, F. Garoi *Sputtered zinc oxide thin films deposited on polyimide substrate and annealing effect on the physical characteristics*, Thin Solid Films, Volume 545, (2013) 564-570.
22. P. Prepelita, V. Craciun, G. Sbarcea, F. Garoi, *Relevance of annealing on the stoichiometry and morphology of transparent thin films*, Applied Surface Science 306 (2014) 47 - 51.
23. P. Prepelita, V. Craciun, F. Garoi, A. Staicu, *Effect of annealing treatment on the structural and optical properties of AZO samples*, Applied Surface Science, 352 (2015) 23 - 27.
24. Ionel Stavarache, Valentin Adrian Maraloiu, Petronela Prepelita and Gheorghe Iordache, *Nanostructured germanium deposited on heated substrates with enhanced photoelectric properties*, Beilstein J. Nanotechnol. 7(2016)1492–1500.
25. Petronela Prepelita, I. Stavarache, C. Negrila, F. Garoi, V. Craciun, *Chalcogenide thin films deposited by rfMS technique using a single quaternary target,* Applied Surface Science, 424(2017)421-427.
26. Petronela Prepelita, M. Filipescu, I. Stavarache, F. Garoi, D. Craciun, *Transparent thin films of indium tin oxide: Morphology–optical investigations, inter dependence analyzes,* Applied Surface Science, 424 3 (2017) 368-373.
27. Stavarache, Ionel; Maraloiu, Valentin Adrian; Negrila, Catalin; Prepelita Petronela, Gruia I, Iordache G/*Photo-sensitive Ge nanocrystal-based films controlled by substrate deposition temperature* SEMICONDUCTOR SCIENCE AND TECHNOLOGY Volume: 32 Issue: 10 Article Number: 105003, 2017.
28. B.G. Sbarcea, Petronela Prepelita, L.N. Leonat, *X Ray study of GZO thin films*, Acta Crystallographica A-Foundation and Advances,74 (2018) E287.

29. Dorcioman G.; Fufa O; Craciun V; Miroiu M; Garoi Petronela; Axente M; Sima F, Craciun D*; Investigations of thin titanium oxide films grown by reactive pulsed laser deposition*, Romanian Journal of Oral Rehabilitation, 10 3 (2018) 41-49.
30. Stavarache, VS.Teodorescu, Petronela Prepelita, C. Logofatu, ML. Ciurea, *Ge nanoparticles in SiO2 for near infrared photodetectors with high performance*, Scientific Reports 9 (2019) 10286.
31. Petronela Prepelita, I. Stavarache, D. Craciun, F. Garoi, C. Negrila, G. Sbarcea, V Craciun, *Rapid thermal annealing for high-quality ITO thin films deposited by radio-frequency magnetron sputtering*, Beilstein Journal of Nanotechnology, 10(2019)1511-1522.
32. F. Garoi, C. Udrea, C. Damian, Petronela Prepelita, D. Coltuc, *THz Laser Beam Profiling by Homogeneous Photodoping of High Resistivity Silicon in a Compact Single-Pixel Detection Setup*, IEEE Transactions on Terahertz Science and Technology, 9 (2019) 200-208.
33. C. Popa, A. M. Bratu, M. Bacalum, Petronela Prepelita, *Application of the laser technology on the effect of Cd phytotoxicity in the detection of NH3, C2H4, C2H5OH and CO2 biomolecules at Triticum aestivum plantlets*, Sustainable Chemistry and Pharmacy 15 (2020) 100208.
34. Petronela Prepelita, F. Garoi, V Craciun, *Structural and optical characteristics determined by the sputtering deposition conditions of oxide thin films*, Beilstein Journal of Nanotechnology, 12(2021)354-365.
35. Budei Dragos Vladimir; Vaireanu Danut-Ionel; Prepelita Petronela; Popescu-Pelin Gianina, M. Mincu, IA Ciobotaru, *A comparative morphological study of titanium dioxide surface layer dental implants*, Open Chemistry, 19 (2021) 189-198
36. B.Tiss, M.Benfraj, N.Bouguila, M.Kraini, S.Alaya, D.Cristea, C.Croitoru, V.Craciun, D.Craciun, Petronela Prepelita, I.-L.Velicu, V.Tiron, C.Moura, L.Cunha, *The effect of vacuum and air annealing in the physical characteristics and photocatalytic efficiency of In_2S_3:Ag thin films produced by spray pyrolysis*, Materials Chemistry and Physics, 270 (2021) 124838.
37. D. Craciun, Petronela Garoi, M. Mogildea, G. Mogildea, S.I. Zgura, B.S., Vasile, V. Craciun, *Cristalline In2O3 nanoparticles synthesis using microwaves vaporization of metallic wires*, Applied Surface Science, 575, (2022) 151788.
38. Petronela Prepelita, Florin Garoi, Marius Dumitru, Valentin Craciun, *Implementation of Ag/SiO2 nanofilms form metamaterial engineering*, Results in Physics, 35(2022) 105387.
39. Florin Garoi, Ionut Nicolae Petronela Prepelita, *Monochromatic light measurement via geometric phase and Fourier-transform spectroscopy method*, Scientific Reports, Jul 28 2022 | 12 (1)
40. Mihaela Balas, M; Nistorescu S, Badea MA Dinischiotu A, Boni M, Dinache A, Smarandache A, Udrea AM, Petronela, Prepelita, Angela Staicu *Photodynamic Activity of TMPyP4/TiO2 Complex under Blue Light in Human Melanoma Cells: Potential for Cancer-Selective Therapy*, Pharmaceutics, 15 4 (2023).
41. Mogildea, G; Mogildea, M; Zgura SI; Craciun D, Popa C, Prepelita P; Bazavan MC; Craciun, V *The assessment of the atmospheric air breakdown voltage generated by the interaction between microwaves and metallic wires*, Physica Scripta Apr 1 2023 |98 (4)
42. Dinache A, Nistorescu S, Tozar T, Smarandache A, Boni M, Petronela, Prepelita, Angela Staicu *Spectroscopic Investigations of Porphyrin-TiO2 Nanoparticles Complexes*, Molecules, 28 1 318 (2023).
43. Mogildea, M; Mogildea, G; Zgura SI; Craciun D, Mihailescu N, Prepelita P; Mihai L, Bazavan MC, Bercu V, Gebac LC, Maier R, Vasile BS, Craciun, V, *A new method fot tungsten oxide nanopowder deposition on carbon-fiber-reinforced polymer composites for X-ray attenuation*, Nanomaterials,13, 23 (2023) 3071.
44. Tiss B, Zayoud W, Sekrafi HE, Bouguila N, Cristea D, Croitoru C, Velicu L, Tiron V, Prepelita Petronela, V.Craciun, Moura C, Cunha L, *Enhancing photocatalysis through annealing: Unveiling the role of physical properties in photocatalytic behavior*, Materials Chemistry and Physics, 313 (2024) 128665

Proceeding papers

1. Stavarache, I, Palade, C., Prepelita, P., Teodorescu, V. S., Ciurea, M. L. In-situ magnetron sputtering co-deposition of Ge nanoparticles in Si3N4 films for near infrared detection, 2021 INTERNATIONAL SEMICONDUCTOR CONFERENCE (CAS) Book Series International Semiconductor Conference, (2021) 261-264.
2. Stavarache, I; Prepelita, P; Lalau I, Cojocaru O, Teodorescu VS; Ciurea, ML, High performance NIR photosensitive films of Ge nanoparticles in Si3N4, 42nd International Semiconductor Conference, 2019 INTERNATIONAL SEMICONDUCTOR CONFERENCE (CAS 2019), 42ND EDITION, (2019) pp.225-228.
3. Prepelita, P; Medianu, R; Garoi F, Moldovan, A, Growth of ZnO:Al thin films onto different substrates, Conference of the E-MRS Symposium F, 2010 WIDE BANDGAP CUBIC SEMICONDUCTORS: FROM

GROWTH TO DEVICES 1292 , (2010) pp.213-216.

4. Prepelita, P; Medianu, R; Garoi F; Moldovan A; Vlaicu, AM, Effects of layer by layer deposition on the structural and optical characteristics of thin films, 9th Conference on Optics - Micro- to Nanophotonics II, ROMOPTO 2009: NINTH CONFERENCE ON OPTICS: MICRO- TO NANOPHOTONICS II 7469 ; (2009) articol number 74690T.
5. Iacomi, F; Baban, C; Iftimie N, Prepelita P; Luca, D, Influence of substrate nature and annealing on electro-optical properties of ZnO thin films, 6th International Conference of the Balkan-Physical-Union 2007 | SIX INTERNATIONAL CONFERENCE OF THE BALKAN PHYSICAL UNION 899 (2007) pp.253-+ .
6. Prepelita, P; Rusu, GG and Rusu, GI, Effect of heat treatment on the structural and optical characteristics of polycrystalline ZnTe thin films, 8th Conference on Optics 2007 | ROMOPTO 2006: EIGHTH CONFERENCE ON OPTICS (2007) 6785.
7. Prepelita, P; Prighie, C and Rusu, GI, Effects of post-deposition heat treatment on the optical characteristics of ZnTe thin films, 6th International Conference of the Balkan-Physical-Union, 2007 | SIX INTERNATIONAL CONFERENCE OF THE BALKAN PHYSICAL UNION 899 (2007) pp.641-641.
8. Dorcioman, G; Fufa, O;Craciun V, Miroiu M, Garoi P, Axente E, Sima F; Craciun, D, INVESTIGATIONS OF THIN TITANIUM OXIDE FILMS GROWN BY REACTIVE PULSED LASER DEPOSITION, Roumanian Journal of Oral Rehabilitation Jul-sep 2018 | 10 (3) (2018) pp.41-49.