






PERSONAL INFORMATION

MAGDALENA LIDIA CIUREA



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Sex F | 25/08/1948 | Nationality Romanian

WORK EXPERIENCE

2001 - present

2001 - present: Senior Researcher I
 2001 - 2009: Head of Laboratory 150 **Low Dimensional Materials**
 National Institute R-D of Materials Physics (NIMP),
 405A Atomistilor Street, 077125 Magurele, Ifov County
 Website: www.infim.ro

- **Main activities and responsibilities:**
 - # Conducting research activities of Group “Nanomaterials and Nanostructures Based on SiGeSn” in the fields:
 - (i) nanostructured materials based on SiGe, GeSn, SiGeSn, Ge and Si in different dielectric matrices (HfO₂, TiO₂, Al₂O₃, SiO₂); C nanotubes, nanofibers in dielectric and polymeric matrices
 - (ii) structures based on ferroelectric HfO₂ and ZrO₂: stabilization of ferroelectric phase by HfO₂ capping and self-controlled Ge doping under strain in 3-layer structures of HfO₂/Ge-HfO₂/HfO₂/Si; nonvolatile memories (NVMs) based on ZrHfO₂
 - (iii) quantum phenomena in nanostructures with QDs/NCs of Si-Ge-Sn in oxides (experiment & modelling)
 - (iv) material engineering for developing prototypes (demonstrators) with targeted parameters (from TRL2 to TRL3 in Experimental-Demonstration Projects PED; from TRL2 to TRL5 in M-ERA.NETs);
 - (v) devices for applications in micro-, nano-, (opto)electronics (fabrication, characterization & modelling): electronic & photoelectric NVMs, dosimeters, optical sensors for monitoring the slippery road conditions (wet and icy in respect to dry asphalt), VIS-NIR and SWIR sensors and photodetectors for environmental, security and biomedical applications
 - (vi) stress-induced traps in nanostructures/devices (experiment and modelling)
 - # Innovation and patenting activities
 - # Formation of young researchers – PhD, Master students, bachelor diploma in the hot-topics of group. The Group created and lead by me is composed of 6 young researchers (2 senior researchers II, 1 senior researcher III, 1 researcher – postdoc, 2 research assistants – 1 postdoc and 1 PhD student) exclusively trained by me.
- **Business or sector:** Research, development and innovation

2008 - present

Professor / PhD advisor
 Doctoral School of Physics, University of Bucharest
Main activities and responsibilities: PhD advising and giving lectures
Business or sector: education and formation of young researchers/scientists

2022 - present
2014 - 2022

Full member of Academy of Romanian Scientists
 Corresponding member of Academy of Romanian Scientists
 Academy of Romanian Scientists

EDUCATION AND TRAINING

1981

Doctor in Physics at
 Institute of Atomic Physics, Bucharest-Magurele.

PERSONAL SKILLS

Mother tongue(s)

Romanian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1/2	C1/2	C1/2	C1/2	C1/2
German	A1/2	B1/2	A1/2	A1/2	B1/2

Replace with name of language certificate. Enter level if known.

Levels: A1/2: Basic user - B1/2: Independent user - C1/2 Proficient user

Common European Framework of Reference for Languages

COMMUNICATION SKILLS

- good communication skills gained through my experience as head of laboratory, head of research team, director of subprogram in the frame of National Research and Development Program MATNANTECH (National Plan I), member of the Commission of Engineering Sciences

**ORGANISATIONAL /
MANAGERIAL SKILLS**

- Coordinator of >35 research projects
- Director of M-ERA.NET project no. 33/2016 and member of Management Committees of COST Action MP1402 and of COST Action MP0805
- Head of Laboratory (47 persons)
- Scientific Director of National R&D Development Programs CDI I MATNANTECH 2001-2004 and CDI II CERES 2005-2008 – scientific management 25-30 projects/year (simultaneous calls)
- Member of Commission of Scientific Engineering (Materials), CNCSIS 2009-2011
- Member of Consultative College for Research, National Authority for Scientific Research and Innovation

DIDACTIC ACTIVITIES

- Young people formation - **PhD advising, Master, Bachelor** in the **group** hot topics
- **Giving lecture courses** in NIMP - training of young researchers
- **Giving lecture courses** - Doctoral School of Physics, University of Bucharest
- **Mentor** in project PD 39/2018 (postdoc Adrian Slav)
- **supporting high school - university – industry connectivity**, e.g. **School – University – Industry Cooperation Cypress – National Instruments CLUB**, Advances in Intelligent Systems and Computing, Book Series (D. Ursutiu, C. Samoila, P. Kane, M. Ciurea, M. Stremtan, C. Ravariu, *School – University – Industry Cooperation Cypress – National Instruments CLUB, **Special Session: University – Industry – Cooperation in Mobile Technologies** (UIC-MT), IMCL2019, Oct. 31 – Nov. 1, Tesseloniki 2019)*

COMPUTER SKILLS

good command of Microsoft Office™, Origin Lab, Adobe tools

ADDITIONAL INFORMATION

 Publications
 Presentations
 Projects
 Conferences
 Seminars
 Honours and awards
 Memberships
 References

- Hirsch index: 21 ([Google Scholar](https://scholar.google.com/citations?user=...))
- 129 ISI publications (<https://www.webofscience.com/wos/author/rid/B-7138-2011>)
- 44 papers in **ISI-quoted journals published in the last ten years (2012-2022)**:
 1. C. Palade, A. Slav, I. Stavarache, V.A. Maraloiu, C. Negriila, M.L. Ciurea, "Memory properties of Zr doped ZrO₂ MOS-like capacitor", *Coatings* **12**, 1369 (2022)
 2. C. Palade, A. Slav, O. Cojocaru, V.S. Teodorescu, T. Stoica, M.L. Ciurea, A.M. Lepadatu, "SiGeSn quantum dots in HfO₂ for floating gate memory capacitors", *Coatings* **12**, 348 (2022)
 3. M. Dragoman, A. Dinescu, D. Dragoman, C. Palade, V.S. Teodorescu, M.L. Ciurea, "Graphene/ferroelectric (Ge-doped HfO₂) adaptable transistors acting as reconfigurable logic gates", *Nanomaterials* **12**, 279 (2022)
 4. C. Palade, A.M. Lepadatu, A. Slav, O. Cojocaru, A. Iuga, V.A. Maraloiu, A. Moldovan, M. Dinescu, V.S. Teodorescu, T. Stoica, M.L. Ciurea, "A nanoscale continuous transition from the monoclinic to ferroelectric orthorhombic phase inside HfO₂ nanocrystals stabilized by HfO₂ capping and self-controlled Ge doping", *J. Mater. Chem. C* **9**, 12353 (2021)
 5. C. Palade, A.M. Lepadatu, A. Slav, V.S. Teodorescu, T. Stoica, M.L. Ciurea, D. Ursutiu, C. Samoila, "Nanocrystallized Ge-rich SiGe-HfO₂ highly photosensitive in short-wave infrared", *Materials* **14**, 7040 (2021)
 6. O. Cojocaru, A.M. Lepadatu, G.A. Nemnes, T. Stoica, M.L. Ciurea, "Bandgap atomistic calculations on hydrogen-passivated GeSi nanocrystals", *Sci. Rep.* **11**, 13582 (2021)
 7. I. Stavarache, O. Cojocaru, V.A. Maraloiu, V.S. Teodorescu, T. Stoica, M.L. Ciurea, "Effects of Ge-related storage centers formation in Al₂O₃ enhancing the performance of floating gate memories", *Appl. Surf. Sci.* **542**, 148702 (2021)

8. A. Slav, I. Dascalescu, A.-M. Lepadatu, C. Palade, N.C. Zoita, H. Stroescu, S. Iftimie, S. Lazanu, M. Gartner, D. Buca, V.S. Teodorescu, M.L. Ciurea, M. Braic, T. Stoica, "GeSn/SiO₂ multilayers by magnetron sputtering deposition for short-wave infrared photonics", *ACS Appl. Mater. Interfaces* **12**, 56161 (2020)
9. C. Palade, I. Stavarache, T. Stoica, M.L. Ciurea, "GeSi nanocrystals photo-sensors for optical detection of slippery road conditions combining two classification algorithms", *Sensors* **20**, 6395 (2020)
10. A.-M. Lepadatu, C. Palade, A. Slav, O. Cojocaru, V.A. Maraloiu, S. Iftimie, F. Comanescu, A. Dinescu, V.S. Teodorescu, T. Stoica, M.L. Ciurea, "Influence of SiGe nanocrystallization on short-wave infrared sensitivity of SiGe-TiO₂ films and multilayers", *J. Phys. Chem. C* **124**, 25043 (2020)
11. Dragoman, A. Dinescu, D. Dragoman, C. Palade, A. Moldovan, M. Dinescu, V.S. Teodorescu, M.L. Ciurea, "Wafer-scale graphene-ferroelectric HfO₂/Ge-HfO₂/HfO₂ transistors acting as three-terminal memristors", *Nanotechnology* **31**, 495207 (2020)
12. A. Lőrinczi, P. Badica, T. Botila, M.L. Ciurea, A. Velea, A. Popescu, G. Socol, S. Antohe, N. Nedelcu, A. Sobetki, "Chalcogenide science in Romania", *Phys. Status Solidi (b)*, Article Number: 2000284 (2020)
13. I. Dascalescu, N.C. Zoita, A. Slav, E. Matei, S. Iftimie, F. Comanescu, A.M. Lepadatu, C. Palade, S. Lazanu, D. Buca, V.S. Teodorescu, M.L. Ciurea, M. Braic, T. Stoica, "Epitaxial GeSn obtained by high power impulse magnetron sputtering and the heterojunction with embedded GeSn nanocrystals for SWIR detection", *ACS Appl. Mater. Interfaces* **12**, 33879 (2020)
14. I. Stavarache, C. Logofatu, M.T. Sultan, A. Manolescu, H.G. Svavarsson, V.S. Teodorescu, M.L. Ciurea, "SiGe nanocrystals in SiO₂ with high photosensitivity from visible to short-wave infrared", *Sci. Rep.* **10**, 3252 (2020)
15. M.T. Sultan, J.T. Gudmundsson, A. Manolescu, V.S. Teodorescu, M.L. Ciurea, H.G. Svavarsson, "Obtaining SiGe nanocrystallites between crystalline TiO₂ layers by HiPIMS without annealing", *Appl. Surf. Sci.* **511**, 145552 (2020)
16. C. Palade, A. Slav, A.M. Lepadatu, I. Stavarache, I. Dascalescu, V.A. Maraloiu, C.C. Negrila, C. Logofatu, T. Stoica, V. Teodorescu, M.L. Ciurea, S. Lazanu, "Orthorhombic HfO₂ with embedded Ge nanoparticles in nonvolatile memories used for the detection of ionizing radiation", *Nanotechnology* **30**, 365604 (2019)
17. I. Stavarache, V.S. Teodorescu, P. Prepelita, C. Logofatu, M.L. Ciurea, "Ge nanoparticles in SiO₂ for near infrared photodetectors with high performance", *Sci. Rep.* **9**, 10286 (2019)
18. M.T. Sultan, J.T. Gudmundsson, A. Manolescu, V. Teodorescu, M.L. Ciurea, H.G. Svavarsson, "Efficacy of annealing and fabrication parameters on photo-response of SiGe in TiO₂ matrix", *Nanotechnology* **30**, 365604 (2019)
19. A. Slav, C. Palade, C. Logofatu, I. Dascalescu, A.M. Lepadatu, I. Stavarache, F. Comanescu, S. Iftimie, S. Antohe, S. Lazanu, V.S. Teodorescu, D. Buca, M.L. Ciurea, M. Braic, T. Stoica, "GeSn nanocrystals in GeSnSiO₂ by magnetron sputtering for short-wave infrared detection", *ACS Appl. Nano Mater.* **2**, 3626 (2019)
20. M.T. Sultan, V.S. Teodorescu, J.T. Gudmundsson, A. Manolescu, M.L. Ciurea, H.G. Svavarsson, "Fabrication and characterization of Si_{1-x}Ge_x nanocrystals in as-grown and annealed structures: A comparative study", *Beilstein J. Nanotech.* **10**, 1873 (2019)
21. M.T. Sultan, A. Manolescu, J.T. Gudmundsson, K. Torfason, G.A. Nemnes, I. Stavarache, C. Logofatu, V.S. Teodorescu, M.L. Ciurea, H.G. Svavarsson, "Enhanced photoconductivity of SiGe nanocrystals in SiO₂ driven by mild annealing", *Appl. Surf. Sci.* **469**, 870 (2019)
22. M.T. Sultan, J.T. Gudmundsson, A. Manolescu, T. Stoica, M.L. Ciurea, H.G. Svavarsson, "Enhanced photoconductivity of embedded SiGe nanoparticles by hydrogenation", *Appl. Surf. Sci.* **479**, 403 (2019)
23. C. Palade, A. Slav, A.-M. Lepadatu, A.V. Maraloiu, I. Dascalescu, S. Iftimie, S. Lazanu, M.L. Ciurea, T. Stoica, "Optoelectric charging-discharging of Ge nanocrystals in floating gate memory", *Appl. Phys. Lett.* **113**, 213106 (2018)
24. A.-M. Lepadatu, A. Slav, C. Palade, I. Dascalescu, M. Enculescu, S. Iftimie, S. Lazanu, V.S. Teodorescu, M.L. Ciurea, T. Stoica, "Dense Ge nanocrystals embedded in TiO₂ with exponentially increased photoconduction by field effect", *Sci. Rep.* **8**, 4898 (2018)
25. C. Palade, A.M. Lepadatu, A. Slav, S. Lazanu, V.S. Teodorescu, T. Stoica, M.L. Ciurea, "Material parameters from frequency dispersion simulation of floating gate memory with Ge nanocrystals in HfO₂", *Appl. Surf. Sci.* **428**, 698 (2018)
26. G.V. Aldica, M.L. Ciurea, D.M. Chipara, A.M. Lepadatu, K. Lozano, I. Stavarache, S. Popa, M. Chipara, "Isotactic polypropylene-vapor grown carbon nanofibers composites: Electrical properties", *J. Appl. Polym. Sci.* **134**, 45297 (2017)
27. A.M. Lepadatu, C. Palade, A. Slav, A.V. Maraloiu, S. Lazanu, T. Stoica, C. Logofatu, V.S. Teodorescu, M.L. Ciurea, "Single layer of Ge quantum dots in HfO₂ for floating gate memory capacitors", *Nanotechnology* **28**, 175707 (2017)
28. A. Slav, C. Palade, A.M. Lepadatu, M.L. Ciurea, V.S. Teodorescu, S. Lazanu, A.V. Maraloiu, C. Logofatu, M. Braic, A. Kiss, "How morphology determines the charge storage properties of Ge nanocrystals in HfO₂", *Scripta Mater.* **113**, 135 (2016)
29. C. Palade, A.M. Lepadatu, A. Slav, M.L. Ciurea, S. Lazanu, "Correlation between strain and defects in Bi implanted Si", *J. Phys. Chem. Sol.* **93**, 27 (2016)
30. D. Vasilache, A. Cismaru, M. Dragoman, I. Stavarache, C. Palade, A.M. Lepadatu, M.L. Ciurea, "Non-volatile memory devices based on Ge nanocrystals", *Phys. Status Solidi (a)* **213**, 255 (2016)
31. V.S. Teodorescu, C. Ghica, A. V. Maraloiu, M. Vlaicu, A. Kuncser, M.L. Ciurea, I. Stavarache, A. M. Lepadatu, N. D. Scarisoreanu, A. Andrei, V. Ion, M. Dinescu, "Nanostructuring of GeTiO amorphous film by pulsed laser irradiation", *Beilstein J. Nanotech.* **6**, 893 (2015)
32. C. Palade, A.M. Lepadatu, A. Slav, M.L. Ciurea, S. Lazanu, "Strain driven changes of defect parameters in heavy ion implanted Si", *Dig. J. Nanomater. Bios.* **10**, 1373 (2015)
33. M.L. Ciurea, A.M. Lepadatu, "Tuning the properties of Ge and Si nanocrystals based structures by tailoring the preparation conditions", *Dig. J. Nanomater. Bios.* **10**, 59 (2015)
34. I. Stavarache, A.M. Lepadatu, A.C. Galca, V.S. Teodorescu, M.L. Ciurea, "Annealing induced changes in the structure, optical and electrical properties of GeTiO₂ nanostructured films", *Appl. Surf. Sci.* **309**, 168 (2014)

35. M.L. Ciurea, S. Lazanu, A. Slav, C. Palade, "Strain-induced modification of trap parameters due to the stopped ions in Bi-irradiated Si", *EPL-Europhys. Lett.* **108**, 36004 (2014)
36. M.L. Ciurea, I. Stavarache, A.M. Lepadatu, I. Pasuk, V.S. Teodorescu, "Electrical properties related to the structure of GeSi nanostructured films", *Phys. Status Solidi B* **251**, 1340 (2014)
37. M.R. Mitroi, L. Fara, M.L. Ciurea, "Numerical procedure for optimizing dye-sensitized solar cells", *J. Nanomater.* **2014**, 378981 (2014)
38. A.M. Lepadatu, T. Stoica, I. Stavarache, V.S. Teodorescu, D. Buca, M.L. Ciurea, "Dense Ge nanocrystal layers embedded in oxide obtained by controlling the diffusion-crystallization process", *J. Nanopart. Res.* **15**, 1981 (2013)
39. I. Stavarache, A.M. Lepadatu, T. Stoica, M.L. Ciurea, "Annealing temperature effect on structure and electrical properties of films formed of Ge nanoparticles in SiO₂", *Appl. Surf. Sci.* **285B**, 175 (2013)
40. V.S. Teodorescu, A.V. Maraloiu, I. Stavarache, A.M. Lepadatu, M.L. Ciurea, "Transmission electron microscopy study of Ge nanoparticles formed in GeSiO films by annealing in hydrogen", *Dig. J. Nanomater. Bios.* **8**, 1771 (2013)
41. M.L. Ciurea, "Effect of stress on trapping phenomena in silicon: from single crystal to nanostructures", *Rom. Rep. Phys.* **65**, 841 (2013)
42. S. Lazanu, M.L. Ciurea, S. Lazanu, "Analysis of defect formation in semiconductor cryogenic bolometric detectors created by heavy dark matter", *Astropart. Phys.* **44**, 9 (2013)
43. S. Lazanu, A. Slav, A.M. Lepadatu, I. Stavarache, C. Palade, G. Iordache, M.L. Ciurea, "Effects produced by iodine irradiation on high resistivity silicon", *Appl. Phys. Lett.* **101**, 242106 (2012)
44. I. Stavarache, A.M. Lepadatu, A.V. Maraloiu, V.S. Teodorescu, M.L. Ciurea, "Structure and electrical transport in films of Ge nanoparticles embedded in SiO₂ matrix", *J. Nanopart. Res.* **14**, 930 (2012)

□ 26 ISI proceedings papers in the last 10 years (2012-2021). Selection:

1. I. Stavarache, C. Palade, P. Prepelita, V.S. Teodorescu, M.L. Ciurea, "In-situ magnetron sputtering co-deposition of Ge nanoparticles in Si₃N₄ films for near infrared detection", IEEE CAS 2021 Proceedings (2021 International Semiconductor Conference, October 6-8, Sinaia, Romania), pp. 261-264 (IEEE 2021)
2. C. Palade, A. Slav, M.L. Ciurea, "Memory properties of GeZrO₂ based trilayer structure", IEEE CAS 2021 Proceedings (2021 International Semiconductor Conference, October 6-8, Sinaia, Romania), pp. 253-256 (IEEE 2021)
3. M.T. Sultan, J.T. Gudmundsson, A. Manolescu, M.L. Ciurea, H.G. Svavarsson, S. Ingvarsson, "Photoluminescence study of Si_{1-x}Ge_x nanoparticles in various oxide matrices", IEEE CAS 2021 Proceedings (2021 International Semiconductor Conference, October 6-8, Sinaia, Romania), pp. 21-24 (IEEE 2021)
4. A.M. Lepadatu, C. Palade, A. Slav, I. Dascalescu, O. Cojocaru, S. Iftimie, V.S. Teodorescu, T. Stoica, M.L. Ciurea, "SWIR photoresponse of SiGe/TiO₂ multilayers with Ge-rich SiGe nanocrystals", *IEEE CAS 2020 Proceedings* (2020 International Semiconductor Conference, October 7-9, Sinaia, Romania), pp. 235-238, IEEE, New York (2020)
5. I. Dascalescu, O. Cojocaru, I. Lalau, C. Palade, A. Slav, A.M. Lepadatu, S. Lazanu, T. Stoica, M.L. Ciurea, "Controlling SWIR photosensitivity limit by composition engineering: from Ge to GeSi nanocrystals embedded in TiO₂", *IEEE CAS 2019 Proceedings* (2019 International Semiconductor Conference, October 9-11, Sinaia, Romania), pp. 37-40, IEEE, New York (2019)
6. I. Stavarache, L. Nedelcu, V.S. Teodorescu, V.A. Maraloiu, I. Dascalescu, M.L. Ciurea, "GeSi nanocrystals in SiO₂ matrix with extended photoresponse in near infrared", *IEEE CAS 2018 Proceedings* (2018 International Semiconductor Conference, October 10-12, Sinaia), pp. 253-256, IEEE, New York (2018)
7. C. Palade, A. Slav, O. Cojocaru, V.S. Teodorescu, S. Lazanu, T. Stoica, M.T. Sultan, H.G. Svavarsson, M.L. Ciurea, "Enhanced photocurrent in GeSi NCs / TiO₂ multilayers", IEEE CAS 2018 Proceedings (2018 International Semiconductor Conference, October 10-12, Sinaia), pp. 73-76, IEEE, New York (2018)
8. C. Palade, I. Dascalescu, A. Slav, A.M. Lepadatu, S. Lazanu, T. Stoica, V.S. Teodorescu, M.L. Ciurea, F. Comanescu, R. Muller, A. Dinescu, A. Enuica, "Photosensitive GeSi/TiO₂ multilayers in VIS-NIR", *IEEE CAS 2017 Proceedings* (2017 IEEE Int. Semic. Conf., October 11-14, Sinaia), pp. 67-70, IEEE, New York (2017)
9. C. Palade, A. Slav, A.M. Lepadatu, S. Lazanu, M.L. Ciurea, T. Stoica, "Light illumination effects on floating gate memory with Ge nanocrystals in HfO₂", *IEEE CAS 2017 Proceedings* (2017 IEEE Int. Semic. Conf., October 11-14, Sinaia), pp. 87-90, IEEE, New York (2017)
10. C. Palade, A. Slav, A.M. Lepadatu, A.V. Maraloiu, S. Lazanu, C. Logofatu, V.S. Teodorescu, M.L. Ciurea, "Non-volatile memory structures with Ge NCs-HfO₂ intermediate layer", *IEEE CAS 2016 Proceedings* (2016 IEEE Int. Semic. Conf., October 10-12, Sinaia), pp. 163-166, IEEE, New York (2016)
11. C. Palade, A. Slav, A.M. Lepadatu, A.V. Maraloiu, V.S. Teodorescu, M.L. Ciurea, "HfO₂ with embedded Ge nanocrystals with memory effects", *IEEE CAS 2015 Proceedings* (2015 IEEE Int. Semic. Conf., October 12-14, Sinaia), pp. 45-48, IEEE, New York (2015)
12. M.L. Ciurea, S. Lazanu, "Stress Influenced Trapping Processes in Si Based Multi-Quantum Well Structures and Heavy Ions Implanted Si", AIP Conf. Proc. 1618, pp. 60-63 (2014)

□ 8 book chapters (main author in 8 works):

- 5 in Springer, 1 in IGI Global & 3 in Publishing House of Romanian Academy. Selection:
1. **Invited** Chapter "Electrical Characterization Techniques for Porous Silicon", M.L. Ciurea, A.M. Lepadatu in *Handbook of Porous Silicon, 2nd edition*, Ed. L. Canham, Springer International Publishing AG, Cham (2018)
 2. Chapter 3 "GeSiO Based Nanostructures: Electrical Behaviour Related to Morphology and Preparation Method", M.L. Ciurea, V.S. Teodorescu, I. Stavarache, A.M. Lepadatu in *Size Effects in Nanostructures, Basics and Applications*, Springer Ser. Materials, Vol. 205, Eds. V. Kuncser and L. Miu, Springer-Verlag Berlin Heidelberg (2014)
 3. Chapter 3 "Quantum Well Solar Cells- Physics, Materials and Technology", M.L. Ciurea, A.M. Lepadatu, I. Stavarache in *Advanced Solar Cell Materials, Technology, Modeling and Simulation*, Eds. L. Fara and M. Yamaguchi, IGI Global, Hershey PA (2013)

4. "Ge nanodots embedded in a silica matrix", I. Stavarache, A.M. Lepadatu, M.L. Ciurea in *Nanomaterials and Nanostructures for Various Applications* (Series in Micro and Nanoengineering), Vol. 19, Eds. G. Brezeanu, H. Iovu, C. Cobianu and D. Dascalu, The Publishing House of the Romanian Academy, Bucharest (2012)
 5. "Quantum confinement in nanometric structures", M.L. Ciurea, V. Iancu, in *New Trends in Nanotechnology and Fractional Calculus Applications*, Eds. D. Baleanu, Z.B. Güvenç and J.A. Tenreiro Machado, Springer, Dordrecht Heidelberg London New York (2010)
 6. Chapter 8 "Trapping phenomena in nanocrystalline semiconductors", M.L. Ciurea in *Nanoelectronics and Photonics* (Nanostructure Science and Technology Series), Eds. F. Rosei and A. Korkin, Springer, New York (2008)
- ☐ **>30 plenary & invited lectures at international conferences, seminars, symposia, colloquia & workshops** (e.g. CAS Sinaia 2022; IBWAP Constanta 2022; ICPAM hybrid (Sant Feliu de Guixols, Costa Brava & virtual) 2021; IBWAP Constanta 2019; PM-6 Bucharest 2018; ROCAM Bucharest 2017; IEEE CAS Sinaia 2015; ICPAM-10 Iasi 2014; ICCMSE Atena 2014; ANC-6 Brasov 2013; *International Workshop on New Trends in Science and Technology*, Ankara 2008; NGC Phoenix, Arizona, USA 2007), **& seminars at prestigious EU & USA institutions** (e.g. Philipps Univ. of Marburg; Inst. of Microelectronics, NCSR "Demokritos", Athens; Max Plank Inst. für Mikrostrukturphysik, Halle; Risø National Lab., Technical Univ. of Denmark, Roskilde; Eng. Res. Center, Arizona State Univ., Tempe).
- ☐ **National projects as Director/ Responsible (Coordinator of NIMP Partner team)**
- 11 projects **PN I, II & III** as **Project Director** (from 2000 to present)
 - **Exploratory Research Project PCE 191/2021-2023 (~244500 Euro)**, *Multilayered floating gate nonvolatile memory device with GeSi nanocrystals nodes in nanocrystallized high k HfO₂ for high efficiency data storage*, <https://infim.ro/en/project/multilayered-floating-gate-nonvolatile-memory-device-with-gesi-nanocrystals-nodes-in-nanocrystallized-high-k-hfo2-for-high-efficiency-data-storage-multigesincmem/>
 - **Experimental-Demonstration Project PED 280/2020-2022 (~124000 Euro)**, *Non-volatile memory based on ferroelectric HfO₂*, <https://infim.ro/en/project/non-volatile-memory-based-on-ferroelectric-hfo2-ferohafomemo/>
 - **Exploratory Research Project PCE 122/2017-2019 (~186000 euro)**, *Optoelectric devices based on SiGeSn nanocrystals in oxide matrix*, <https://infim.ro/en/project/optoelectric-devices-based-on-sigesn-nanocrystals-in-oxide-matrix/>
 - **Experimental-Demonstration Project PED 203/2017-2018 (~104000 Euro)**, *Capacitor-like floating gate memory device with Ge nanocrystals: new solution based on Al₂O₃*, <https://infim.ro/en/project/capacitor-like-floating-gate-memory-device-with-ge-nanocrystals-new-solution-based-on-al2o3/>
 - **PARTNERSHIP 9/2012-2016 (~729500 Euro)**, *Novel nanostructured semiconductor materials based on Ge nanoparticles in different oxides for applications in VIS-NIR photodetectors and nonvolatile memory devices*, <https://infim.ro/en/project/novel-nanostructured-semiconductor-materials-based-on-ge-nanoparticles-in-different-oxides-for-applications-in-vis-nir-photodetectors-and-nonvolatile-memory-devices-genanophotodnmv/>
 - **IDEAS 471/2009-2011 (~236000 Euro)**, *Electrical transport in low dimensional Ge-Si-O systems: experiment and modeling*
 - **CAPACITIES 3/2007-2009 (~800000 Euro)**, *Modernization of the Nanostructured Materials Laboratory by the acquisition of a magnetron sputtering equipment and a thermal treatment equipment*
 - **CEEX 225/2006-2008**, *Micro- and nanostructured semiconductor materials for gas and temperature sensors*
 - **CEEX 13/2006-2008**, *Quantum phenomena in films of Si and Ge nanoclusters in SiO₂ matrix*
 - **CERES 169/2004-2006**, *Study of phototransport in Si-based nanocrystalline films*
 - **CERES 9/2001-2004**, *Electrical transport phenomena in films formed of Si nanograins*
 - 3 economical projects as Project Director.
 - 8 projects **PN I, II & III** as **Coordinator** of NIMP Partner team:
 - **PCCF 7/2018-2022 (~537000 Euro for NIMP)**, *Advanced nanoelectronic devices based on graphene/ferroelectric heterostructures*
 - **PARTNERSHIP CNMP 112081/2008-2011**, *Carbon nanotubes based biosensors for detection in real time of nuclei acids with oncogenic potential*
 - **PARTNERSHIP CNMP 11008/2007-2010**, *Advanced circuits for microwaves, millimeter and photonic waves, using MEMS technologies*
 - **PARTNERSHIP CNMP 11009/2007-2010**, *Carbon nanotubes based nanoelectronics devices in high frequencies for communications and environment monitoring*
 - **CEEX 6111/2005-2008**, *Scientific network for nanostructuring and characterization at nanoscale for applications in convergent technologies development*
 - **CERES 221/2004-2006**, *Optical nonlinearities in materials with structures under wavelength*
 - **CERES 161/2003-2005**, *Synthesis and characterization of selfassembling magnetic metallic nanoparticles*
 - **CERES 48/2002-2004**, *Granular magnetic superlattices and thin films with spin dependent tunneling effect*
- ☐ **Participation in more than 50 research projects, including: PD 39/2018 as Mentor; 15 economical projects, 7 being on military devices (SWIR filters as director of microproduction and SWIR photodetectors)**

- **EU project M-ERA.NET/2016-2018** (Call 2014), *High photoconductive oxide films functionalized with GeSi nanoparticles for environmental applications*, **PhotoNanoP as Project Director**, with “**Success Story**” award, <https://infim.ro/en/project/high-photoconductive-oxide-films-functionalized-with-gesi-nanoparticles-for-environmental-applications-photonanop/>
- **EU project M-ERA.NET/2016-2019** (Call 2015), *Nano-structured GeSn coatings for photonics*, **GESNAPHOTO - Key Person**
- **FP 7 COST MP0805/2009-2013**, *Novel gain materials and devices based on III-V-N compounds - Member in the Management Committee*
- **COST MP1402/2014-2018**, *Hooking together European Research in atomic layer deposition*, **HERALD - Member in the Management Committee**

- **Patents and patent applications**
 1. **OSIM patent** no. RO134049-B1 (Publ. date July 29, 2022), “Film de SiGeSn nanocristalin fotosensibil in VIS-SWIR si procedeu de realizare a acestuia”, M.L. Ciurea, I. Stavarache, A.M. Lepadatu, S. Lazanu, T. Stoica
 2. **OSIM patent** no. RO131968-B1 (Publ. May 30, 2018), “Matrice capacitiva pentru memorie nevolatila si procedeu de realizare a acesteia”, A. Slav, C. Palade, A.-M. Lepadatu, S. Lazanu, M.L. Ciurea, D. Vasilache, M. Dragoman
 3. **OSIM patent** no. RO131074-B1 (Publ. Apr 27, 2018), “Structura de capacitor pentru memorie nevolatila pe baza de nanocristale de germaniu imersate in dioxid de siliciu”, M.L. Ciurea, I. Stavarache, V.S. Teodorescu
 4. **OSIM patent** no. 75432 (1980), “Filtre in domeniul $(2-6) \times 10^{-6}$ m si procedeu de obtinere a acestora”, M.L. Ciurea, I. Belciu, T. Botila, T. Munteanu
 5. **OSIM patent application** no. A/00433 filled July 21, 2022, “Procedeu de obtinere a unei structuri de memorie nevolatila pe baza de $ZrHfO_2$ ferroelectric”, C. Palade, I. Stavarache, A. Slav, A.M. Lepadatu, T. Stoica, M.L. Ciurea
 6. **OSIM patent application** no. RO136041-A2 (Publ. Oct 28, 2022), “Film de GeSi-HfO₂ nanostructurat fotosensibil in domeniul fereastra de lungimi de unda 1200...1600 nm”, C. Palade, I. Stavarache, A. Slav, A.M. Lepadatu, I. Dascalescu, T. Stoica, M.L. Ciurea
 7. **OSIM patent application** no. RO135683-A2 (Publ. Apr 29, 2022), “Fotodetector de banda larga pe baza de nanoparticule de germaniu inglobate in nitru de siliciu”, I. Stavarache, M.L. Ciurea
 8. **OSIM patent application** no. RO133300-A0 (Publ. Apr 30, 2019), “Structura fotosensibila in domeniul SWIR pe baza de nanocristale de germaniu aliat cu staniu, si procedeu de realizare a acesteia”, T. Stoica, M. Braic, A. Slav, A.E. Kiss, C. Palade, S. Lazanu, A.M. Lepadatu, M.L. Ciurea
 9. **OSIM patent application** no. RO133299-A0 (Publ. Apr 30, 2019), “Structura pe baza de nanocristale de GeSi in TiO₂ pentru fotodetectori in VIS-NIR si procedeu de realizare a acesteia”, M.L. Ciurea, A. Slav, C. Palade, S. Lazanu, A.M. Lepadatu, T. Stoica
 10. **OSIM patent application** no. RO132946-A0 (Publ. Nov 29, 2018), “Structura de dozimetru pe baza de capacitor MOS cu poarta flotanta din nanocristale de germaniu, si procedeu de realizare a acesteia”, S. Lazanu, C. Palade, A.M. Lepadatu, I. Stavarache, M.L. Ciurea
 11. **OSIM patent application** no. RO132066-A0 (Publ. Jul 28, 2017), “Structura fotosensibila, pe baza de nanocristale de germaniu imersate in dioxid de siliciu, pentru fotodetectori, si procedeu de realizare a acestora”, I. Stavarache, M.L. Ciurea, V. Maraloiu, V.S. Teodorescu

- **Prizes/diplomas/awards/distinctions:**
 - **Prize Constantin Miculescu of Romanian Academy, 1998;**
 - **Success Story in 2018** for M-Era.Net Project "High photoconductive oxide films functionalized with GeSi nanoparticles for environmental applications" (<https://m-era.net/success-stories/high-photoconductive-oxide-films-functionalized-with-gesi-nanoparticles-for-environmental-applications-photonanop>; <https://m-era.net/news/success-stories-booklet-2-has-been-published>)
 - **Gold Medal** („Medalia de Aur”) for “Structure based on GeSi nanocrystals embedded in TiO₂ for VIS-NIR photodetectors and fabrication method” awarded to M.L. Ciurea, A. Slav, C. Palade, S. Lazanu, A.M. Lepadatu, T. Stoica at **EURO INVENT** (European Exhibition of Creativity and Innovation), 14th ed., Iasi **2022**
 - **Silver Medal and Diploma of Excellence** (“Medalia de Argint si Diploma de Excelenta”) for “Structure based on GeSi nanocrystals embedded in TiO₂ for VIS-NIR photodetectors and fabrication method” (“Structura pe baza de nanocristale de GeSi in TiO₂ pentru fotodetectori in VIS-NIR si procedeu de realizare a acesteia”) awarded to M.L. Ciurea, A. Slav, C. Palade, S. Lazanu, A.M. Lepadatu, T. Stoica at **ProInvent** (International Exhibition of Research, Innovations and Inventions), XIXth ed., Cluj-Napoca **2021**
 - **ProInvent Medal and Diploma of Excellence** (“Medalia ProInvent si Diploma de Excelenta”) for “Capacitive matrix for non-volatile memory based on germanium nanocrystals immersed in hafnium dioxide and process for making it” (“Matrice capacitiva pentru memorie nevolatila bazata pe nanocristale de germanium imersate in dioxid de hafniu si procedeu de realizare a acesteia”) awarded to A. Slav, C. Palade, A.-M. Lepadatu, S. Lazanu, M.L. Ciurea, D. Vasilache and M. Dragoman at **ProInvent**, XVIIth edition, Cluj-Napoca **2019**
 - **Diploma of Excellence** (Diploma de Excelenta) for “Capacitive matrix for non-volatile memory based on germanium nanocrystals embedded in hafnium dioxide and process for making it” awarded to A. Slav, C. Palade, A.-M. Lepadatu, S. Lazanu, M.L. Ciurea, D. Vasilache and M. Dragoman at **EuroInvent**, 11 ed., Iasi **2019**
 - **Gold Medal and Diploma of Excellence** (“Medalia de Aur si Diploma de Excelenta”) for “Capacitor structure based on germanium nanocrystals embedded in silicon dioxide for nonvolatile memory and

fabrication method" ("Structura de capacitor pentru memorie nevolatila pe baza de nanocristale de germaniu imersate in dioxid de siliciu si procedeu de realizare a acesteia") awarded to M.L. Ciurea, I. Stavarache and V.S. Teodorescu at **ProInvent**, XVth edition, Cluj-Napoca **2017**

- **Best Paper Awards at IEEE International Semiconductor Conference** – 2021, 2018x2, 2017, 2016, 2014, 2013, 2011, 2003, 2002, 1997, 1995 editions
- **Reviewer for ISI Journals:**
 - Nat. Commun., ACS Appl. Electron. Mater., ACS Appl. Mater. Interfaces, Appl. Phys. Lett., Appl. Surf. Sci., Surf. Coat. Technol., Nanotechnology, Sol. Energy Mater. Sol. Cells, Mater. Sci. Eng. B, J. Nanopart. Res., J. Appl. Phys., J. Nanomater, Rom. Rep. Phys., Energy, Rom. J. Phys., IEEE Electron Device Lett., Solid-State Electron., J. Optoelectron. Adv. Mater., Dig. J. Nanomater. Biostruct., JOAM-Rapid Communications
- **Member of Advisory Board of:**
 - Optoelectronics and Advanced Materials - Rapid Communications
 - Proceedings of the Romanian Academy, Series A
- **Member of Editorial Board of:**
 - Coatings (mdpi) - Section "Surface Characterization, Deposition and Modification"
- **Member of international conferences committees:**
 - **Technical Program Committee & Paper Review Board** - IEEE International Semiconductor Conference CAS, Sinaia, Romania, **CAS 1991 – 2022** editions
 - **Program Committee** - Nano and Giga Challenges in Electronics and Photonics Symposium **NGC 2007**, Phoenix, Arizona, USA, March 12-16, 2007
 - **International Organizing (Scientific) Committee & Scientific Program Committee** - International Colloquium "Physics of Materials" (PM), Bucuresti, Romania, **PM-6/2018, PM-5/2016, PM-4/2014, PM-3/2012** editions
 - **International Organizing (Scientific) Committee & Scientific Program Committee** - International Colloquium "Mathematics and Physics in Engineering, Numerical Physics and Complexity" (MENP) joint with International Colloquium "Physics of Materials" (PM), Bucuresti, Romania, **MENP-6 & PM-2/2010, MENP-5 & PM-1/2008** editions
 - **Organizer of COST MP1402 Scientific Workshop "ALD for Novel Sensors and Biosensors"**, Magurele, Romania, May 11-12, 2016
- **Member of international and national scientific organizations:** European Physical Society, European Microscopy Society, Romanian Physical Society, Romanian Electron Microscopy Society

February 17th, 2023

Magdalena Lidia Ciurea

