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H=29 (Scopus 2424 citations May. 2025)

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**Employment and professional experience:** Since 2005 - Associate Professor at Angers University, France, Since 2006 - Head of the group "Thin films for photovoltaic applications", 2020-2021 - Mc Member COST INNOVATORS' GRANT ITHACA, 2018-2021 - Substitute Mc Member COST PEARLE PV, 2017-2020 - Mc Member COST CRM-Extreme, 2004-2005 - Temporally Attached Professor at ENSAM Engineering School, Angers, France, 1995-2005 - Assistant Professor then Lecturer at "Al.I.Cuza" University of Iasi, Romania, 1999-2014 - Visiting Associate Professor (University of Athens, UCD Dublin, Limoges, National Institute of Materials Physics Bucharest)

**Awards:** Outstanding Reviewer for Thin Solid Films, Best Oral presentation, International Conference "Moderns Technologies", 2019, PEDR/PES (Excellence in Science): 2007-2011, 2012-2016, 2016-2020, 2020-2024

**Ranking:** [top 2% Stanford World Ranking](#)

**Publications and dissemination:** Author of more than 100 peer-reviewed publications in the materials and energy materials area published in: Solar Energy Materials and Solar Cells, Materials Today, Thin solid films, Applied Surface Science, Surface Coatings and Technology, Synthetic Metals etc.. Among the Journals citing the author we mention: Science, Journal of the Am. Chem. Soc., Energy and Environment Science, Chem. of Mat., Organic Electronics, Appl. Phys. Lett., Sol. Eng. & Sol. Cells etc). Author of one book and of two books chapters, more than 100 presentations in international conferences (36 invited). **Author of the book:** *Future Solar Energy Devices*, Springer, 2017.

Publications : <https://sites.google.com/view/mihaelagirtan/publications>

Conferences : <https://sites.google.com/view/mihaelagirtan/conferences>

**Invited Talks : Plenary Talk**, Moderns Technologies, Eforie Nord, Romania (2020), Invited talk, ROCAM (2024), EMRS International Conference, Strasbourg (2021), Pristina, Kosovo (2021), Skopje, Macedonia (2022, 2023), Dublin Institute of Technology (2018), 20-th International Conference-School Advanced Materials and Technologies, Palanga, Lithuania (2018), Invited seminar, Angstrom Laboratory, Uppsala University, Sweden (2018), Trinity College Dublin, Ireland (2018), INSA, Rennes (2018), Invited lecture, Training School Solutions for critical raw materials, Sofia, Bulgaria (2018), EMRS, Warsaw, Poland (2018), Invited talk, ROCAM – International conference, July, Bucharest, Invited seminar Vilnius University, PAMS-2 International Conference, Cluj-Napoca (2016), International Summer School on Materials for Energy Conversion, Bucharest, Invited talk, "Lights of the World", event organized by UNESCO, Bucharest (2015) International Summer School on Materials for Energy Conversion, Bucharest (2015), Invited seminar University College Dublin (2014), University of Athens (2013), National Hellenic Research Foundation, Athens (2012), ISAOP Tokyo, Japan (2010), invited seminar XLIM, Limoges (2010), Institute Charles Sadron (2010), ISAOP 3-4 Sept, Shanon, Ireland (2009).

**Projects & Grants:** 12 project proposals as PI and 5 as co-PI, on the total of these 17, 10 were funding; between these we would like to mention: Co-PI in ANR - OxTiMIBPhotobat. (2007-2009); Co-PI in the European Project FP6 – ORGAPVNET (2006-2009); PERLE 1 (2006-2009), PERLE 2 (2010-2013), Co-PI in the European Project ERA-RUS-NET (2012-2013), PI of one national project and Co-PI of three PHC bilateral cooperation projects: PHC Brancusi (2015-2016), PHC Platon (2013-2014), PHC Brancusi (2009-2010), PHC Ulysses – Ireland (2018), TOR – Sweden (2018)

**Academic activities:** Advising and co-advising of: 5 post-doc, 16 PhD students, 8 students in Master II and 15 students in Master I; Member of: PhD defence commissions (12 PhD thesis), Member of: scientific societies (ACS, EPS and EMRS); Associate member of: the Academy of Science, Belle-Letters and Arts, Angers; Reviewer for scientific journals; Editor AIMS Energy, Member of: AUF Commission expertise; Member of scientific networks: ORGAPVNET, NANORGASOL, ATLANSUN; Head of: the Professional Training "Energy demand management and renewable energy"; Head of: the Research group "Thin films for photovoltaic applications" – LPHIA. Coordinator of: the ERASMUS Program FR-RO «Solar cells and plasma applications in surface science»

## PUBLICATIONS (113)

1. C. Breazu, M. Girtan, A. Stanculescu, N. Preda, O. Rasoga, A. Costas, A.M. Catargiu, G. Socol, A. Stochioiu, G. Popescu-Pelin, S. Iftimie, G. Petre, M. Socol, MAPLE-Deposited Perylene Diimide Derivative Based Layers for Optoelectronic Applications, *Nanomaterials*, 14(21), (2024) 1733
2. R. Fraser, **M. Girtan**, *A Selective Review of Ceramic, Glass and Glass–Ceramic Protective Coatings: General Properties and Specific Characteristics for Solar Cell Applications*, *Materials* 16(11), (2023) 3906
3. P. Lisnic, L. Hrostea, L. Leontie, **M. Girtan**, *Fluorine-Doped SnO<sub>2</sub> Thin Films in Solar Cell Applications. Morphological, Optical and Electrical Properties*, *Arch. Metall. Mater.* 68 (2023), 2, 483-490
4. C.Mita, N.Cornei, G.Bulai, M. Dobromir, **M. Girtan**, A. Doroshkevich, E.Gyorgy, D. Mardare, *The enhancement of the photocatalytic properties of SmFe0.7Co0.3O<sub>3</sub> thin films by synergistic effect of Sr doping and H<sub>2</sub>O<sub>2</sub> as co-catalyst*, *Ceramics International* 49 (9) (2023) 14225-14237
5. G. Petre, A. Sanculescu, **M. Girtan**, M. Socol, C. Breazu, L. Vacareanu, N. Preda, O. rasoga, F. Stanculescu, A. S. Doroshkevich, *Organic heterostructures with indium-free transparent conductor electrode for opto-electronic applications*, *Physica Status Solidi A*, 219 (2022) 2100521
6. V. Sprincean, L. Leontie , I. Caraman, D. Untila, **M. Girtan**, S. Gurlui, P. Lisnic, C. Doroftei, A. Carlescu, F. Iacomi, M. Caraman, *Optical and Photosensitive Properties of Flexible n (p)–InSe/In<sub>2</sub>O<sub>3</sub> Heterojunctions*, *Materials* 15 (2022) 3140
7. O.Rasoga, C. Breazu, M. Socol, A-M. Solonaru, L.Vacareanu, G. Petre, N. Preda, F. Stanculescu, G. Socol, **M. Girtan**, A. Stanculescu, *Effect of Aluminum Nanostructured Electrode on the Properties of Bulk Heterojunction Based Heterostructures for Electronics*, *Nanomaterials* 2022, 12(23), 4230
8. **M. Girtan**, *Carbon-based materials for future photonics devices. A parallel between electronics and photonics*, *Optical Materials*, 125 (2022) 112068
9. **M. Girtan**, B. Negulescu, *A review on oxide/metal/oxide thin films on flexible substrates as electrodes for organic and perovskite solar cells*, *Optical materials X*, 13 (2022) 100122
10. **M. Girtan**, A. Wittenberg , M. L. Grilli , D. P. S. de Oliveira , C. Giosuè, M. L. Ruello, *The critical raw materials issue between scarcity, supply risk, and unique properties*, *Materials* 14(8), (2021) 1826
11. G. Petre, A. Sanculescu, **M. Girtan**, M. Socol, C. Breazu, L. Vacareanu, N. Preda, O. rasoga, F. Stanculescu, A. S. Doroshkevich, *Organic heterostructures with indium-free transparent conductor electrode for opto-electronic applications*, *Physica Status Solidi A*, (2021) 2100521
12. A. Stanculescu, M. Socol, O. Rasoga, C. Breazu, N. Preda, F. Stanculescu, G. Socol, L. Vacareanu, **M. Girtan**, Al. S. Doroshkevich, *Arylenevinylene Oligomer-Based Heterostructures on Flexible AZO Electrodes*, *Materials* 2021, 14(24), 7688

13. J. Walshe, **M. Girtan**, S. McCormack, J. Doran, G. Amarandei, *Combined Experimental and Modeling Analysis for the Development of Optical Materials Suitable to Enhance the Implementation of Plasmonic-Enhanced Luminescent Down-Shifting Solutions on Existing Silicon-Based Photovoltaic Devices*, *ACS Appl. Electron. Mater.* (2021)
14. J. Walshe , **M. Girtan**, S. McCormack , J. Doran, G. Amarandei, *Exploring the development of nanocomposite encapsulation solutions for enhancing the efficiency of PV systems using optical modelling*, *Optical Materials* 111 (2021) 110654
15. L.Hrostea, P.Lisnic, R.Mallet, L.Leontie, **M.Girtan**, *Studies on the Physical Properties of TiO<sub>2</sub>:Nb/Ag/TiO<sub>2</sub>:Nb and NiO/Ag/NiO Three-Layer Structures on Glass and Plastic Substrates as Transparent Conductive Electrodes for Solar Cells*, *Nanomaterials* 11(6) 2021 1416
16. **M. Girtan**, *On the electrical and photoelectrical properties of CH<sub>3</sub>NH<sub>3</sub>PbI<sub>3</sub> perovskites thin films*, *Solar Energy* 195, 1 (2020), pp. 446-453
17. **M. Girtan**, R. Mallet, M.Socol, A. Stanculescu, *On the Physical Properties PEDOT:PSS Thin Films*, *Materials Today Communications* 22 (2020) 100735
18. A. Stanculescu, C. Breazu, M. Socol, O.Rasoga, N. Preda, G. Petre, A.M. Solonaru, M. Grigoras F. Stanculescu, G. Socol, G. Popescu-Pelin, **M.Girtan**, *Effect of ITO electrode patterning on the properties of organic heterostructures based on non-fullerene acceptor prepared by MAPLE*, *Applied Surface Science* 509 (2020) 145351
19. L. Hrostea, L. Leontie, **M. Girtan**, *Characterization of PBDB-T-SF:fullerene blend thin films for solar cell applications*, *Romanian Reports in Physics*, 72, 2 (2020 )
20. M. Lakhdari, F. Habelhames, B. Nessark, **M. Girtan**, H. Derbal-Habak, Y. Bonnassieux , D. Tondelier, J. M. Nunzi, *Effects of pulsed electrodeposition parameters on the properties of zinc oxide thin films to improve the photoelectrochemical and photoelectrodegradation efficiency*, *Eur. Phys. J. Appl. Phys.* 84, 30102 (2019)
21. M. Socol, N. Preda, C. Breazu, A. Stanculescu, A. Costas, F. Stanculescu, **M. Girtan**, F. Gherendi, G. Popescu- Pelin, G. Socol, *Flexible organic heterostructures obtained by MAPLE* , *Applied Physics A* (2018) 124:60
22. M. Socol, N. Preda, C. Breazu, C. Florica, A. Costas, C.M. Istrate, A. Stanculescu, **M. Girtan**, F. Gherendi, *Organic heterostructures obtained on ZnO/Ag/ZnO electrode*, *Vacuum*, 154 (2018) pp. 366-370
23. W. Saidi, N. Hfayedh, A. Megriche, **M. Girtan**, M. El Maaoui, *Hydrophilic/hydrophobic and optical properties of B<sub>2</sub>O<sub>3</sub> doped TiO<sub>2</sub> sol-gel thin films: Effect of B<sub>2</sub>O<sub>3</sub> content, film thickness and surface roughness*, *Materials Chemistry and Physics*, 215 (2018) pp.31-39
24. C. Breazu, M. Socol, N. Preda, E. Matei, O. Rasoga, **M. Girtan**, R. Mallet, F. Stanculescu, A. Stanculescu, *On the properties of organic heterostructures prepared with nano-patterned metallic electrode*, *Applied Surface Science*, 443 (2018) 592-602
25. **M.Girtan**, *Future solar energy devices*, Proceedings of SPIE – The International Society for Optical Engineering 10683, 106831Z (2018)

26. L. Hrostea, **M. Girtan**, R. Mallet, L. Leontie, *Optical and Morphological Properties of P3HT and P3HT: PCBM Thin Films Used in Photovoltaic Applications*, IOP Conf. Series: Materials Science and Engineering 374 (2018) 012015
27. M. Socol, N. Preda, O. Rasoga, C. Breazu, I. Stavarache, F. Stanculescu, G. Socol, F. Gherendi, V. Grumezescu, G. Popescu-Pelin, **M. Girtan**, N. Stefan, *Flexible heterostructures based on metal phthalocyanines thin films obtained by MAPLE*, Applied Surface Science, 374 (2016), 403-410
28. A. Stanculescu, G. Socol, L. Vacareanu, M. Socol, O. Rasoga, C. Breazu, **M. Girtan**, F. Stanculescu, *MAPLE preparation and characterization of mixed arylenevinylene based oligomers:C60*, Applied Surface Science, 374, (2016), 278-289
29. **M. Girtan**, *Study of charge carriers' transport in organic solar cells by illumination area shifting*, Solar Energy Materials & Solar Cells 160 (2017) 430–434
30. **M. Girtan**, L. Hrostea, M. Boclinca , B. Negulescu , *Study of oxide/metal/oxide thin films for transparent electronics and solar cells applications by spectroscopic ellipsometry*, AIMS Materials Science, 4(3) (2017) 594-613
31. S. Antohe, S. Iftimie, L. Hrostea, V.A. Antohe, **M. Girtan**, *A Critical Review of Photovoltaic Cells Based on Organic Monomeric and Polymeric Thin Film Heterojunctions*, Thin Solid Films, 642 (2017) 219-231
32. L. Hrostea, M. Boclinca, M. Socol, L. Leontie, A. Stanculescu, **M. Girtan**, *Oxide/metal/oxide electrodes for solar cell applications*, Solar Energy, 146 (2017) 464–469
33. A. Stanculescu, O. Rasoga, M. Socol, L. Vacareanu, M. Grigoras, G. Socol, F. Stanculescu, C. Breazu, E. Matei, N. Preda, **M. Girtan**, *MAPLE prepared heterostructures with oligoazomethine: fullerene derivative mixed layer for photovoltaic applications*, Applied Surface Science, 417, (2017), 183-195
34. M. Socol, N. Preda, A. Stanculescu, C. Breazu, C. Florica, F. Stanculescu, S. Iftimie, **M. Girtan**, G. Popescu-Pelin, G. Socol, *Organic heterostructures deposited by MAPLE on AZO substrate*, Applied Surface Science, 417, (2017), 196-203
35. A. Aukštulis, **M. Girtan**, G.A. Mousdis, R. Mallet, M. Socol, M.S. R., A. Stanculescu, *Measurement of Charge Carrier Mobility in Perovskite Nanowire Films by Photo-Celiv Method*, Romanian Academy Series A, 18, 1/(2017), pp. 34–41
36. C. Breazu, N. Preda, M. Socol, F. Stanculescu, E. Matei, I. Stavarache, G. Iordache, **M. Girtan**, O. Rasoga, A. Stanculescu, *Investigations on the properties of a two-dimensional nanopatterned metallic film*, Digest Journal of Nanomaterials and Biostructures Vol. 11, No. 4, (2016), 1213 – 1229
37. O. Maalej, J. Merigeon, B. Boulard, **M. Girtan**, *Visible to near-infrared down-shifting in Tm<sup>3+</sup>-doped fluoride glasses for solar cells efficiency enhancement*, Optical Materials, 60 (2016) 235–239
38. M. Socol, N. Preda, O. Rasoga, C. Breazu, I. Stavarache, F. Stanculescu, G. Socol, F. Gherendi, V. Grumezescu, G. Popescu-Pelin, **M. Girtan**, N. Stefan, *Flexible heterostructures based on metal phthalocyanines thin films obtained by MAPLE*, Applied Surface Science, 374 (2016), 403-410

39. A. Stanculescu, G. Socol, L. Vacareanu, M. Socol, O. Rasoga, C. Breazu, **M. Girtan**, F. Stanculescu, *MAPLE preparation and characterization of mixed arylenevinylene based oligomers:C60*, Applied Surface Science, 374, (2016), 278-289
40. P. Koralli, S. F. Varol, M. Komkitsas, **M. Girtan**, *Brightness of Blue/Violet Luminescent Nano-Crystalline AZO and IZO Thin Films with Effect of Layer Number: For High Optical Performance*, Chin. Phys. Lett. Vol. 33, No. 5 (2016) 056801
41. W. Saidi, N. Hfaidh, **M. Girtan**, A. Megriche, M. El Maaoui, *Effect of B<sub>2</sub>O<sub>3</sub> addition on optical and structural properties of TiO<sub>2</sub> as a new blocking layer for multiple dye sensitive solar cell application (DSSC)*, RSC Advances, (2016), 6, 68819-68826
42. J. Merigeon, O. Maalej, B. Boulard, A. Stanculescu, L. Leontie, D. Mardare, **M. Girtan**, *Studies on Pr<sub>3+</sub>-Yb<sub>3+</sub> codoped ZBLA as rare earth down convertor glasses for solar cells encapsulation*, Optical Materials, 48, (2015) p.243-246
43. M. Socol, O. Rasoga, C. Breazu, G. Socol, N. Preda, I. Pasuk, D. Visan, I. Stavarache, F. Gherendi, **M. Girtan**, U. Sidwaba, *Heterostructures based on small molecules organic compounds*, Digest Journal of Nanomaterials and Biostructures, in print 10 (4), (2015).
44. S. Iftimie, R. Mallet, J. Merigeon, L. Ion, **M. Girtan**, S. Antohe, *On the structural, morphological and optical properties of ITO, ZnO, ZnO:Al and NiO thin films obtained by thermal oxidation* Digest Journal of Nanomaterials and Biostructures, 10, 1, (2015) p.221-229
45. C. Adomnitei , S. Tascu , D. Luca , M. Dobromir , **M. Girtan**, D. Mardare, *Nb doped TiO<sub>2</sub> thin films as photocatalytic materials*, Bulletin of Materials Science Vol. 38, No. 5, (2015) p.1259-1262
46. **M. Girtan**, *Is photonics the new electronics?*, Materials Today, 17, Is. 3, (2014), p.100-101
47. O. Toma, L. Ion, **M. Girtan**, S. Antohe, *Optical, morphological and electrical studies of thermally vacuum evaporated CdTe thin films for photovoltaic applications*, Solar Energy, 108 (2014) p.51–60
48. **M. Girtan**, R. Mallet, *On the electrical properties of transparent electrodes*, Proceedings of the Romanian Academy, Series A, Vol.15, No. 2 (2014), p.146–150
49. R. Danac, L. Leontie, **M. Girtan**, M. Prelipceanu, A. Graur, A. Carlescu, G.I. Rusu *On the direct current electric conductivity and conduction mechanism of some stable disubstituted 4-(4-pyridyl)pyridinium ylides in thin films* Thin Solid Films, 556 (2014) p.216-222
50. L. Leontie, I. Evtodiev, N. Spalatu, M. Caraman, S. Evtodiev, O. Racovet, **M. Girtan**, C. Focsa *Optical and photosensitive properties of lamellar nanocomposites obtained by Cd intercalation of GaTe* Journal of Alloys and Compounds, 584 (2014) p.542-545
51. **M. Girtan** *On the stability of the electrical and photoelectrical properties of P3HT and P3HT:PCBM blends thin films* Organic Electronics, 14 (1), (2013) p.200-205
52. **M. Girtan**, A. Vlad, R. Mallet, M.A. Bodea, J.D. Pedarnig, A. Stanculescu, D. Mardare, L. Leontie, S. Antohe *On the properties of aluminium doped zinc oxide thin films deposited on plastic substrates from ceramic targets* Applied Surface Science, 274 (2013) p.306-313

53. Antohe, L. Ion, **M. Girtan**, O. Toma *Optical and Morphological Studies of Thermally Vacuum Evaporated ZnSe Thin Films* Romanian Reports in Physics, 65, 3 (2013) p.805-811
54. C. Adomnitei, D. Luca, **M. Girtan**, I. Sandu, V. Nica, A.V. Sandu, D. Mardare *Nb-doped TiO<sub>2</sub> thin films deposited by spray pyrolysis method* Journal of Optoelectronics and Advanced Materials, Vol.15, 5-6, (2013) p.519-522
55. A.V. Manole, M. Dobromir, **M. Girtan**, R. Mallet, G. Rusu, D. Luca *Optical properties of Nb-doped TiO<sub>2</sub> thin films prepared by sol-gel method* Ceramics International, 39(5) ( 2013) p.4771-4776
56. **M.Girtan**, *Comparison of ITO/metal/ITO and ZnO/metal/ZnO Characteristics as Transparent Electrodes for Third Generation Solar Cells* Solar Energy Mat. & Solar Cells 100 (2012) p.153-161
57. I. Vaiciulis, **M. Girtan**, A. Stanculescu, L. Leontie, F. Habelhames, S.Antohe, *On titanium oxide spray deposited thin films for solar cells applications* Proceedings of the Romanian Academy, Series A, 13,4/2012, p.335 -342
58. F. Stanculescu, Anca Stanculescu, **M. Girtan**, Marcela Socol, Oana Rasoga, *Effect of the morphology on the optical and electrical properties of polycarbonate film doped with aniline derivatives monomers*, Synthetic Metals, 161 (23-24) (2012) p.2589 – 2597
59. D. Mardare, A. Yildiz, **M. Girtan**, A. Manole, M. Dobromir, M. Irimia, C. Adomnitei, N. Cornei, D. Luca *Surface Wettability of Titania Thin Films with Increasing Nb Content* Journal of Applied Physics, 112 Is. 7, art. no. 073502 (2012)
60. L. Leontie, R. Danac, **M. Girtan**, A. Carlescu, A. P. Rambu, Gh. I. Rusu *Electron transport properties of some new 4-tert-butylcalix[4]arene derivatives in thin films* Materials Chemistry and Physics, 135 (1), (2012) p.123-129
61. M. Soylu, **M.Girtan**, F. Yakuphanoglu *Properties of PEDOT:PEG/ZnO/p-Si heterojunction diode* Materials Science and Engineering B, 177, 11 (2012) p.785-790
62. F. Habelhames, **M. Girtan**, A. Manole, L. Lamiri, Z. Wided, N. Belkacem *Enhancement of photoelectrochemical and optical characteristics using a TiO<sub>2</sub> nanoparticles interlayer in MEH-PPV heterojunction devices* Technical Proceedings of the 2012 NSTI Nanotechnology Conference and Expo, NSTI-Nanotech 2012 , pp. 420-423
63. S. Iftimie, A. Radu, M. Radu, C. Besleaga, I. Pana, S. Craciun, **M.Girtan**, L. Ion, S. Antohe, *Influence of PEDOT:PSS layer on the performances of "bulk-heterojunction" photovoltaic cells based on MEH-PPV:PCBM(1:4) polymeric blends*, Digest Journal of Nanomaterials and Biostructures, 6, Is. 4, (2011), p.1631-1638
64. A. Stanculescu, M. Socol, G. Socol, I. N. Mihailescu, F. Stanculescu, **M. Girtan** *Maple Prepared Organic Heterostructures for Photovoltaic Applications*, Applied Physics A-Materials Science & Processing 104 (3) (2011) p.921-928
65. A. Stanculescu, L. Vacareanu, M. Grigoras, M. Socol, G. Socol, F. Stanculescu, N. Preda, E. Matei, I. Ionita, **M. Girtan**, I. N. Mihailescu *Thin Films of Arylenevinylene Oligomers Prepared by Maple for Applications in Non-Linear Optics*, Applied Surface Science 257 (2011) p.5298-5302

66. A. Radu, S.Iftimie, V. Ghenescu, C. besleaga, V.A. Antohe, G.Bratina, L.Ion, S.Craciun, **M.Girtan**, S.Antohe *The influence of LiF layer abd ZnO nanoparticels addings on the performances of flexible photovoltaic cells based on polymer blends*, Digest Journal of Nanomaterials and Biostructures, Vol 6, no 3 (2011) p.1141-1148
67. F-Z. Ghomrani, S.Iftimie, N. Gabouze, A. Serier, M.Socol, A. Stanculescu, F. Sanchez, S.Antohe, **M.Girtan** *Influence of Al Doping Agents Nature on the Physical Properties of Al:ZnO Films Deposited by Spin-Coating Technique* Optoelectronics and Advanced Materials – R. Comm. Vol 5. Is.3 (2011) p.247-251
68. A. Stanculescu, M. Socol, G. Socol, I.N. Mihailescu, **M. Girtan**, N.Preda, A.-M. Albu, F. Stanculescu, *Effect of maleic anhydride-aniline derivative buffer layer on the properties of flexible substrate heterostructures: Indium tin oxide/nucleic acid base/metal*, Thin Solid Films, 520 (4) (2011) p.1251-1258
69. **M. Girtan**, M. Rusu *Role of ITO and PEDOT:PSS in Stability/Degradation of Polymer : Fullerene Bulk Heterojunctions Solar Cells* Solar Energy Materials and Solar Cells 94 (3) (2010) p.446 – 450
70. **M. Girtan**, M. Socol, B. Pattier, M. Sylla, A. Stanculescu *On the Structural, Morphological, Optical and Electrical properties of Sol-Gel Deposited ZnO:In Films* Thin Solid Films 519 (2), (2010) p.573-577
71. F. Habelhames, B. Nessark, **M. Girtan**, *Electrosynthesis of organic-inorganic compounds (p-n heterojunction)* Materials Science in Semiconductor Processing 13 (2010) p.141-146
72. A. Stanculescu, A. M. Albu, G. Socol, F. Stanculescu, M. Socol, N. Preda, O. Rasoga, **M. Girtan**, I. Iulian *MAPLE deposited thin monomer films of maleimidic derivatives for photonics* Journal of Optoelectronics and Advanced Materials, 12 (3) (2010) p.731-736
73. M. Socol, O. Rasoga, F. Stanculescu, **M. Girtan**, A. Stanculescu, *Effect of the morphology on the optical and electrical properties of TPyP thin films deposited by vacuum evaporation*, Optoelectronics and Advanced Materials – R. Comm., 4, (12), (2010), p.2032-2038
74. **A. Taouri**, H. Derbal, R. Mountasser, **M. Girtan**, A. Stanculescu, **M. Sylla** *Study of multiphoton absorption processes in a perylene diimide derivative using thermal lensing technique* Optoelectronics and Advanced Materials – R. Comm., 4 (1), (2010) p.83-85
75. **M. Girtan**, M. Kompitsas, R. Mallet, I. Fasaki *On Physical Properties of Undoped and Al and In Doped Zinc Oxide Films Deposited on PET Substrates by Reactive Pulsed Laser Deposition* European Physical Journal - Applied Physics 51, 3, (2010) art.no. 33212
76. D. Mardare, F. Iacomi, N. Cornei, **M. Girtan**, D. Luca *Undoped and Cr-Doped TiO<sub>2</sub> Thin Films Obtained by Spray Pyrolysis* Thin Solid Films 518 (2010) p.4586-458
77. **M. Girtan**, R. Mallet, D. Caillou, G. G. Rusu, M. Rusu, *Thermal stability of poly(3,4-ethylenedioxytiophene)-polystyrenesulfonic acid films electrical properties*, Superlattices and Microstructures, 46 (1-2), (2009) p.44-51
78. N. Iftimie, D. Luca, F. Iacomi, **M. Girtan**, D. Mardare *Gas sensing materials based on TiO<sub>2</sub> thin films* Journal of Vacuum Science and Technology B 27 (1) (2009) p.538-541

79. **M. Girtan**, S. Dabos-Seignon, A.Stanculescu *On morphological, structural and electrical properties of vacuum deposited pentacene thin films*, Vacuum 83 (9), (2009) p.1159-1163
80. Bruno Pattier, M. Henderson, A. Kassiba, **M. Girtan**, A. Gibaud *EPR and SAXS studies of a TiO<sub>2</sub>-based gel* 2009 3rd ICTON Mediterranean Winter Conference, art. no. 5385592
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1. **M. Girtan**, (auteur unique) *Future Solar Energy Devices*, ISBN 978-3-319-67337-0 , Springer (2018), 102 pages
2. J. Hladik, **M. Girtan**, H. Adam, J. L. Guignard, et al. *Les énergies renouvelables aujourd'hui et demain*, Ellipses, ISBN-10: 2729864482, ISBN-13: 978-2729864484, (2011) 520 pages
3. Felicia Iacomi, Diana Mardare, **M. Girtan**, *FIZICĂ GENERALĂ - Lucrări de laborator. Întrebări*. Probleme Editura Gama, Iasi, 1997, ISBN 973-97937-9-7

#### INVITED TALKS (37)

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##### Conferences and webinars

1. M. Girtan, Photovoltaic and photonic perovskite-based systems for green energy transition and sustainable development, 2nd Conference on green engineering, sustainable materials and technologies for circular economy, plenary lecture, 24 April 2025, Skopje, Macedonia

2. M.Girtan, Next materials for future optoelectronics and photonics devices, ROCAM Invited talk, 15-18 July 2024 Bucharest Romania
3. M.Girtan, On the Properties of Perovskites Thin Films for Solar Cells, 26th Congress of SCTM 20-23 September 2023, Ohrid, Macedonia
4. M.Girtan, On the physical properties of MAPbI<sub>3</sub> perovskites thin films as highly applicative materials for the fourth generation solar cells, Modtech 14-17 June 2023 (web) Bucharest Romania
5. M.Girtan, Next materials for future photonics devices , EMRS, 2nd June 2023, Symp. O, Strasbourg, France
6. M. Girtan, La crise énergétique les solutions du futur, Centre, Innofeit, Faculté d'électrotechnique et des technologies d'information, Skopje, 6 December 2022
7. M.Girtan, Oxide/Metal/Oxide as transparent electrodes for perovskite and organic solar cells, Invited speaker TCM-TOEO, 8th International Symposium on Transparent Conductive Materials & 12th International Symposium on Transparent Oxide and Related Materials for Electronics and Optics , 16-21 October 2022, Hersonissos, Crete
8. M.Girtan, From Electronics and Photonics Towards Plasmonics and Future Solar Energy Devices, Invited keynote lecture ECAI-2022, IEEE, 14th International conference on Electronics, Computers and Artificial Intelligence, 30 June 2022, Ploiesti
9. M.Girtan, On the Physical Properties of CH<sub>3</sub>NH<sub>3</sub>PbI<sub>3</sub> Thin Films for Solar Energy Conversion Systems (Web), Invited talk, 3rd June 2021, EMRS , Strasbourg
10. M.Girtan, Understanding the energy concept and the perspectives for future solar energy devices (Web), Invited talk, 24 March 2021, Pristina, Kosovo
11. M.Girtan, Les energies vertes en France et en Europe (Web), 27 November 2020, Skopje, Macedonia
12. M.Girtan, Plenary talk, Invited lecture, The 8th International Conference on Modern Manufacturing Technologies in Industrial Engineering, Modtech, Eforie Nord 23-27 June 2020
13. M. Girtan, Electronics and photonics towards new solar energy devices, 26 February 2020, Utrecht, Netherlands
14. M. Girtan, *Future solar energy devices*, 20-th International Conference-School Advanced Materials and Technologies, August 27-31, 2018, Palanga, Lithuania, Invited lecture, Chair person
15. M. Girtan, L. Hrostea, B. Negulescu, *Ellipsometric modelling in the optimization of thin films fabrication processes*, Invited lecture, Training School 6-8 February 2018, Sofia, Invited lecture
16. M. Girtan , B. Negulescu, L. Hrostea , M. Boclinca , *Reduction and replacement of critical raw material used for transparent electrodes in flat screens, transparent electronics and solar cells*, EMRS-fall Meeting, 18-21 September 2017, Warsaw, Invited lecture
17. M. Girtan, *Solar cells and photonic devices*, Invited talk, ROCAM, 11-14 July, 2017, Bucharest, Invited lecture, Chair person

18. M. Girtan, *Electronics and photonics towards plasmonics and new solar energy devices*, PAMS-2, Cluj-Napoca, 8-14 Sept. 2016, Invited lecture
19. M. Girtan, *Electronics and photonics towards plasmonics and new solar energy devices*, International Year of Light 2015, 70<sup>th</sup> anniversary of UNESCO, "Lights of the World" Bucharest, 30 Oct. - 1 Nov. 2015, Invited lecture, Chair person
20. M. Girtan, *On the Electrical and Photoelectrical Properties of Conducting Polymers for Organic Solar Cells*, International Summer School on Materials for Energy Conversion, 6-11 July, 2015, Bucharest, Romania, Invited lectures
21. M. Girtan, *Trends in the new generation solar cells research*, ROCAM, 7-10 July 2015, Bucharest, Romania, Invited lecture, Chair person
22. M. Girtan *Electronics and Photonics: Two Sciences in the Benefit of Solar Energy Conversion* Advanced Workshop on Solar Energy Conversion, 21-23 May, 2012, Bucharest Invited lecture
23. M. Girtan *The Role and the Properties of Organic and Inorganic Transparent Conducting Films for Organic and Hybrid Solar Cells* 10th International Symposium on Advanced Organic Photonics, 1<sup>st</sup> International Symposium in Super-hybrid Materials, 28<sup>th</sup>Sept. - 2<sup>nd</sup> Oct. 2010, Tokyo, Japan, Invited lecture, Chair person
24. M. Girtan *Transparent conductors for organic electronics applications* Japan-Europe Joint Workshop -The 9th International Symposium on Advanced Organic Photonic, ISAOP-9, 3<sup>rd</sup> and 4<sup>th</sup> Sept. 2009, Bunratty, Shannon, Ireland, Invited lecture

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#### Seminars

25. M.Girtan, Manufactured technologies for solar cells fabrication: from first to third generation , Al. Cuza University, Iasi, 8 December 2021
26. M. Girtan, *Ellipsometric modelling as a solution to reduce the experimental tests and the waste of materials in the optimization of multilayers thin films fabrication process*, 08/11/2018, Invited seminar, Dublin Institute of Technology
27. M. Girtan, *Solar energy and photonics devices*, Invited seminar, 22/08/2018, Uppsala University
28. M. Girtan, *Solar energy conversion systems*, Invited seminar, 14/06/2018, Dublin Institute of Technology
29. M. Girtan, *Future solar energy devices*, Invited seminar, 11/06/2018, Trinity College Dublin
30. M. Girtan, *Solar cells and photonics devices*, Invited seminar, 24/05/2018, INSA – Rennes
31. M. Girtan, *Trends on the new generation solar cells research*, Invited seminar, 19/12/2016, Vilnius University

32. M. Girtan, *On the polymer : fullerene organic solar cells*, 05/03/2014, Physics Department, University College Dublin
33. M. Girtan, *On the electrical and photo-electrical properties of some conducting polymers used in organic solar cells*, 12/07/2013, Department of Chemistry, University of Athens
34. M. Girtan, *On the stability of the electrical and photoelectrical properties of P3HT:PCBM solar cells thin films components*, 29/10/2012, National Hellenic Research Foundation, Athens
35. M. Girtan, *Transparent and conducting thin films with applications in organic solar cells*, 30/07/2010, National Institute of Materials Physics, Bucharest, Romania
36. M. Girtan, *Le rôle des oxydes transparents et conducteurs dans les cellules solaires de troisième génération*, 17/06/2010, XLIM, Limoges
37. M. Girtan, *Films minces pour électronique plastique. Dispositifs*, 27/04/2010, Institut Charles Sadron, Strasbourg

#### INTERNATIONAL CONFERENCES - (153)

1. M.Girtan, Trends in the research of solar cells of new generation, International Day of Light, Webinar Eu Green Alliance, 16 mai 2024
2. 201. V. Sprincean, L. Leontie, O. Lupan, R. Adelung,, M. Girtan, S. Gurlui, A. Carlescu, M. Caraman, Preparation and optical properties of  $\beta$ -Ga<sub>2</sub>O<sub>3</sub>/ZnO nanocomposite as a photocatalyst for the efficient degradation of organic compounds under the action of ultraviolet radiation EMRS, 2nd June 2023, Symp. C, Strasbourg, France (p)
3. M.Girtan, R. Mallet, M.Socol, A.Sanculescu, *Organic semiconductors thin films as alternative transparent conductors*, (Web), 1<sup>st</sup> June 2021, EMRS, Symp. C., Strasbourg
4. M.Girtan, R. Mallet, *On the photoelectrical properties of MAIPbI<sub>2</sub> perovskites thin films*, NanoGe, 4-8 November 2019, Berlin (p)
5. M. Girtan, *Technologies for future solar energy devices*, ModTech, 19-22 June 2019, Iasi, (o)
6. M. Girtan, L. Hrostea, I. Leontie, *Ellipsometric modelling as a solution to the optimization of thin films devices fabrication process*, ModTech, 19-22 June, 2019 Iasi (o)
7. J. Walshe, G. Amarandei, J. Doran, M. Girtan, *Development of Plasmonic Enhanced Luminescent down Shifting (pLDS) and 'Bragg-Type' Layers for Photovoltaic Applications*, 20<sup>th</sup> International Conference-School Advanced Materials and Technologies, Aug. 27-31, 2018, Palanga, Lithuania (p)
8. M. Girtan, *Future Solar Energy Devices*, SPIE Photonics Europe, 22-26 April 2018, Strasbourg (Spie Digital libray oral video presentation available) (o)
9. M. Girtan, *Electronics and photonics towards plasmonics and new solar energy devices*, SPIE Photonics Europe, 22-26 April 2018, Strasbourg (p)

10. M. Girtan, *Abundance and scarcity of elements on earth and universe*, EMRS-fall Meeting, 18-21 September 2017, Warsaw (p)
11. L. Hrostea, M.L. Grilli, M. Girtan, *Indium free Oxide/Metal/Oxide for solar cell applications*, EMRS-fall Meeting, 18-21 September 2017, Warsaw (p)
12. M. Girtan, *Trends in the new generation solar cells research*, ICPAM, 8-14 Sept. 2016, Cluj-Napoca, Romania (o)
13. M. Boclinca, L. Hrostea, B. Negulescu , A. Stanculescu, L. Leontie, M. Girtan, *On the physical properties of TiO<sub>2</sub>/Au/TiO<sub>2</sub> multilayer films structures*, ICPAM, 8-14 Sept. 2016 Cluj-Napoca, Romania (p)
14. L. Hrostea, M. Boclinca, M. Socol, R. Mallet, L. Leontie, M. Girtan, *Optical, structural and morphological properties of Bi<sub>2</sub>O<sub>3</sub>/Au/Bi<sub>2</sub>O<sub>3</sub> multilayer films structures*, ICPAM, 8-14 Sept. 2016 Cluj-Napoca, Romania (p)
15. M. Girtan, *The influence of metallic cathode geometry on the performances of organic solar cells*, EMRS, 2-6 mai, 2016, Lille, France, Symp. T (p)
16. J. Merigeon, O. Maalej, B. Boulard, M. Girtan, *Rare Earth Down Convertor Glasses for Solar Cells Encapsulation*, EMRS, 2-6 mai, 2016, Lille, France, Symp. T (p)
17. M. Girtan, G. Mousdis, et all, *Studies of the morphological and optical properties of CH<sub>3</sub>NH<sub>3</sub>PbI<sub>3</sub> nanowires prepared by spin-coating*, EMRS, 2-6 mai, 2016, Lille, France, Symp. T (p)
18. M. Girtan, A. Stanculescu, M. Socol, M. Kompitsas, *Indium free transparent electrodes for solar cells and plastic electronics*, EMRS, 2-6 mai, 2016, Lille, France, Symp. E (o)
19. Saidi Wassila, El Maaoui Mohamed, Mohammed S. Rasheed, M. Girtan, *Sol-gel synthesis, structural and optical properties of boron-doped TiO<sub>2</sub> thin films deposited on ITO glass substrates*, ROCAM, 7-10 July 2015, Bucharest, Romania (p)
20. M. Girtan, *Electronics and Photonics Towards Plasmonics and New Solar Energy Devices* Nano2014, 12<sup>th</sup>-18<sup>th</sup> August 2014, Moscow, Russia (o)
21. M. Girtan, *Electrical resistivity dependences on temperature and solar irradiation flow of some conducting polymers used in organic solar cells*, Nano2014, 12<sup>th</sup>-18<sup>th</sup> Aug. 2014 Moscow, Russia (o)
22. M. Girtan, *The influence of the distance between irradiation area and cathode position on the performances of P3HT : PCBM and PCDTBT : PCBM solar cells* TCM 2014, 12-17 Oct. 2014 (p)
23. S. Iftimie, R. Mallet, L. Ion, S. Antohe, J. Merigeon, M. Kompitsas, G. Sakellariou, G. Vougioukalakis, M. Girtan *On the properties of ITO, ZnO, ZnO:Al and NiO thin films obtained by thermal oxidation* TCM 2014, 12-17 October 2014 (p)
24. J. Merigeon, R. Mallet, S. Iftimie, M. Girtan *Studies and optimizations of encapsulation antireflection glasses for silicon solar cells panels*, TCM 2014, 12-17 October 2014 (p)
25. M. Girtan, *Electronics and Photonics: Two Sciences in the Benefit of Solar Energy Conversion*, Solar Energy for World Peace, Istanbul, Turkey, 17-19 August 2013 (o)

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31. M. Girtan, *Electronics and Photonics: Two Sciences in the Benefit of Solar Energy Conversion*,EMRS, 27-31, May, 2013, Strasbourg, France, Symp. F (o)
32. M. Girtan, *On the electrical properties stability of transparent conducting electrodes for third generation solar cells*,EMRS, 27-31, May, 2013, Strasbourg, France, Symp. O (o)
33. M. Girtan, *New photoelectrical properties of P3HT:PCBM blend thin films* ,EMRS, 27-31, May, 2013, Strasbourg, France, Symp. B (p)
34. M. Girtan, *Electronics and Photonics: Two Sciences in the Benefit of Solar Energy Conversion*, 4th International Symposium on Transparent Conductive Materials, 21-26 October, 2012, Crete (o)
35. M. Girtan, R. Mallet, A. Stanculescu, L. Leontie, I. Vaiciulis, M. Kompitsas, D. Mardare, S. Antohe *Electrical and optical properties of Transparent Oxide/Metal/Oxide Multilayer Films Deposited on Glass and PET substrates* 4<sup>th</sup> International Symposium on Transparent Conductive Materials, 21-26 October,2012, Crete, Greece (p)
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39. I.Vaiciulis, M. Girtan, A. Stanculescu *On the Surface Properties of Titanium Oxide Thin Films Deposited by Spin Coating and Spray Pyrolysis* The 7<sup>th</sup> International Conference on Advanced Materials, ROCAM, 28-31 August 2012 (p)
40. M. Girtan *Comparison of ITO/metal/ITO and ZnO/metal/ZnO transparent electrodes for plastic solar cells*,EMRS, 14-18, May, 2012, Strasbourg, France (p)

41. M. Girtan, A.Stanculescu, O. Rasoga, B. Pattier, M. Sylla, A. Monteil *Sol-Gel Deposited In: ZnO Films for Solar Cells Applications* ROCAM, 25-28, August 2009, Brasov, Romania (o)
42. M. Girtan, M. Kompitsas, R. Mallet, I. Fasaki *On physical Properties of Undoped, Al and In Doped ZnO Films Deposited on PET Substrates by PLD* 2nd International Symposium on Flexible Organic Electronics (IS-FOE09), 8-10 July 2009, Porto Carras, Greece (o)
43. M. Girtan, A.Vlad, D. Mardare, A. Stanculescu *Pulsed laser deposited Aluminium Doped zinc Oxide Films on PET Substrates*, European Materials Research Society - EMRS, 8-12 June, 2009 Strasbourg, France, Symp F (p)
44. D. Mardare, F. Iacomi, N. Cornei, M. Girtan, D. Luca, *Undoped and Cr-Doped TiO<sub>2</sub> Thin Films Obtained by Spray Pyrolysis* European Materials Research Society - EMRS, 8-12 June, 2009 Strasbourg, France, Symp H (p)
45. A. Stanculescu, M. Socol, O. Rasoga, F. Stanculescu, G. Socol, M. Nistor, M. Girtan, M. Sylla, A-M. Albu *Transport Properties in Organic heterostructures for Transparent Optoelectronics* European Materials Research Society - EMRS, 8-12 June, 2009 Strasbourg, France, Symp F
46. M. Girtan, G.G.Rusu, Mihaela Rusu *Thermal stability of poly(3,4-ethylenedioxytiophene)-polystyrenesulfonic acid electrical properties*, Nano SEA 2008, Second International Conference on Nanostructures Self-Assembly, Rome 7-10 July, Italy (p)
47. M. Girtan, *Structural and Optical properties of In doped ZnO thin films*, IS-TCO, 2nd International Symposium on Transparent Conductive Oxides, 22-26 October 2008, Crete, Greece (p)
48. M. Girtan, G.G.Rusu, *Role of ITO and PEDOT:PSS in Stability / Degradation of Polymer: Fullerene BHJ Solar Cells* ICPAM-8, June 4-7, 2008, Iasi, Romania (p)
49. M. Girtan, S. Dabos-Seignon *Properties of thermal vacuum deposited pentacene films*, E-MRS 2007 Spring Meeting, Strasbourg, May 28-June 1st, 2007 (p)
50. M. Girtan, Sylvie Dabos – Seignon, J.M. Nunzi *On the Physical Properties of Pentacene Thin Films* 6th Iberian Vacuum Meeting IVM-6, June 26-28, 2006, Salamanca, Spain (p)
51. G. G. Rusu, M.Rusu, M. Girtan, *Optical Characterization of Vacuum Evaporated CdZnTe Thin Films Deposited by Stacked Layer Method* 6th Iberian Vacuum Meeting IVM-6, June 26-28, 2006, Salamanca, Spain (p)
52. M. Girtan, P.O. Logerais, Anne Bouteville, S. Gurlui, G.G. Rusu, *Thermal stability of electrical and optical properties of transparent conducting substrates for solar cells* 7th International Balkan Workshop - Applied Physics, July 5-7th, 2006, Constanta, Romania (p)
53. M. Girtan, A.Bouteville, G.G.Rusu, Mihaela Rusu, *F Doped SnO<sub>2</sub> Thin Films Properties* 6th International Balkan WorkShop on Applied Physics Romania, Constanta, July 5-7 2005 (p)
54. M. Girtan, P.O. Logerais, L. Avril, A. Bouteville, F. Gonzatti *Thermal profile evaluation of a silicon wafer in a rapid thermal chemical vapour deposition apparatus* ICPAM-7, International Conference, June, 10-12, 2004, Iași, Romania (p)
55. M. Girtan, *Investigations on the optical constants and Urbach tail parameter of indium oxide thin films prepared by ultrasonic spray pyrolysis* EMRS , 2004, May 24-28, Strasbourg, D/PI.19 (p)

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