

LISTA LUCRARILOR PUBLICATE

a. Lucrari selectate

- P1. L. Sirghi, M. Nakamura, Y. Hatanaka, O. Takai, *Atomic Force Microscopy Study of the Hydrophilicity of TiO₂ Thin Films Obtained by Radio Frequency Magnetron Sputtering and Plasma Enhanced Chemical Vapor Depositions*, Langmuir **17** (2001) 8199-8203.
- P2. L. Sirghi, T. Aoki, Y. Hatanaka, *Hydrophilicity of TiO₂ thin films obtained by radio frequency magnetron sputtering deposition*, Thin Solid Films **422** (2002) 55-61.
- P3. L. Sirghi, Y. Hatanaka, *Hydrophilicity of amorphous TiO₂ ultra-thin films*, Surface Science **530** (2003) L323-L327 (Surface Science Letters)
- P4. L. Sirghi, *Effect of capillary-condensed water on the dynamic friction force at nanoasperity contacts*, Appl. Phys. Lett. **82** (2003) 3755.
- P5. L. Sirghi, G. Popa, Y. Hatanaka, *Heating of polymer substrate by discharge plasma in radiofrequency magnetron sputtering deposition*, Thin Solid Films **515** (2006) 1334-1339.
- P6. L. Sirghi, O. Kylian, D. Gilliland, G. Ceccone, F. Rossi, *Cleaning and Hydrophilization of Atomic Force Microscopy Silicon Probes*, J. Phys. Chem. B **110** (2006) 25975-25981
- P7. L. Sirghi, R. Szoszkiewicz, E. Riedo, *Volume of a Nanoscale Water Bridge*, Langmuir **22** (2006) 1093-1098.
- P8. L. Sirghi, F. Rossi, *Adhesion and Elasticity in Nanoscale Indentation*, Applied Physics Letters **89** (2006) 243118.
- P9. Aurelia Apetrei, L. Sirghi (autor coresp.) *Stochastic Adhesion of Hydroxylated Atomic Force Microscopy Tips to Supported lipid bilayers*, Langmuir **26** (2013) 16098.
- P10. L. Sirghi, V. Tiron, Daniela Ciumac, *Mechanical properties of Atomic Force Microscopy cantilevers with deposited thin films*, Thin Solid Films (2014), DOI: 10.1016/j.tsf.2014.06.027

b. Teza de doctorat:

Contributii la Studiul unor Instabilitati in Plasmele Colizionale Universitatea "Alexandru Ioan Cuza", Iasi 1997, Romania

c. Brevete de inventie

L. Sirghi, V. Tiron, G. Popa, *Instalatie si procedeu de sinteza si control al dopajului cu atomi metalici a straturilor subtiri in descarcarea magnetron pulsata*, Cerere OSIM 1/00735 din 13.12.2011.

d. Carti si capitole in carti

1. *Water Condensation at Nanoscale: An Atomic Force Microscopy Study* (chapter), Lucel Sirghi, *Water Condensation: Processes, Modeling and Control* (Ed. Amimul Ahsan) chapter 2 (pp.71-98) **ISBN:** 978-1-61324-884-3, NOVA Publishers 2011.
https://www.novapublishers.com/catalog/product_info.php?products_id=25606
2. *Atomic Force Microscopy Indentation of Living Cells* (chapter), L. Sirghi, *Microscopy: Science, Technology, Application and Education*, **ISBN (13):** 978-84-614-6189, Formatex Microscopy Series no. 4 (eds.: A. Méndez-Vilas, J. Díaz), Formatex 2010. 433-440.
<http://www.formatex.info/microscopy4/433-440.pdf>
3. *Nanostructured Materials for Advanced Technological Applications: Tantalum pentoxide as a material for biosensors: deposition, properties and applications* (chapter), W. Kulisch, D. Gilliland, Ceccone G., L. Sirghi, H. Rauscher, P. N. Gibson, M. Zurn, F. Bretagnol, F. Rossi, p. 509-524 -NATO Science for Peace Series B: Physics and Biophysics (eds. J. P. Reithmaier, P. Petkov, W. Kulisch, C. Popov) **ISBN:**978-1-4020-9914-4, Springer 2009
http://link.springer.com/chapter/10.1007%2F978-1-4020-9916-8_53
4. *Nanostructured Materials for Advanced Technological Applications: A brief introduction* (chapter), W. Kulisch, R. Freudenstein, A. Ruiz, A. Valsesia, L. Sirghi, J. Ponti, P. Colpo, F. Rossi, p. 3-34, NATO Science for Peace Series B: Physics and Biophysics (eds. J. P. Reithmaier, P. Petkov, W. Kulisch, C. Popov) **ISBN:**978-1-4020-9914-4, Springer 2009
http://link.springer.com/chapter/10.1007%2F978-1-4020-9916-8_1
5. *Atomic Force Microscopy Techniques of Surface Investigation* (chapter) L. Sirghi in *Advances in micro- and nanoengineering* (ed. Irina Kleps, Dan Dascalu, and Jose Kenny) Romanian Academy Publishing House, Bucharest 2004 (**ISBN:** 973-27-1110-8).
6. *Bazele Fizicii Plasmei* G. Popa and L. Sirghi, 320p, Editura Universitatii "Al. I. Cuza", Iasi, Romania, 2000 (**ISBN:** 973-9312-80-2).

e. Lucrari in extenso publicate in reviste ISI

1. *Mechanical properties of Atomic Force Microscopy cantilevers with deposited thin films*, L. Sirghi, V. Tiron, Daniela Ciumac, Thin Solid Films 2014 , DOI: 10.1016/j.tsf.2014.06.027
<http://www.sciencedirect.com/science/article/pii/S0040609014006713>
2. *Stochastic Adhesion of Hydroxylated Atomic Force Microscopy Tips to Supported lipid bilayers*, Aurelia Apetrei, L. Sirghi, Langmuir 26 (2013) 16098.
3. *Microcontact printing and microspotting as methods for direct protein patterning on plasma deposited polyethylene glycol oxide: application to stem cell patterning*, Ana Ruiz, Marzena Zychowicz, Laura Ceriotti, Dara Mehn, Lucel Sirghi, Hubert Ruscher, Ilaria Maneli, Pascal Colpo, Leonora Buzanska, Fracois Rossi, Biomedical Devices 15 (2013) 495.
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5. *Transport mechanisms in capillary condensation of water at single asperity contacts*, L. Sirghi, Langmuir 28 (2012) 2558.
6. *Doping Control of ZnO:Al thin films deposited by high power impulse magnetron sputtering*, V. Tiron, L. Sirghi, G. Popa, Thin Solid Films 520 (2012) 4305.
7. *Plasma cleaning of silicon surface of atomic force microscopy probes*, L. Sirghi, Rom. J. Phys. 56 (2011) 144.
8. *On the development of the morphology of ultrananocrystalline diamond films*. Wilhelm Kulisch, Cyril Popov, Takao Sasaki, Lucel Sirghi, Hubert Rauscher, Francois Rossi, and Johann Peter Reithmaier, Physica Status Solidi A 208 (2011) 70
9. *Inactivation of Bacteria and Biomolecules by Low-Pressure Plasma Discharges*, A. von Keudell, P. Awakowicz, J. Benedikt, V. Raballand, A. Yanguas-Gil, J. Opretzka, C. Flotgen, R. Reuter, L. Byelykh, H. Halfmann, K. Stapelmann, B. Denis, J. Wunderlich, P. Muranyi, F. Rossi, O. Kyliá'n, N. Hasiwa, A. Ruiz, H. Rauscher, L. Sirghi, E. Comoy, C. Dehen, L. Challier, J. P. Deslys, Plasma Processes and Polymers 7, 3-4, 327-352 (2010).
10. *The effect of adhesion on the contact radius in atomic force microscopy indentation*, L. Sirghi, F. Rossi, Nanotechnology 20(36) 365702 (2009).

11. *Atomic force microscopy indentation of fluorocarbon thin films obtained by plasma enhanced chemical deposition at low radio frequency power*, L. Sirghi, A. Ruiz, P. Colpo, F. Rossi, Thin Solid Films **517** (11) 3310-3314 (2009)
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13. *Ion beam sputtering of Ta₂O₅ films on thermoplast substrates as waveguides for biosensors*, W. Kulisch, D. Gilliland, G. Ceccone, L. Sirghi, J. Vac. Scie. Tech. B **27** (3) 1180-1190 (2009).
14. *Fabrication and characterization of protein arrays for stem cell patterning*, L. Ceriotti, L. Buzanska, H. Rauscher, I. Mannelli, L. Sirghi, D. Gilliland, M. Hasiwa, F. Bretagnol, M. Zychowicz, A. Ruiz, S. Bremer, S. Coecke, P. Colpo, F. Rossi, Soft Matter **5** (7) 1406-1416 (2009).
15. *Surface properties of differently prepared ultrananocrystalline diamond surfaces* W. Kulisch,, C. Popov, D. Gilliland, G. Ceccone, L. Sirghi, A. Ruiz, F. Rossi, Diamond and Related Materials **18** 745-749 (2009)
16. *Atomic force microscopy characterization of the chemical contrast of nanoscale patterns fabricated by electron beam lithography on polyethylene glycol oxide thin films*, L. Sirghi, F. Bretagnol, S. Mornet, T. Sasaki, D. Gilliland, P. Colpo, F. Rossi, Ultramicroscopy **109** (3) 222-229 (2009)
17. *Large-scale fabrication of bi-functional Nanostructured Polymer Surfaces for Selective Biomolecular Adhesion*, Mornet, S., Bretagnol, F., Mannelli, I., Valsesia, A., Sirghi, L., Colpo, P., Rossi, F. Small (2008).
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19. *Use of a low-pressure plasma discharge for the decontamination and sterilization of medical devices*, Rossi, F., Kylian, O., Rauscher, H., Gilliland, D., Sirghi, L. Pure and Applied Chemistry **80**, pp. 1939-1951(2008).
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21. *Investigation of the nucleation and growth mechanisms of nanocrystalline diamond/amorphous carbon nanocomposite films*, Kulisch, W., Popov, C., Rauscher, H., Sirghi, L., Sasaki, T., Bliznakov, S., Rossi, F. *Diamond and Related Materials* 17 (2008) pp. 1116-1121.
22. *Probing elasticity and adhesion of live cells by atomic force microscopy indentation*, Sirghi, L., Ponti, J., Broggi, F., Rossi, F. *European Biophysics Journal* 37 (2008) pp. 935-945.
23. *Surface modification of nanocrystalline diamond/amorphous carbon composite films*, Popov, C., Kulisch, W., Bliznakov, S., Ceccone, G., Gilliland, D., Sirghi, L., Rossi, F. *Diamond and Related Materials* 17 (2008) pp. 1229-1234.
24. *Poly(N-isopropylacrylamide) grafted on plasma-activated poly (ethylene oxide): Thermal response and interaction with proteins*, Heinz, P., Brétagne, F., Mannelli, I., Sirghi, L., Valsesia, A., Ceccone, G., Gilliland, D., Landfester, K., Rauscher, H., Rossi, F. (2008) *Langmuir*, 24 (12), pp. 6166-6175.
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30. *Adhesion and elasticity in nanoscale indentation*, Sirghi, L., Rossi, *Applied Physics Letters*, 89 (2006).24318

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37. *"Hydrophilicity of TiO₂ ultra-thin films"*, L. Sirghi and Y. Hatanaka, Surface Science 530 (2003) L323.
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40. *"Formation of nanostructures on surface of SiC by laser radiation"*, A. Medvid, B. Berzina, L. Trinkler, L. Fedorenko, P. Lytvyn, N. Yusupov, T. Yamaguchi, L. Sirghi and M. Aoyama, Phys. Stat. Sol. A (2003).
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F. Comunicari la Conferinta Internationale

- 1) *Turbulence of magnetized plasma column at a floating and current-driving target surface in Pilot-PSI*, L. Sirghi, C. Costin, V. Anita, M. L. Solomon, G. Popa, M. van de Pol, R. S. Al, J. Rapp, International Conference on Phenomena in Ionized Gases (ICPIG 2011) 28AUG-02SEPT 2011, Belfast, Northern Ireland, UK.
- 2) *Plasma cleaning of silicon surface of atomic force microscopy probes*, L. Sirghi, 15th International Conference on Plasma Physics and Applications, JUL 01-04, 2010, Iasi, ROMANIA
- 3) *Probing nonspecific Adhesion in Atomic Force Microscopy Indentation of Living Cells*, L. Sirghi, J. Ponti, S. Gioria, F. Rossi, 7th International Symposium on SPM in Life Sciences, Berlin (Germany), 8-9 October 2008
- 4) *Effect of Molecule Anchoring Positions on the Force-Extension Curves Measured in the Atomic Force Spectroscopy Experiments on Chain Molecules*, L. Sirghi, F. Rossi, AFM BioMed Conference, Barcelona, Spain, April 2007
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- 6) *Investigation of the nucleation and growth mechanisms of nanocrystalline diamond/amorphous carbon nanocomposite films*, Kulisch, W; Popov, C; Rauscher, H; Sirghi, L; Sasaki, T; Bliznakov, S; Rossi, F, 18th European Conference on Diamond, Diamond-Like Materials, Carbon Nanotubes, Nitrides and Silicon Carbide, SEP 09-14, 2007 Berlin GERMANY
- 7) *Surface Modification of Nanocrystalline Diamond / Amorphous Carbon Composite Films*, C. Popov, W. Kulisch, S. Bliznakov, G. Ceccone, D. Gilliland, L. Sirghi, F. Rossi, 18th European Conference on Diamond, Diamond-Like Materials, Carbon Nanotubes, Nitrides and Silicon Carbide, SEP 09-14, 2007 Berlin GERMANY
- 8) *TI Ion beam deposition of tantalum pentoxide thin film at room temperature*, Kulisch, W; Gilliland, D; Ceccone, G; Rauscher, H; Sirghi, L; Colpo, P; Rossi, F, 54th AVS International Symposium and Exhibition, OCT 14-19, 2007, Seattle, (United States of America).

- 9) *Sterilization and Decontamination by Means of O₂/H₂ Low Pressure Microwave Discharge* O. KYLIAN, M. HASIWA, T. SASAKI, D. GILLILAND, L. SIRGHI, H. RAUSCHER, G. CECCONE, F. ROSSI - International Conference on Phenomena in Ionized Gases, Prague (Czech Republic) 2007
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- 12) *Protein and Cell Adhesion on Thermoresponsive pNIPAM Grafted on Plasma-Activated PEO* P. HEINZ; F. BRETAGNOL; M. HASIWA; I. MANNELLI; L. SIRGHI; L. CERIOTTI; A. VALSESIA; G. CECCONE; D. GILLILAND; H.; RAUSCHER; F. ROSSI-International Vacuum Congress-17, 13th-International Conference on Surface Science, International Conference on Nanoscience and Technology 2007, Stckholm
- 13) *Destruction of Biological Contamination by Low Pressure Inductively Coupled Plasma* O. KYLIAN, H. RAUSCHER, L. SIRGHI, D. GILLILAND, G. CECCONE, M. HASIWA, F. FUMAGALLI, F. ROSSI - The 16th International Colloquium on Plasma Processes, Toulouse (France)
- 14) *Surface and Bioproperties of Nanocrystalline Diamond/Amorphous Carbon Nanocomposite Films* -. W. KULISCH, G. CECCONE, D. GILLILAND, L. SIRGHI, F. ROSSI, C. POPOV, S. BLIZNAKOV The International Conference on Metallurgical Coatings and Thin Films, San Diego, California (United States of America).
- 15) *Ti Surface and bioproperties of nanocrystalline diamond/amorphous carbon nanocomposite films*, Kulisch, W; Popov, C; Bliznakov, S; Ceccone, G; Gilliland, D; Sirghi, L; Rossi, F, 5th International Workshop on Semiconductor Gas Sensors (SGS 2006) SEP 10-13, 2006, Ustron, POLAND
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- 21) *Development of rf hollow cathode jet plasma source for application to CVD processing*, T. Ikeda, D. Korzec, L. Sirghi and Y. Hatanaka, XXV International Conference on Phenomena in Ionized Gases 2001, 17-22 July, Nagoya, Japan
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- 23) *AFM study of Chemical Properties of the TiO₂ thin films obtained by rf magnetron discharge sputtering deposition*, L. Sirghi, M. Nakamura and Y. Hatanaka, Plasma Science Symposium 2001/ The 18th Symposium on Plasma Processing, p. 599, Nagoya, Japan.
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- 25) *The cathode end of a dc helium positive column as a place of origination of ionization waves*, L. Sirghi, K. Ohe and G. Popa, ICPIG XXIIIth , Toulouse, France, July 1997, Proceedings Contributed Papers (Ed. M.C. Bordage and A. Gleizes, University Paul Sabatier, Toulouse 1997), Vol. II, p. 66
- 26) *Potential Structure formed at a constriction of a dc helium positive column and its coupling with ionization wave*, L. Sirghi, K. Ohe, G. Popa, The Vth Symp. On Double Layers and Other Plasma Potential Structures, Sendai, Japan, p 83 (Ed. by Sendai "Plasma Forum", Tohoku Univ., World Scientific Publish. Co. Singapore 1996) 83
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Nota:

Lista lucrarilor publicate in reviste de specialitate ISI poate fi verificata in baza de date ISI Thomson Web of Science cu termenii de cautare Sirghi, L (Author)

http://apps.webofknowledge.com/Search.do?product=WOS&SID=Z1oZ9yck2MzuszG6T3m&search_mode=GeneralSearch&prID=b5090dd3-7ddd-4a18-92da-3bce7999277c. Articolul Nr 1 publicat recent in *Thin Solid Films* este publicat doar online si inca nu a fost inclus in baza de date.

Iasi, 18 iulie 2014

conf. dr. habil. Lucel Sirghi