

Curriculum Vitae – December/2013

Fernanda de Sá Teixeira

Education

- 2007-2010** PhD in Sciences (from Electrical Engineering, Microelectronics) - University of Sao Paulo, Brazil
“Low Energy Ion Implantation into Polymers to Develop Conductive Composite Layers for Lithography”
Advisor: Maria Cecília Salvadori
Fellowship – FAPESP (Sao Paulo Research Foundation)
- 2006 - 2007** Master (Electrical Engineering, Microelectronics) - University of Sao Paulo, Brazil
“Electrical Resistivity Anisotropy in Nanostructured Thin Films”
Advisor: Ronaldo Domingues Mansano
- 1999 - 2002** Graduation in Technology in Precision Mechanics
FATEC-SP - Faculty of Technology of Sao Paulo, Brazil
“Injection of impurity pellets into tokamak TCABR with soft X-rays detection system”
Advisor: Álvaro Vannucci
Fellowship – FAPESP (Sao Paulo Research Foundation)
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Professional affiliation and main activities

- Since 2003** Laboratory Specialist - Institute of Physics (Applied Physics Department)
Universidade of Sao Paulo (USP), Brazil
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Technical and Scientific activities

Scanning Electron Microscopy and X-ray Microanalysis; Scanning Probe Microscopy in air (AFM, STM, Kelvin, EFM, Force Modulation, LFM, MFM); Optical Microscopy; Goniometric contact angle measurements; Plasma implantation & deposition; Treatment of surfaces by plasma, Polymer deposition, Electron beam lithography; Nanolithography using contact AFM; RBS (Rutherford Backscattering Spectrometry) analysis; SAXS (Small Angle X-Ray Scattering) analysis; PIXE (Proton Induced X-Ray Emission) analysis; XRD (X-Ray Diffraction) analysis; Mechanical design, drawing and assembling of instrumentation (including instrumentation for vacuum systems); Assembling of simple electronic systems (including sources for plasma); Modeling using Mathcad; Characterization of samples for researchers and companies.

Publications

Papers in refereed scientific journals.

1. "Gold ion implantation into alumina using an 'inverted ion source' configuration."
M. C. Salvadori, F. S. Teixeira, L. G. Sgubin, W. W. R. Araújo, R. E. Spirin, M. Cattani, M. E. Oks, I. G. Brown.
Review of Scientific Instruments, **85**, 02B502 (2014).
2. "Microcavity-array superhydrophobic surfaces: Limits of the model."
M. C. Salvadori, M. R. S. Oliveira, R. Spirin, F. S. Teixeira, M. Cattani, I. G. Brown.
Journal of Applied Physics, **114**, 174911 (2013).
3. "Tooth Tissue Engineering: The influence of hydrophilic surface on nano-crystalline diamonds films for human Dental Stem Cells."
S. E. Duailibi, M. T. Duailibi, L. M. Ferreira, K. I. L. C. Sakmazi, M. C. Salvadori, F. S. Teixeira, A. Pasquarelli, J. Vacanti, P. C. Yelick.
Tissue Engineering. Part A, **19**, 130718041709009 (2013).
4. "Isotropic and anisotropic wrinkling of diamond-like carbon films on polydimethylsiloxane substrates".
F. S. Teixeira, M. C. Salvadori, W. W. R. Araújo, H. J. M. Amorim, M. Cattani, I. G. Brown.
Journal of Applied Physics, **113**, 234904 (2013).
5. "Electrical conductivity of gold-implanted alumina nanocomposite".
M. C. Salvadori, F. S. Teixeira, L. G. Sgubin, M. Cattani, I. G. Brown.
Nuclear Instruments and Methods in Physics Research B, **310**, 32-36 (2013).
6. "Performance of an inverted ion source".
M. C. Salvadori, F. S. Teixeira, L. G. Sgubin, W. W. R. Araújo, R. E. Spirin, E. M. Oks, I. G. Brown.
Review of Scientific Instruments **84**, 023506 (2013).
7. "Tailored SERS substrates obtained with cathodic arc plasma ion implantation of gold nanoparticles into a polymer matrix".
J. Ferreira, F. S. Teixeira, A. R. Zanatta, M. C. Salvadori, R. Gordon, O. N. Oliveira Jr.
Physical Chemistry Chemical Physics **14**, 2050-2055 (2012).
8. "Environmental effects in Kelvin Force Microscopy of modified diamond surfaces".
W. W. R. Araujo, M. C. Salvadori, F. S. Teixeira, M. Cattani, I. G. Brown.
Microscopy Research and Technique **75**, 977-981 (2012).
9. "On the electrical conductivity of Ti-implanted alumina".
M. C. Salvadori, F. S. Teixeira, M. Cattani, A. Nikolaev, K. P. Savkin, E. M. Oks, H.-K. Park, L. Phillips, K. M. Yu, I. G. Brown.
Journal of Applied Physics **111**, 063714 (2012).
10. "Interface tailoring for adhesion enhancement of diamond-like carbon thin films".
M. C. Salvadori, F. S. Teixeira, W. W. R. Araújo, L. G. Sgubin, I. G. Brown.
Diamond and Related Materials **25**, 8-12 (2012).

11. "Annealing effects on nanostructured gold-polymethylmethacrylate composites: Small-angle x-ray scattering analysis."
F. S. Teixeira, M. C. Salvadori, M. Cattani, I. G. Brown
Journal of Applied Physics **111**, 104311 (2012).
12. "Gold nanoparticle formation in diamond-like carbon using two different methods: Gold ion implantation and co-deposition of gold and carbon".
M. C. Salvadori, F. S. Teixeira, W. W. R. Araújo, L. G. Sgubin, R. E. Spirin, M. Cattani, I. G. Brown.
Journal of Applied Physics **112**, 074312 (2012).
13. "Low cost ion implantation technique".
M. C. Salvadori, F. S. Teixeira, L. G. Sgubin, W. W. R. Araújo, R. E. Spirin, E. M. Oks, K. M. Yu, I. G. Brown.
Applied Physics Letters **101**, 224104 (2012).
14. "Electrical Conductivity of platinum-implanted polymethylmethacrylate nanocomposite".
M. C. Salvadori, F. S. Teixeira, M. Cattani, I. G. Brown.
Journal of Applied Physics **110**, 114905 (2011).
15. "Self-neutralized ion-beam".
M. C. Salvadori, F. S. Teixeira, A. Nikolaev, K. P. Savkin, E.M. Oks, P. Spädtke, K. M. Yu, I. G. Brown.
Journal of Applied Physics **110**, 083308 (2011).
16. "Effects of fluoride or nanohydroxiapatite on roughness and gloss of bleached teeth."
A. Freitas, S. B. Botta, F. S. Teixeira, M. C. Salvadori, N. Garone-Netto.
Microscopy Research and Technique **74**, 1069-1075 (2011).
17. "Relationship between surface topography and energy distribution of Er,Cr:YSGG beam on irradiated dentin: and AFM study."
S. B. Botta, P. A. Ana, F. S. Teixeira, M. C. Salvadori, A. B. Matos.
Photomedicine and Laser Surgery **29** (4), 261-269 (2011).
18. "A high voltage pulse power supply for metal plasma immersion ion implantation and deposition".
M. C. Salvadori, F. S. Teixeira, W. W. R. Araújo, L. G. Sgubin, N. S. Sochugov, R. E. Spirin, I. G. Brown.
Review of Scientific Instruments **81**, 124703 (2010).
19. "Structure of disordered gold-polymer thin films using small angle x-ray scattering".
F. S. Teixeira, M. C. Salvadori, M. Cattani, I. G. Brown.
Journal of Applied Physics **108**, 093505 (2010).
20. "Design and fabrication of microcavity-array superhydrophobic surfaces".
M. C. Salvadori, M. Cattani, M. R. S. Oliveira, F. S. Teixeira, I. G. Brown.
Journal of Applied Physics **108**, 024908 (2010).
21. "Design and fabrication of superhydrophobic surfaces formed of microcavities".
M. C. Salvadori, M. Cattani, M. R. S. Oliveira, F. S. Teixeira, I. G. Brown.
Applied Physics Letters **96**, 074101 (2010).

22. "Termination of diamond surfaces with hydrogen, oxygen and fluorine using a small, simple gun".
M. C. Salvadori, W. W. R. Araújo, F. S. Teixeira, M. Cattani, A. Pasquarelli, E. M. Oks, I. G. Brown.
Diamond and Related Materials **19**, 324-328 (2010).
23. "AFM Analysis of Bleaching Effects on Dental Enamel Microtopography".
A. Freitas, L. C. Espejo, S. B. Botta, F. S. Teixeira, M. A. A. C. Luz, A. B. Matos, M. C. Salvadori, N. Garone-Netto.
Applied Surface Science **256**, 2915-2919 (2010).
24. "Gold-implanted shallow conducting layers in polymethylmethacrylate."
F. S. Teixeira, M. C. Salvadori, M. Cattani, I. G. Brown
Journal of Applied Physics **105**, 064313 (2009).
25. "Structural properties of buried conducting layers formed by very low energy ion implantation of gold into polymer."
F. S. Teixeira, M. C. Salvadori, M. Cattani, I. G. Brown
Journal of Applied Physics **106**, 056106 (2009).
26. "Surface plasmon resonance of gold nanoparticles formed by cathodic arc plasma ion implantation into polymer."
F. S. Teixeira, Salvadori, M. C. Salvadori, M. Cattani, S. M. Carneiro, I. G. Brown
Journal of Vacuum Science & Technology. B, Microelectronics and Nanometer Structures Processing, Measurement and Phenomena **27**, 2242 (2009).
27. "Conducting polymer formed by low energy gold ion implantation."
M. C. Salvadori, F. S. Teixeira, , M. Cattani, I. G. Brown
Applied Physics Letters **93**, 073102 (2008).
28. "Anisotropic resistivity of thin films due to quantum electron scattering from anisotropic surface roughness."
M. C. Salvadori, M. Cattani, F. S. Teixeira, R. S. Wiederkehr, I. G. Brown
Journal of Vacuum Science and Technology. Part A. Vacuum, Surfaces and Films **25**, 330 – 333 (2007).
29. "Atomic force microscope nanolithography of polymethylmethacrylate."
F. S. Teixeira, R. D. Mansano, M. C. Salvadori, M. Cattani, I. G. Brown.
Review of Scientific Instruments **78**, 053702 (2007).
30. "Critical parameters determination of sonic flow controller diamond microtubes and micronozzles."
S. S. Mammana, F. T. Degasperi, M.C. Salvadori, M. F. Laino, R. C. Rangel, F. S. Teixeira, M. Cattani.
Journal of Vacuum Science & Technology. B, Microelectronics and Nanometer Structures Processing, Measurement and Phenomena **25**, 1804 - 1807, (2007).
31. "Electrical resistivity of very thin metallic films with isotropic and anisotropic surfaces."
M. Cattani, M. C. Salvadori, F. S. Teixeira, R. S. Wiederkehr, I. G. Brown.
Surface Review and Letters **14**, 345 - 356 (2007).

32. "Influence of Electron Scattering from Morphological Granularity and Surface Roughness on Thin Film Electrical Resistivity."
M. Cattani, A. R. Vaz, R. S. Wiederkehr, F. S. Teixeira, M. C. Salvadori, I. G. Brown.
Surface Review and Letters **14**, 87 - 91 (2007).
33. "Small plasma source for materials application."
A. Vizir, E. M. Oks, M. C. Salvadori, F. S. Teixeira, I. G. Brown.
Review of Scientific Instruments **78**, 086103 (2007).
34. "On the origin of microcraters on the surface of ion beam bombarded plant cell walls."
M. C. Salvadori, F. S. Teixeira, I. G. Brown.
Nuclear Instruments & Methods in Physics Research. Section B. Beam Interactions with Materials and Atoms. **243**, 250 - 252 (2006).
35. "Platinum and Gold Thin Films Deposited by Filtered Vacuum Arc: Morphological and Crystallographic Grain Sizes."
M. C. Salvadori, L. L. Melo, A. R. Vaz, R. S. Wiederkehr, F. S. Teixeira, M. Cattani.
Surface and Coatings Technology **200**, 2965 - 2969 (2006).
36. "Thermoelectric effect in very thin film Pt/Au thermocouples."
M. C. Salvadori, A. R. Vaz, F. S. Teixeira, M. Cattani.
Applied Physics Letters **88** (2006).
37. "Thermoelectric power in very thin films Pt/Au thermocouples: quantum size effects."
M. Cattani, M. C. Salvadori, A. R. Vaz, F. S. Teixeira, I. G. Brown.
Journal of Applied Physics **100**, 1 - 4 (2006).
38. "Fast Opening Gas Valve for the TCABR Pellet Injector."
C. M. O. Teixeira, J. H. Vuolo, F. S. Teixeira, A. C. Paulo, F. Horita, F. T. Degasperri, J. I. Elizondo, E. K. Sanada, V. A. L. Almeida, F. Pantano.
Brazilian Journal of Physics **34**, 1752 - 1755, (2004).

Complete conference papers

1. "Electrical, optical and structural studies of shallow buried Au-PMMA composite films formed by very low energy ion implantation".
F. S. Teixeira, M. C. Salvadori, M. Cattani, I. G. Brown.
Journal of Vacuum Science and Technology A. **28(4)**, 818-823 (2010).
Published as a contribute paper for the AVS 56th Conference Issue.
2. "Anisotropic Resistivity of PMMA doped with gold."
F. S. Teixeira, R. D. Mansano, M. C. Salvadori, M. Cattani, I. G. Brown.
In 22nd Symposium on Microelectronics Technology and Devices (SBMicro), 2007, Rio de Janeiro. Transactions ECS. Pennington: Electrochemical Society (2007) **9**. p.123 - 132
3. "The Seebeck effect for nanometric Pt and Au thin films."
M. C. Salvadori, A. R. Vaz, F. S. Teixeira, M. Cattani.
In: Symposium on Design, Test, Integration and Packaging of MEMS/MOEMS, 2005, Montreux. Proceeding of Symposium on Design, Test, Integration and Packaging of MEMS/MOEMS. (2005) 90 - 92

Arxiv e-print papers

1. "Insulator-Conductor Transition: A Brief Theoretical Review."
M. C. Cattani, M. C. Salvadori, F. S. Teixeira.
(arXiv:0903.3587v1) (2009)
2. "SAXS Structural Characterization of Nanoheterogeneous Conducting Thin Films. A Brief Review of SAXS Theories."
M. C. Cattani, M. C. Salvadori, F. S. Teixeira.
(arXiv:0907.3131v1) (2009)

Participation in International Meetings

1. AVS 56th International Symposium. San Jose, CA (2009)
Presented work (oral): "Shallow Buried Au-PMMA Composite Films formed by Very Low Energy Ion Implantation".
2. 10th International Workshop on Plasma Based Ion Implantation & Deposition. São Jose dos Campos, SP, Brazil (2009)
Presented work (poster): "Structural Properties of Gold-Polymer Composite Formed by Low Energy Ion Implantation."
3. Chip in Rio - 22nd Symposium on Microelectronics Technology and Devices (SBMicro). Rio de Janeiro, RJ, Brazil (2007).
Presented work (oral): "Anisotropic Resistivity of PMMA doped with Gold".