

PAULO CÉSAR SOARES JR

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HIGHLIGHTS

Publications

96 published papers, **>1700 citations, h-index of 26 (Scopus)**
>100 Conference papers
3 patents pending

Grants

18 awarded grants as PI and 6 as Co-PI, including very competitive Brazilian grants, such as FINEP (for research infrastructure), CNPq for fellowships, and from Industries for product development projects.

Awards

Outstanding Researcher in Innovation – PUCPR (2023)

Mentoring

Experience as a lecturer, course developer, and mentor of diverse students.
Lectured **13 different courses** for undergrad (200 to 400 level courses, including senior design), and graduate (Master and Ph.D. levels), **69 mentees** (4 postdoc, 10 Ph.D., 20 Master, 34 Undergraduate), jury committee for several MSc and Ph.D. defenses.

Synergistic Activities

XI BrazGlass – Brazilian Symposium on Glasses and Related Materials (Curitiba – Brazil, 13-17 July 2017). **Vice-Chair**. (<http://www3.uepg.br/brazglass/>).

24th COBEM – International Congress of Mechanical Engineering (Curitiba – Brazil, 3-8 Dec 2017). **Scientific Program Chair / Chair of Bioengineering** Symposium (<http://eventos.abcm.org.br/cobem2017/index.php>).

HI-PUC Mentor (2015/2017) – Health Innovation Program for Medical Devices Development (based on Stanford Biodesign methodologies) at PUCPR (<http://hipuc.com>).

Member of **Editorial Board** of Journal of Materials & Applied Science.

Founder and owner of the startup **OrthoPETica** – Functional Polymeric Implants, and of **DenTS** – Dental Materials Products Ltda.

Reviewer of dozens of journals, including Acta Biomaterialia, ACS Applied Materials & Interfaces, Journal of Biomedical Materials Research Part B, Applied Biomaterials, Journal of Materials Research, Materials Science & Engineering C, Surface and Coatings Technology, Scientific Reports, ACS Applied Materials & Interfaces, Materials Advances, among others.

EDUCATION

- 2002 Ph.D., Materials Science and Engineering, Federal University of São Carlos, SP, Brazil
Dissertation: *Crystallization mechanisms of lithium disilicate glasses*.
Supervisor: Edgar Dutra Zanotto and Himanshu Jain (Lehigh University)
- 1997 MSc, Materials Engineering, Federal University of São Carlos, SP, Brazil
Dissertation: *Early stages of crystallization of lithium disilicate glasses*.
Supervisor: Edgar Dutra Zanotto
- 1993 B.S., Chemical Engineering, Federal University of Paraná, Curitiba, PR, Brazil.

ACADEMIC POSITIONS

- 2009-current, Associate Professor, Department of Mechanical Engineering, Polytechnic School, Pontifícia Universidade Católica do Paraná
- 2007-2009, Assistant Professor, Department of Mechanical Engineering, Polytechnic School, Pontifícia Universidade Católica do Paraná

OTHER POSITIONS

- 2020, Visiting Professor, Department of Mechanical Engineering, School of Bioengineering, Colorado State University, Fort Collins, CO, in the research group of Prof. Ketul C. Papat.
- 2013, Visiting Researcher, Department of Mechanical Engineering, School of Bioengineering, Colorado State University, Fort Collins, CO, in the research group of Prof. Ketul C. Papat.
- 2003-2007, Postdoctoral Researcher, Department of Physics, Federal University of Paraná, Curitiba, PR, Brazil, under supervision of Prof. Carlos M. Lepienski, LabNano – Nanomechanical properties of surface and thin-films laboratory.
- 2000, Visiting Ph.D. Student, Department of Materials Science and Engineering, Lehigh University, Bethlehem, PA, under the supervision of Prof. Himanshu Jain.
- 1997, Visiting MSc. Student, Otto Schott Institute of Materials Research, Friedrich Schiller University, Jena, Germany, under the supervision of Prof. Christian Rüssel.

PUBLISHED WORKS

(Citations on February 07, 2024, from Google Scholar: 2398, h-index: 29; from Scopus: 1768, h-index: 26)

Published Articles:

1. R. F. Chuproski, W. R. de Oliveira, B. C. E. S. Kurelo, D. G. Ditzel, P. Soares, F. C. Serbena, G. B. de Souza, Controlling plasma-based surface modifications of an austenitic alloy by thermochemical and athermal diffusions, *Journal of Alloys and Compounds* (2024), 173634.
2. F. Barchiki, L. Fracaro, A. C. Dominguez, A. C. Senegaglia, I. M. Vaz, **P. Soares**, S. A. B. de Moura, P. R. S. Brofman, Biocompatibility of ABS and PLA Polymers with Dental Pulp Stem Cells Enhance their Potential Biomedical Applications, *Polymers* (2023), 2719117.
3. C. B. G. Pereira, Q. He, **P. Soares**, M. S. Meruvia, G. B. de Souza, F. L. Amorim, J. M. de Paiva, S. C. Veldhuis, R. D. Torres, Tribological characterization of PVD TiSiN/AlCrN coating: A comprehensive study on thermal effect, *Materials Characterization* (2023) 203, 113135.
4. A. V. Savargaonkar, A. H. Munshi, **P. Soares**, K. C. Papat, Antifouling behavior of copper-modified titania nanotube surfaces, *Journal of Functional Biomaterials*. (2023) 14, 413.
5. V. Torno, **P. Soares**, Tribological behavior and wear mechanisms of dental resin composites with different polymeric matrices, *Journal of the mechanical behavior of biomedical materials* (2023) 144, 105962.
6. A. Bhattacharjee, E. Goodall, B. L. Pereira, **P. Soares**, K. C. Papat, Zinc (Zn) doping by hydrothermal and alkaline heat-treatment methods on titania nanotube arrays for enhanced antibacterial activity, *Nanomaterials* (2023) 13, 1606.
7. R. Davis, A. Singh, K. Debnath, A.K. Keshri, **P. Soares**, L. Sopchenski, H.A. Terry, V. Prakash, Surface modification of biodegradable Mg alloy by adapting μ EDM capabilities with cryogenically-treated tool electrodes, *The International Journal of Advanced Manufacturing Technology* (2023), 126, 4617–36.
8. L. L. Silveira, A. G. M. Pukasiewicz, G. B. de Souza, **P. Soares**, I. D. F. S. Vidal, R. Abrahão Jr, R. D. Torres, Microstructure design of powder-pack borided AISI 4140 steel, *Journal of Materials Engineering and Performance* (2023) 1-15.
9. R. Davis, A. Singh, R. B. D. Pereira, R. M. Sabino, K. Papat, **P. Soares**, L. C. Brandão, Collaborative impact of cryo-treated cutting tool and hybrid milling environment towards improved sustainable milling of ASTM F2063 Ni_{55.6}Ti_{44.4} alloy, *International Journal of Precision Engineering and Manufacturing-Green Technology* (2023), 1-25.
10. M. E. P. Missner, J. Stryhalski, M. Tomiyama, **P. Soares**, A. A. C. Recco, L. C. Fontana, Rutile TiO₂ thin films growth on glass substrates with generation of high entropy interface,

Journal of Materials Research and Technology (2023) 24, 963-970.

11. R. Davis, A. Singh, K. Debnath, **P. Soares**, S. H. Och, A. K. Keshri, L. Sopchenski, H. A. Terryn, Enhanced abrasive-mixed- μ -EDM performance towards improved surface characteristics of biodegradable Mg AZ31B alloy, *The International Journal of Advanced Manufacturing Technology* (2023) 124(7-8), 2685-2700.
12. F. Marin, A. F. de Souza, A. Mikowski, L. H. G. Fontanella, **P. Soares**, L. N. L. de Lacalle, Energy density effect on the interface zone in parts manufactured by laser powder bed fusion on machined bases. *International Journal of Precision Engineering and Manufacturing-Green Technology* (2023) 10, 905–923.
13. T. D. L. Gontarski, A. P. Leal, R. M. Casali, S. E. Braun, **P. Soares**, A. L. Fajarra, A. Mikowski, Weightings on the propagation of errors in the Vickers hardness parameters, *Brazilian Journal of Physics* (2022) 52(4), 107.
14. B. L. Pereira, C. M. Lepiensi, V. Seba, M. J. Nugent, R. Torres, P. A. B. Kuroda, C. R. Grandini, **P. Soares**. Plasma electrolytic oxidation up to four-steps performed on niobium and Nb-Ti alloys. *Surface and Coatings Technology* (2022) 438, 128369.
15. B. P. Nyland, C. P. Pereira, **P. Soares**, D. S. L. Weiss, W. L. Mikos, J. A. Brancher, S. Vieira, A. Freire, Enamel erosion control by strontium-containing TiO₂- and/or MgO-doped phosphate bioactive glass, *Clinical Oral Investigations* (2022) 26(2) 1915-1925.
16. G.C. Carlini, C. da Silva, R.D. Torres, **P. Soares**, W.L. Weingaertner, F.L. Amorim, WED-machining performance by reciprocating molybdenum wire on Inconel 718 with water or hydrocarbon dielectrics. *Int J Adv Manuf Technol* (2022) 119, 1853–1866.
17. R. Davis, A. Singh, K. Debnath, R. M. Sabino, K. Popat, **P. Soares**, A. K. Keshri, B. Borgohain, Enhanced micro-electric discharge machining-induced surface modification on biomedical Ti-6Al-4V alloy. *ASME Journal of Manufacturing Science and Engineering* (2022) 144(7): 071002.
18. R. Davis, A. Singh, R. M. Sabino, R. B. D. Pereira, K. Popat, **P. Soares**, M. J. Jackson, Performance investigation of cryo-treated end mill on the mechanical and *in vitro* behavior of hybrid-lubri-coolant-milled Ti-6Al-4V alloy, *Journal of Manufacturing Processes* (2021) 71: 472-488.
19. R. Davis, A. Singh, K. Debnath, R.M. Sabino, K. Popat, L.R.R. da Silva, **P. Soares**, A. R. Machado, Surface Modification of Medical-Grade Ni_{55.6}Ti_{44.4} alloy via enhanced machining characteristics of Zn Powder Mixed- μ -EDM, *Surface and Coatings Technology* (2021) 425: 127725.
20. R.B. Pessoa, C.A.H. Laurindo, M. Meruvia, R.D. Torres, A. Mikowski, M.E. Soares, **P. Soares**, Mechanical, tribological, and corrosion properties of composite NiP-Al₂O₃ with different

amount of particles. ASME Journal of Tribology (2021) 143: 111702.

21. R. Davis, A. Singh, K. Debnath, M. J. Jackson, **P. Soares**, F. L. Amorim, H. Dutta. Effect of powder particle concentration and tool electrode material amid Zinc powder-mixed μ EDM of biocompatible Mg alloy AZ91D. Journal of Materials Engineering and Performance (2021) 30: 5704-18.
22. E. R. Camargo, B. M. Serafim, A. F. da Cruz, **P. Soares**, C. C. de Oliveira, C. K. Saul, C.E. B. Marino, Bioactive response of PMMA coating obtained by electrospinning on ISO5832-9 and Ti6Al4V biomaterials, Surface and Coatings Technology (2021) 412: 127033.
23. A. Mikowski, R.M. Casali, **P. Soares**, W.B. da Silva, B.S. Methodology for error propagation analysis of the complex stiffness modulus of asphalt mixes, Construction and Building Materials (2021) 290: 123156.
24. B. L. Pereira, C. M. Lepienski, V. Seba, G. Hobold, **P. Soares**, B. S. Chee, P. A. B. Kuroda, E. S. Szameitat, L. L. Santos, C. R. Grandini, M. Nugent. Titanium-Niobium (Ti-xNb) alloys with high Nb amounts for applications in biomaterials, Materials Research (2020) 23: e20200405.
25. M. F. Dias-Netipanyj, L. Sopchenski, T. Gradowski, S. Elifio-Esposito, K. C. Popat, **P. Soares**, Crystallinity of TiO₂ nanotubes and its effects on fibroblast viability, adhesion, and proliferation, Journal of Materials Science: Materials in Medicine (2020) 31:94.
26. I. C. J. Dechandt, **P. Soares**, M. J. Pascual, F. C. Serbena, Sinterability and mechanical properties of glass-ceramics in the system SiO₂-Al₂O₃-MgO/ZnO, Journal of the European Ceramic Society (2020) 40: 6002-13.
27. K. S. Correia, L. G. Greca, L. Sopchenski, **P. Soares**, F. L. Amorim, R. D. Torres, Strength and deformation properties of low-alloy steel bolts with electroless Ni-P coating: An investigation of two thermal routes, Journal of Materials Engineering and Performance (2020) 29: 6025–6032.
28. A. C. A. Fontes, L. Sopchenski, C. A. H. Laurindo, R. D. Torres, K. Popat, **P. Soares**, Annealing temperature effect on tribocorrosion and biocompatibility properties of TiO₂ nanotubes, Journal of Bio- and Tribo-Corrosion (2020) 6:64.
29. T. Kasiorowski, J. Lin, **P. Soares**, C.M. Lepienski, C.A. Neitzke, G. B. Souza, R. Torres, Microstructural and tribological characterization of DLC coatings deposited by plasma-enhanced techniques on steel substrates, Surface and Coatings Technology (2020) 389: 125615.
30. P. Luchtenberg, P. T. Campos, **P. Soares**, C. A. H. Laurindo, O. Maranhão, R. D. Torres, Effect of welding energy on the corrosion and tribological properties of duplex stainless steel weld overlay deposited by GMAW/CMT process, Surface and Coatings Technology (2019) 375:

688-93.

31. M. F. Dias-Netipanyj, K. Cowden, L. Sopchenski, S. C. Cogo, S. Elifio-Esposito, K. C. Popat, **P. Soares**, Effect of crystalline phases of titania nanotube arrays on adiposederived stem cell adhesion and proliferation, *Materials Science and Engineering:C* (2019), 103: 109850.
32. C. A. H. Laurindo, B. M. Freitas, L. C. M. Bembem, **P. C. Soares Jr**, R. D. Torres, F. L. Amorim, Tribocorrosion properties of Ti6Al4V after sinking ED machining with glycerin water solution and hydrocarbon dielectric fluids, *The International Journal of Advanced Manufacturing Technology* (2019) 103 (9-12): 4755–62.
33. S. Buchner, F. R. Kulbieda, V. M. Fokin, **P. Soares**, A. D. Machado, J. W. P. Schmelzer, N. M. Balzaretti, Thermal stability of lithium metasilicate produced under high pressure from lithium disilicate glass, *International Journal of AppliedGlass Science* (2019), 10 (4): 522-531.
34. C.A.O. Luzia, C.A.H. Laurindo, **P.C. Soares**, R. D. Torres, L. Mendes, F. L. Amorim, Recast layer mechanical properties of tool steel after electrical discharge machining with silicon powder in the dielectric, *International Journal of Advanced Manufacturing Technology* (2019), 103 (1-4): 15-28.
35. **P. Soares**, L. Bembem, D. Weiss, R. M. Sabino, K. Popat. Characterization of bioglass deposited on porous TiO₂ produced by plasma electrolytic oxidation, *Transactions of the Annual Meeting of the Society for Biomaterials and the Annual International Biomaterials Symposium* (2019) 40: 881.
36. **P. Soares**, M.F. Dias-Netipanyj, S. Elifio-Esposito, V. Leszczak, K.C. Popat, Effects of calcium and phosphorous incorporation on the properties and bioactivity of TiO₂ nanotubes, *Journal of Biomaterials Applications* (2018) 33 (3), 410-421.
37. L. Sopchenski, S. Cogo, M.F. Dias-Netipanyj, S.E. Espósito, K.C. Popat, **P. Soares**, Bioactive and antibacterial boron doped TiO₂ coating obtained by PEO, *Applied Surface Science* (2018) 458: 49-58.
38. L. Sopchenski, K. Popat, **P. Soares**, Bactericidal activity and cytotoxicity of a zincdoped PEO titanium coating, *Thin Solid Films* (2018) 660: 477-483.
39. L. S. Santos, D. Francisco, E. Leite, S. Cogo, M. Dias-Netipanyj, S. Pinto, S. Espósito, K. Popat, **P. Soares**, Bioactivity and antibacterial effects of Ag-Ca-P doped PEO titania coatings, *Journal of Advanced Biotechnology and Bioengineering* (2018)6: 6-14.
40. A Hatem, J Lin, R Wei, RD Torres, C Laurindo, GB de Souza, **P. Soares**, Tribocorrosion behavior of low friction TiSiCN nanocomposite coatings deposited on titanium alloy for biomedical applications, *Surface & CoatingsTechnology* (2018) 347: 1-12.
41. S.A.C. Aichholz, M.S. Meruvia, **P.C. Soares Jr**, R.D. Torres, Tribocorrosion behavior of

- boronized AISI 4140 steel, *Surface and Coatings Technology* (2018) 352: 265-272.
42. C. A. H. Laurindo, C. M. Lepienski, F. L. Amorim, R. D. Torres, **P. Soares**, Mechanical and tribological properties of Ca/P doped titanium dioxide layer produced by plasma electrolytic oxidation: Effects of applied voltage and heattreatment. *Tribology Transactions* (2018) 61(4): 733-741.
 43. S.E. Braun, A. Mikowski, A.N. Comin, L.A. Thesing, **P. Soares**, C.M. Lepienski, Influence of crystallization on hardness, elastic modulus and fracture toughness in lithium disilicate Li₂O.2SiO₂ glass-ceramics, *Cerâmica* (2018) 64: 301-310.
 44. A. Hatem, J. Lin, R. Wei, R.D. Torres, C. Laurindo, **P. Soares**, Tribocorrosion behavior of DLC-coated Ti-6Al-4V alloy deposited by PIID and PEMS + PIID techniques for biomedical applications. *Surface and Coatings Technology*, (2017) 332: 223-232.
 45. L.J.E. Isaka, A.M.R.B. do Prado, J.A. Villanova Junior, C.T. Pimpão, **P. C. Soares Jr**, Ex vivo biomechanical analysis of two methods of osteosynthesis in canine mandibular fractures, *Semina: Ciências Agrárias* (2017) 38(3): 1925-1932.
 46. P. Pulyala, A. Singh, M. F. Dias-Netipanyj, S. C. Cogo, L. S. Santos, **P. Soares**, V. Gopal, V. Suganthan, G. Manivasagam. In-vitro cell adhesion and proliferation of adipose derived stem cell on hydroxyapatite composite surfaces. *Materials Science and Engineering C* (2017) 75: 1305-1316.
 47. M.E. Soares, **P. Soares**, P.R. Souza, R.M. Souza, R.D. Torres. The effect of nitriding on adhesion and mechanical properties of electroless Ni-P coating on AISI 4140 Steel. *Surface Engineering* (2017) 33(2): 116-121.
 48. J.M.F. Paiva Jr, F.L. Amorim, **P. C. Soares Jr**, S.C. Veldhuis, L.A. Mendes, R.D. Torres, Tribological behavior of superduplex stainless steel against PVD hardcoatings on cemented carbide, *The International Journal of Advanced Manufacturing Technology* (2017) 90: 1649-58.
 49. F.L. Amorim, V.D. Dalcin, **P. Soares**, L. A. Mendes, Surface modification of tool steel by electrical discharge machining with molybdenum powder mixed in dielectric fluid. *International Journal of Advanced Manufacturing Technology* (2017) 91, 341–350.
 50. A.L. Molinetti, F.L. Amorim, **P. Soares**, T. Czelusniak. Surface modification of AISI H13 tool steel with silicon and manganese mixed to the dielectric in electrical discharge machining process, *International Journal of Advanced Manufacturing Technology* (2016) 83: 1057-68.
 51. C.A.H. Laurindo, L.C.M. Bembem, R.D. Torres, **P. Soares**. Influence of the annealing treatment in the tribocorrosion properties of pure titanium treated by plasma electrolytic oxidation for biomedical applications. *Materials Technology: Advanced Performance*

Materials (2016) 31(12):1-7.

52. J. Snorkin, S. Hughes, **P. Soares**, K. Popat. Titania nanotube arrays as interfaces for neural prostheses. *Materials Science and Engineering C* (2015) 49: 735-45.
53. A.P. Bonilauri Ferreira, **P.C. Soares Jr**, E.M. Souza, R.N. Rached, S.H. Pezzin, S. Vieira, Wavelength of experimental LEDs: hardness, elastic Modulus, degree of conversion and temperature rise of a microhybrid composite, *Materials Research* (2015) 18: 240-244.
54. D.S.L. Weiss, R.D. Torres, S. Buchner, S. Blunk, **P. Soares**. Effect of Ti and Mg dopants on the mechanical properties, solubility, and bioactivity in vitro of a Sr-containing phosphate based glass. *Journal of Non-Crystalline Solids* (2014) 386:34-38.
55. C.A.H. Laurindo, R.D. Torres, S. Mali, J.L. Gilbert, **P. Soares**. Incorporation of Ca and P on anodized titanium surface: Effect of high current density. *Materials Science & Engineering. C, Biomimetic Materials, Sensors and Systems* (2014) 37:223-31.
56. F.L. Amorim, L.J. Stedile, R.D. Torres, **P.C. Soares**, C.A.H. Laurindo. Performance and surface integrity of Ti6Al4V after sinking EDM with special graphite electrodes. *Journal of Materials Engineering and Performance* (2014) 23: 1480-88.
57. B.L. Pereira, P. Tummeler, C.E.B. Marino, **P. Soares**, N.K. Kuromoto, Titanium bioactivity surfaces obtained by chemical/electrochemical treatments, *Materia* (2014) 19: 16-23.
58. S. Buchner, V.O. Soares, **P. Soares**, C.M. Lepienski, E.D. Zanotto. Comparison of the mechanical and tribological properties of a sintered low expansion Li₂O– Al₂O₃–SiO₂ glass-ceramic and a commercial cooktop plate. *European Journal of Glass Science and Technology. Part A, Glass Technology* (2013) 54: 211-17.
59. E.M. Szesz, B.L. Pereira, N.K. Kuromoto, C.E.B. Marino, G.B. de Souza, **P. Soares**. Electrochemical and morphological analyses on the titanium surface modified by shot blasting and anodic oxidation processes. *Thin Solid Films* (2013) 528: 163-66.
60. J.M.F. Paiva, F.L. Amorim, **P. Soares**, R.D. Torres. Evaluation of hard coating performance in drilling compacted graphite iron (CGI). *Journal of Materials Engineering and Performance* (2013) 22: 3155-60.
61. V.O. Soares, **P. Soares**, O. Peitl, E.D. Zanotto, A. Durán, Y. Castro. Resistencia al desgaste de recubrimientos sol-gel de SiO₂ y SiO₂- ZrO₂ sobre materiales vitrocerámicos obtenidos por sinterización. *Boletín de la Sociedad Española de Cerámica y Vidrio* (2013) 52: 225-30.
62. **P. Soares**, C.A.H. Laurindo, R.D. Torres, N.K. Kuromoto, O. Peitl, E.D. Zanotto. Effect of a bioactive glass-ceramic on the apatite nucleation on titanium surface modified by micro-arc oxidation. *Surface & Coatings Technology* (2012) 206: 4601-05.

63. L.R.P Archegas, D.B.M. Caldas, R.N. Rached, **P. Soares**, E.M. Souza. Effect of ceramic veneer opacity and exposure time on the polymerization efficiency of resin cements. *Operative Dentistry* (2012) 37: 281-89.
64. F.L. Amorim, L. Stedille, R.D. Torres, **P.C. Soares Jr.** Surface integrity of Ti6Al4V alloy machined by EDM using graphite electrodes. *Maquinas e Metais* (2012) 48:90-107.
65. L.M. López, O. Salas, L. Melo-Máximo, J. Oseguera, C.M. Lepienski, **P. Soares**, R.D. Torres, R.M. Souza. Structural and mechanical analysis for the optimization of PVD oxide coatings for protection against metal dusting. *Applied Surface Science*(2012) 258: 7306-13.
66. **P. Soares**, M.D. Michél, A. Mikowski, C.E. Foerster, C.M. Lepienski, Aqueous corrosion of a commercial float glass studied by surface spectroscopies and nanoindentation. *Physics and Chemistry of Glasses* (2011) 52: 25-30.
67. S. Regis, **P. Soares**, E.S. Camargo, O. Guariza Filho, O. Tanaka, H. Maruo, Biodegradation of orthodontic metallic brackets and associated implications for friction. *American Journal of Orthodontics and Dentofacial Orthopedics* (2011) 140: 501-09.
68. S. Buchner, C.M. Lepienski, **P.C. Soares Jr**, N.M. Balzaretto, Effect of high pressure on the mechanical properties of lithium disilicate glass ceramic. *Materials Science & Engineering. A, Structural Materials: properties, microstructure and processing* (2011) 528: 3921-24.
69. S. Buchner, A. Mikowski, C.M. Lepienski, E.B. Ferreira, E.D. Zanotto, R.D. Torres, **P. Soares**. Mechanical and tribological properties of a sintered glass-ceramic compared to granite and porcelainized stoneware. *Wear* (2011) 271: 875-80.
70. G.B. de Souza, C.M. Lepienski, C.E. Foerster, N.K. Kuromoto, **P. Soares**, H.A. Ponte. Nanomechanical and nanotribological properties of bioactive titanium surfaces prepared by alkali treatment. *Journal of the Mechanical Behavior of Biomedical Materials* (2011) 4: 756-65.
71. G.B. de Souza, G.G. de Lima, N.K. Kuromoto, **P. Soares**, C.M. Lepienski, C.E. Foerster, A. Mikowski, Tribo-mechanical characterization of rough, porous and bioactive Ti anodic layers. *Journal of the Mechanical Behavior of Biomedical Materials* (2011) 4: 796-806.
72. J.M.H. Martin, J.B. Almeida, E.A.R. Rosa, **P. Soares**, V. Torno, R.N. Rached, R.F. Mazur. Effect of different fluoride therapies on the surface roughness of human enamel exposed to bleaching agents. *Quintessence International* (2010) 41: 71-78.
73. S. Buchner, **P. Soares**, A.S. Pereira, E.B. Ferreira, N.M. Balzaretto. Effect of high pressure in the Li₂O-2SiO₂ crystallization. *Journal of Non-Crystalline Solids* (2010) 356: 3004-08.
74. L.E. Bertassoni, S. Habelitz, M. Pugach, **P.C. Soares**, S.J. Marshall, G.W. Marshall. Evaluation of surface structural and mechanical changes following remineralization of

- dentin. Scanning (2010) 32: 312-19.
75. R.D. Torres, **P.C. Soares Jr.**, C. Schmitz, C.J.M. Siqueira. Influence of the nitriding and TiAlN/TiN coating thickness on the sliding wear behavior of duplex treated AISI H13 steel. Surface & Coatings Technology (2010) 205: 1381-85.
 76. J.E. May, C.A.C. de Souza, P.A. de Paula Nascente, **P. Soares**, C.M. Lepienski, S.E. Kuri, Effect of thermal aging conditions on the corrosion properties and hardness of a duplex stainless steel, Materials Research (2010) 13: 431-36.
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 78. G.B. de Souza, G.G. de Lima, N.K. Kuromoto, **P. Soares**, C.E. Marino, C.M. Lepienski. Elastic modulus and hardness of bioactive Ti obtained by anodic oxidation using Ca/P-based solutions. Key Engineering Materials (2009) 396-98:323-26.
 79. V. Torno, **P. Soares**, J.M.H. Martin, R.F. Mazur, E.M. Souza, S. Vieira. Effects of irradiance, wavelength, and thermal emission of different light curing units on the Knoop and Vickers hardness of a composite resin. Journal of Biomedical Materials Research. Part B, Applied Biomaterials (2008) 84B: 166-71.
 80. A. Mikowski, **P. Soares**, F. Wypych, C.M. Lepienski. Fracture toughness, hardness, and elastic modulus of Kyanite investigated by a depth-sensing indentation technique. American Mineralogist (2008) 93: 844 - 52.
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97. L.L. Burgner, M.C. Weinberg, P. Lucas, **P.C. Soares Jr.**, E.D. Zanotto. XRD Investigation of metastable phase formation in Li₂O-SiO₂ glass. Journal of Non-Crystalline Solids (1999) 255: 264-68.

APPROVED GRANTS

Externally funded Projects as PI

Contract/Year	Sponsor	Project	Amount*
2023	ImplaNew dental implants	Know-how transfer on PEO process for dental implants	R\$ 100,000.00
2023	EMBRAER S.A.	Surface treatments by PEO and PVD on magnesium and thermoplastic substrates for application in aircraft interiors	R\$ 425,449.40
2022	CNPq/FNDCT/ MCTI	Investigation of corrosion and wear resistance of magnesium alloy WE43 with hybrid PEO coatings and polymeric sealants	R\$ 861,200.00
2022	CNPq / Researcher Level 2**	Bioactive and bactericidal nanostructured surfaces in stainless steels	R\$ 39,600.00
2021	Neodent Implant Industry	Tribocorrosive properties of coatings used in implant surgery drills	R\$ 60,000.00
2019-2020	CAPES / Visiting Professor in the USA	Development of bioactive and bactericidal nanostructured surfaces in stainless steels	USD 30,908.00
2019	Ministry of Industry, Foreign Trade and Services	Improvement of LSZH cable adhesion to metallic wire used in optical cables	R\$ 132.000,00
2018	Finep	Maintenance of medium and large equipment of PUCPR laboratories	R\$ 755,571.10
2017	CNPq / Undergrad research	Synthesis and Characterization of Sr doped titanium nanotubes	R\$ 9,600.00
427025/2016-8	CNPq / Universal	Bactericidal TiO ₂ coatings obtained by Plasma Electrolytic Oxidation	R\$ 124,400.00
305715/2016-0	CNPq / Researcher Level 1D**	Surface modification of titanium alloys for biomedical applications	R\$ 52,800.00
0011277/2015	CNPq / Undergrad research	Study on the TiO ₂ nanostructure obtained by photoetching	R\$ 4,800.00
0011279/2015	PUCPR / Undergrad research	Nanostructures obtained through double anodization using fluoride-containing electrolyte	R\$ 4,800.00
420588/2013-2	MEC/MCTI/CAPES/CNPq/FAPs – Visiting professor	Nanometric surface modification of titanium alloys for biomedical implants	R\$ 334,764.00
309424/2012-7	CNPq / Universal	Surface modification techniques and coatings development for titanium implants	R\$ 105,600.00
471395/2012-9	CNPq / Post-doc fellowship	Ca and P doped titanium nanotubes – Synthesis and Characterization	R\$ 59,610.00

508871/2010-7	CNPq / Universal	Characterization of titanium modified by micro-arc oxidation	R\$ 19,150.00
15732/2008	Parana State Funding Agency (Fundacao Araucaria)	Wettability of titanium implants with surface modification	R\$ 44,100.00
577445/2008-1	MCT/CNPq 62/2008 – Young Researchers – Nanotechnology	Surface characterization and mechanical properties of bioactive films obtained by micro-arc oxidation	R\$ 79,100.00

*(1.00 USD = R\$ 4.96 – February/2024)

** This grant is given as a fellowship to the most productive researchers in each area. It is divided into 5 levels: 1A, 1B, 1C, 1D, and 2. Level 2 means that I am amongst the top 30 % of the most productive researchers in Brazil in the area of Engineering III (Mechanical, Production, Aerospace, and Ocean Engineering).

Externally-funded Projects as Co-PI

Contract	Sponsor	Project	Amount*
2023	SETI-Parana State Agency (Intellectual Property Program with a Market Focus)**	Production of Veterinary Polymeric Orthopedic Implants	R\$ 200,000.00
2023	FINEP – Centelha** (1 st place in Materials area)	Production of Veterinary Polymeric Orthopedic Implants	R\$ 84,000.00
2019	Boticario Cosmetics Industry	Development of silicone-based mold for lipstick injection	R\$ 180,500.00
2018	Finep CT-INFRA 04/2018	Production and testing center for coated components applied in severe conditions. My part in the project (50%): responsible for the magnetron sputtering coater, and coatings characterization.	R\$ 1,377,717.46
46744/2016	Parana State Funding Agency (Fundacao Araucaria)	Surface engineering based on plasma assisted process. My part in the project (33%): Surface characterization with SEM/EDS, TF-XRD, tribology and tribocorrosion studies.	R\$ 352,300.00
550929/2011-8	MCT/FINEP/CT-Petro	Application of PVD coatings technology to tools and components for oil and gas industry. My part in the project (30%): Coordination of the sub-project “Application of triplex treatment to increase corrosion and wear resistance of AISI4130 steel used in undersea Christmastree”. Responsible for acquisition, maintenance, and user training of Materials Characterization Lab.	R\$ 1,978,000.00
01110132-00/2011	MCT/FINEP/CT-Infra	Characterization center of materials and components for severe conditions applications. My part in the project (50%): Project management, responsible for acquisition, maintenance and users training of Materials Characterization Lab.	R\$ 892,900.00
34606/2012	Parana State Funding Agency (Fundacao Araucaria)	Improvement of PUCPR research infrastructure for biological tissues and biomaterials characterization. My part in the project (50%): Responsible for acquisition, maintenance and users training of Materials Characterization Lab.	R\$ 189,200.00

*(1.00 USD = R\$ 4.96 – February/2024)

** Approved by our startup OrthoPETica

CONFERENCE PAPERS

1. T. D. Toscano, **P. Soares**, Corrosion resistance of nanotextured stainless steel coated with a thin copper film for biomedical applications, 12nd COLAOB - Latin-American Congress on Biomaterials and Artificial Organs (December 2023), Mar de Plata, Argentina.
2. G. Lemes, B. L. Pereira, **P. Soares**, Tribological behavior of hybrid coatings on WE43 Mg alloy, 12nd COLAOB - Latin-American Congress on Biomaterials and Artificial Organs (December 2023), Mar de Plata, Argentina.
3. J. Maia, F. Tuon, F. Barchiki, **P. Soares**, Synthesis of bacterial cellulose-nanoparticles composite and evaluation of bioactivity and antimicrobial properties, 12nd COLAOB - Latin-American Congress on Biomaterials and Artificial Organs (December 2023), Mar de Plata, Argentina.
4. J. Dos Santos Jr, **P. Soares**, Enhancing cp-Ti grade 4 surface with bioactive glass through plasma electrolytic oxidation, 12nd COLAOB - Latin-American Congress on Biomaterials and Artificial Organs (December 2023), Mar de Plata, Argentina.
5. B. C. N Silveira, **P. Soares**, Development of fast anodizing surface treatment to obtain TiO₂ nanostructures for application in dental implants, 12nd COLAOB - Latin-American Congress on Biomaterials and Artificial Organs (December 2023), Mar de Plata, Argentina.
6. E. S. Rodrigues, K. Papat, **P. Soares**, Synergistic effect of PEO-polymer hybrid coatings with nanoparticles incorporation for improved tribological, bioactivity, and bactericidal properties on titanium implants, 12nd COLAOB - Latin-American Congress on Biomaterials and Artificial Organs (December 2023), Mar de Plata, Argentina.
7. B. C. N. Silveira, **P. Soares**, New fast anodizing surface treatment to obtain titanium dioxide nanotubes in dental implants, XX B-MRS Meeting (September 2022) Foz Iguaçu – Brazil.
8. B. L. Pereira, V. Manivasagam, K. C. Papat, **P. Soares**, Antibacterial effect of copper-doped TiO₂ formed on 316L stainless steel by Plasma Electrolytic Oxidation, XX B-MRS Meeting (September 2022) Foz Iguaçu – Brazil.
9. H. Scalabrin, D. Weiss, **P. Soares**, Crack resistance of MgO doped phosphate-based glass, XX B-MRS Meeting (September 2022) Foz Iguaçu – Brazil.
10. B. L. Pereira, V. Manivasagam, K. Papat, **P. Soares**, Bioactivity and bactericidal properties of CeO₂ doped titanium oxide obtained by plasma electrolytic oxidation, XX B-MRS Meeting (September 2022) Foz Iguaçu – Brazil.
11. S. Blunk, R. D. Torres, L. Bemben, M. Manosso, **P. Soares**, Mechanical and tribological characterization of the WC/C thin film coating on M340 stainless steel, XX B-MRS Meeting (September 2022) Foz Iguaçu – Brazil.
12. T. D. Toscano, V. Manivasagam, K. Papat, S. F. Brunatto, **P. Soares**, Antimicrobial properties of stainless steel surfaces by CPEO, acid etching and copper film deposition, XX

B-MRS Meeting (September 2022) Foz Iguaçu – Brazil.

13. L. Silveira, A. G. M. Pukasiewicz, **P. Soares**, R. Torres, Microstructure and mechanical properties of AISI 4140 steel after thermochemical boronizing, 11th COBEF - Brazilian Congress on Manufacturing Engineering (May 2021) Curitiba- Brazil, online.
14. M. C. Pegoretti, R. Torres, **P. Soares**, M. E. Soares, Development of a Ni-P-Zn coating on AISI 304L stainless steel for bactericidal applications, 11th COBEF - Brazilian Congress on Manufacturing Engineering (May 2021) Curitiba – Brazil, online.
15. L.M. Maleski, F. Barchiki, J. Turola, A.C. Senegaglia, C. Kuligovski, A. Correa, **P. Soares**, P.R.S. Brofman, Analysis of the compatibility of mesenchymal stem cells derived from the tooth pulp with highly porous titanium enriched hydroxyapatite scaffolds, XI Brazilian Association of Cell and Gene Therapy Meeting (April 2021)online.
16. P. A. Luchtenberg, R. Torres, **P. Soares**, P. Campos, Microstructure evolution of overlay welded duplex stainless steel joints, 46th ICMCTF – International Conference on Metallurgical Coatings and Thin Films (May 2019) San Diego – CA, USA.
17. **P. Soares**, L. Bembem, D. Weiss, R. Sabino, K. Popat, Characterization of bioglass deposited on porous TiO₂ produced by Plasma Electrolytic Oxidation, Society for Biomaterials 2019 Annual Meeting & Exposition (April 2019) Seattle – WA, USA.
18. B. H. Lima, F. Serbena, B. L. Pereira, J. Lin, **P. Soares**, Comparison of mechanical properties of DLC-coated Ti6Al4V alloy deposited by HIPIMS, PEMS + PIID and PIID techniques, 10th COLAOB – Latin-American Congress on Biomaterials and Artificial Organs (August 2018) João Pessoa – PB, Brazil.
19. G. Hobold, C. A. H. Laurindo, R. D. Torres, G. B. de Souza, **P. Soares**, Tribocorrosive analysis of nitrided AISI 316LVM stainless steel for biomedical applications, 10th COLAOB – Latin-American Congress on Biomaterials and Artificial Organs (August 2018) João Pessoa – PB, Brazil.
20. J. Turola, **P. Soares**, Mechanical characterization of Ti scaffolds produced through space holder method with different densification pressures, 10th COLAOB – Latin- American Congress on Biomaterials and Artificial Organs (August 2018) João Pessoa-PB, Brazil.
21. L. Bembem, C. A. H. Laurindo, L. Sopchenski, D. Weiss, **P. Soares**, Dissolution of phosphate based glass deposited on porous TiO₂ produced by PEO, 10th COLAOB – Latin-American Congress on Biomaterials and Artificial Organs (August 2018) João Pessoa – PB, Brazil.
22. D. E. Francisco, L. Santos, R. M. Sabino, T. Wigmosta, K. Popat, **P. Soares**, Synthesis and characterization of Sr doped TiO₂ nanotubes, 10th COLAOB – Latin-American Congress on Biomaterials and Artificial Organs (August 2018) João Pessoa – PB, Brazil.
23. C. A. H. Laurindo, L. S. Santos, L. Fongaro, F. Amorim, R. D. Torres, **P. Soares**, Evaluation of tribocorrosion properties of TiVAI and CoCrMo alloys modified by Electro Discharge Machining, 10th COLAOB – Latin-American Congress on Biomaterials and Artificial Organs (August 2018) João Pessoa – PB, Brazil.

24. I. Levandovski, L. Sopchenski, **P. Soares**, Incorporation of Zn on the titanium oxide layer produced by PEO, 10th COLAOB – Latin-American Congress on Biomaterials and Artificial Organs (August 2018) João Pessoa – PB, Brazil.
25. L. Sopchenski, I. Levandovski, E. Rosa, **P. Soares**, Influence of zinc concentration on bactericidal activity of TiO₂ coatings, 10th COLAOB – Latin-American Congress on Biomaterials and Artificial Organs (August 2018) João Pessoa – PB, Brazil.
26. A.R.J. Siebert, A. Mikowski, T.A. Fiorentina, **P. Soares**, M. Polanski, Hardness and elastic modulus of Ti-6Al-4V as-cast and fabricated by LENS, 24th COBEM – International Congress of Mechanical Engineering (December 2017) Curitiba – PR, Brazil.
27. G. Hobold, L. A. B. Guariglia, C. A. H. Laurindo, **P. Soares**, Tribological evaluation of borided Ti6Al4V alloy to application in orthopedic prosthesis, 24th COBEM – International Congress of Mechanical Engineering (December 2017) Curitiba – PR, Brazil.
28. F. J. R. Mello, R. T. Konatu, A. L. A. Escada, **P. Soares**, R. Z. Nakazato, A. P. R. Alves Claro, Surface modification of the Ti7.5Mo alloy by anodic oxidation and incorporation of calcium/phosphate, 24th COBEM – International Congress of Mechanical Engineering (December 2017) Curitiba – PR, Brazil.
29. D. E. Francisco, L. S. Santos, C. A. H. Laurindo, **P. Soares**, Corrosion properties of Zn-TiO₂ produced by plasma electrolytic oxidation, 24th COBEM – International Congress of Mechanical Engineering (December 2017) Curitiba – PR, Brazil.
30. M. Barbosa, L. S. Santos, **P. Soares**, Synthesis and characterization of TiO₂ nanotubes doped with Sr, 24th COBEM – International Congress of Mechanical Engineering (December 2017) Curitiba – PR, Brazil.
31. L. Bembem, B. M. Freitas, C.A.H. Laurindo, **P. Soares**, Tribocorrosion properties of titanium alloy modified by electrical discharge machining, 24th COBEM – International Congress of Mechanical Engineering (December 2017) Curitiba – PR, Brazil.
32. S. Aichholz, R. Torres, M. Meruvia, **P. Soares**, A. Almeida, Tribological properties of boronized AISI 4140 steel, 24th COBEM – International Congress of Mechanical Engineering (December 2017) Curitiba – PR, Brazil.
33. C.B. Pereira, **P. Soares**, R.D. Torres, Microhardness behavior of TiSiN/AlCrN after high temperature tribological test, 24th COBEM – International Congress of Mechanical Engineering (December 2017) Curitiba – PR, Brazil.
34. D. Weiss, **P. Soares**, Analysis of mechanical properties and solubility of phosphate glasses with different additions of MgO, 24th COBEM – International Congress of Mechanical Engineering (December 2017) Curitiba – PR, Brazil.
35. C. M. Lepiński, **P. Soares**, A. Mikowski, Challenging aspects of time dependent plastic deformation and recovering of glass in instrumented indentation, XI BrazGlass – Brazilian Symposium on Glass (July 2017) Curitiba – PR, Brazil.

36. S. Buchner, A. S. Pereira, J. C. de Lima, **P. Soares**, N. M. Balzaretti, Lithium disilicate glass under high pressure: structure and physical properties, XI BrazGlass – Brazilian Symposium on Glass (July 2017) Curitiba – PR, Brazil.
37. M. E. Philippsen, M. Tomiyama, D. R. Irala, J. Stryhalski, **P. Soares**, L. C. Fontana, TiO₂ films obtained from heat treatment of Ti films deposited on soda-lime glass substrate, XI BrazGlass – Brazilian Symposium on Glass (July 2017) Curitiba – PR, Brazil.
38. D. Weiss, **P. Soares**, Analysis of mechanical properties and solubility of phosphate glasses for biomedical applications with different additions of TiO₂, XI BrazGlass – Brazilian Symposium on Glass (July 2017) Curitiba – PR, Brazil.
39. A. Hatem, J.L. Lin, R. Wei, R. Torres, C. Laurindo, **P. Soares**, Tribocorrosion Behavior of Nanocomposite TiSiCN Coatings Tested in PBS Solution, 44th ICMCTF – International Conference on Metallurgical Coatings and Thin Films (April 2017) San Diego – CA, USA.
40. A. Hatem, J.L. Lin, R. Wei, R. Torres, C. Laurindo, **P. Soares**, Tribocorrosion Behavior of DLC-Coated Ti-6Al-4V Alloy Deposited by PIID and PEMS+PIID Techniques for Biomedical Applications, 44th ICMCTF – International Conference on Metallurgical Coatings and Thin Films (April 2017) San Diego – CA, USA.
41. T. Gradowski, D.S.L. Weiss, **P. Soares**, Mechanical Properties and Bioactivity of Calcium Phosphate glass with Al₂O₃, MgO, SrO₂, TiO₂, 9th Latin American Congress on Artificial Organs and Biomaterials (2016) Iguazu Falls – PR, Brazil.
42. B.M. Freitas, C.A.H. Laurindo, F.L. Amorim, **P. Soares**, Tribocorrosion properties of titanium modified by electrical discharge machining, 9th Latin American Congress on Artificial Organs and Biomaterials (2016) Iguazu Falls – PR, Brazil.
43. A.L.A. Hatem, **P. Soares**, J. Lin, R.D. Torres, C.A.H. Laurindo, Tribological properties of DLC films on titanium alloys deposited by PIID and PEMS+PIID, 9th Latin American Congress on Artificial Organs and Biomaterials (2016) Iguazu Falls – PR, Brazil.
44. M.C.C. Barbosa, L.S. Santos, **P. Soares**, Wettability of nanostructured titanium produced by double anodization, 9th Latin American Congress on Artificial Organs and Biomaterials (2016) Iguazu Falls – PR, Brazil.
45. D.E. Francisco, L.S. Santos, S.E. Esposito, S.C.S. Pinto, E.L. Leite, T. Gradowski, **P. Soares**, Comparative evaluation of different silver concentrations on PEO coatings, 9th Latin American Congress on Artificial Organs and Biomaterials (2016) Iguazu Falls – PR, Brazil.
46. J. M. F. Pádua, **P. Soares**, Obtaining nanostructures in titanium oxide by photo-electrochemical etching technique, 9th Latin American Congress on Artificial Organs and Biomaterials (2016) Iguazu Falls – PR, Brazil.
47. L.S. Santos, C.A.H. Laurindo, S. Esposito, T. Gradowski, **P. Soares**, Bioactivity and tribocorrosion of Sr containing PEO coating, 9th Latin American Congress on Artificial Organs and Biomaterials (2016) Iguazu Falls – PR, Brazil.

48. A.C.C. Almeida, R. Walker, K. Popat, C.A.H. Laurindo, **P. Soares**, Tribocorrosion and bioactivity of Ca-P doped TiO₂ nanotubes applied to dental implants, 9th Latin American Congress on Artificial Organs and Biomaterials (2016) Iguazu Falls – PR, Brazil.
49. C.A.H. Laurindo, L.M.B. Bembem, R.D. Torres, **P. Soares**, Influence of the annealing treatment on the tribocorrosion properties of Ca and P containing TiO₂ produced by plasma electrolytic oxidation, 9th Latin American Congress on Artificial Organs and Biomaterials (2016) Iguazu Falls – PR, Brazil.
50. M. Manosso, K. Popat, **P. Soares**, Influence of heat treatment on the TiO₂ nanotubes adhesion, 9th Latin American Congress on Artificial Organs and Biomaterials (2016) Iguazu Falls – PR, Brazil.
51. M.H. Ribas, D.T. Valerio, N.K. Kuromoto, A.R. da Luz, C.R. Grandini, C.M. Lepienski, **P. Soares**, Morphological and structural characterization, and wettability of TiO₂ nanotubes produced on Ti-Nb alloys, 9th Latin American Congress on Artificial Organs and Biomaterials (2016) Iguazu Falls – PR, Brazil.
52. T.K. Neves, J. Lin, R. Ignácio, R.D. Torres, **P. Soares**, Mechanical properties and adhesion evaluation of carbon based coatings deposited by Plasma Enhanced Techniques, 43rd ICMCTF - The International Conference on Metallurgical Coatings and Thin Films (2016) San Diego – CA, USA.
53. A.C.C. Almeida, C.A.H. Laurindo, **P. Soares**, Tribocorrosion of Ca-P doped TiO₂ nanotubes, 27th European Conference on Biomaterials (2015) Kraków, Poland.
54. L.S. Santos, S. Cogo, S. Espósito, **P. Soares**, Biocompatible calcium-phosphorous- boron doped titanium coating, eCM XVI: Implant Infection (Orthopaedic & Musculoskeletal Trauma related) (2015) Davos, Switzerland.
55. C. Neitzke, F. Amorim, I. Bassani, **P. Soares**, R. Torres, Surface hardening of a SAE 1045 steel by plasma transferred arc, 42nd ICMCTF - International Conference on Metallurgical Coatings and Thin Films (2015) San Diego – CA, USA.
56. R. Torres, **P. Soares**, F. Serbena, G. Souza, S. Blunk, C. Lepienski, Mechanical and tribological characterization of Duplex and Superduplex Stainless Steel treated by plasma immersion ion implantation, 42nd ICMCTF - International Conference on Metallurgical Coatings and Thin Films (2015) San Diego – CA, USA.
57. C.A.H. Laurindo, R.D. Torres, S. Mali, J.L. Gilbert, **P. Soares**, Effects of the plasma electrolytic oxidation method in the CaP enriched titanium oxide layer: Physicochemical and Corrosion properties, 41st ICMCTF - International Conference on Metallurgical Coatings and Thin Films (2014) San Diego – CA, USA.
58. C.A.H. Laurindo, R.D. Torres, **P. Soares**, J.L. Gilbert, S. Mali, Improvement of titanium wear and corrosion resistance by plasma electrolytic oxidation: Effects of applied voltage and annealing treatment, 41st ICMCTF - International Conference on Metallurgical Coatings and Thin Films (2014) San Diego – CA, USA.
59. **P. Soares**, V. Leszczak, K.C. Popat, Effect of anodization parameters on Ca-P incorporated

nanotubes properties, 41st ICMCTF - International Conference on Metallurgical Coatings and Thin Films (2014) San Diego – CA, USA.

60. **P. Soares**, C.A.H. Laurindo, R.D. Torres, Bioactive coatings on titanium obtained by the combination of micro-arc oxidation and electrophoretic deposition, Innovations in Biomedical Materials (2012) Raleigh – NC, USA.
61. C.A.H. Laurindo, R.D. Torres, **P. Soares**, Effect of post heat treatment on the mechanical and tribological properties of TiO₂ enriched with Ca and P obtained by micro arc oxidation, Innovations in Biomedical Materials (2012) Raleigh – NC, USA.
62. C.A.H. Laurindo, R.D. Torres, N.K. Kuromoto, **P. Soares**, Effect of heat treatment on the Ca-P doped TiO₂ layer obtained by micro-arc oxidation (*in Portuguese*), 7th COLAQB -Latin American Congress on Artificial Organs and Biomateriais (2012) Natal – RN, Brazil.
63. D.S. Weiss, R.D. Torres, **P. Soares**, Effects of crystallization on the fracture toughness and solubility of a phosphate glass for biomedical applications, IX Brazilian Symposium on Glass and Related Materials (2012) Curitiba – PR, Brazil.
64. **P. Soares**, C.A.H. Laurindo, R.D. Torres, Bioactive coatings on titanium obtained by combination of anodic oxidation and electrophoretic deposition, 7th COLAQB - Latin American Congress on Artificial Organs and Biomateriais (2012) Natal – RN, Brazil.
65. D.S. Weiss, R.D. Torres, **P. Soares**, Effect of TiO₂ and MgO addition on mechanical properties and solubility of phosphate glasses for biomedical applications, XX IMRC - International Materials Research Congress (2011) Cancun, MX.
66. C.A.H. Laurindo, R.D. Torres, N.K. Kuromoto, **P. Soares**, Influence of the anodic oxidation method on the titanium oxide formation, XX IMRC - International Materials Research Congress (2011) Cancun, MX.
67. P. Tümmeler, B.L. Pereira, C.M. Lepienski, N.K. Kuromoto, P.R. Souza, **P. Soares**, Bioactive films on titanium surface obtained by anodic oxidation in sulphuric and phosphoric acid, 21st Brazilian Congress of Mechanical Engineering (2011) Natal – RN, Brazil.
68. F.L. Amorim, L. Stedille, R.D. Torres, **P. Soares**, Surface integrity of Ti6Al4V alloy machined using EDM and graphite electrodes, 6^o COBEF – Brazilian Congress of Manufacturing Engineering (2011) Caxias do Sul – RS, Brazil.
69. D.S. Weiss, J.A.P. Setti, R.D. Torres, **P. Soares**, Study of mechanical properties and dissolution of glass and glass-ceramic calcium phosphate containing strontium oxide, 21st Brazilian Congress of Mechanical Engineering (2011) Natal – RN, Brazil.
70. R.B. Pessoa, P.R. Souza, C.A.H. Laurindo, R.D. Torres, N.K. Kuromoto, **P. Soares**, Titanium surface modification by double anodic oxidation, 21st Brazilian Congress of Mechanical Engineering (2011) Natal – RN, Brazil.
71. P.R. Souza, R.B. Pessoa, R.D. Torres, N.K. Kuromoto, **P. Soares**, Characterization of niobium anodically oxidized for biomedical applications, 6th COLAQB - Latin American Congress on Artificial Organs and Biomateriais (2010) Gramado – RS, Brazil.

72. R.B. Pessoa, P.R. Souza, R.D. Torres, N.K. Kuromoto, **P. Soares**, Deposition of HAp through electrophoresis on anodically oxidized titanium, 6th COLAOB - Latin American Congress on Artificial Organs and Biomateriais (2010) Gramado – RS, Brazil.
73. C.A.H. Laurindo, R.D. Torres, N.K. Kuromoto, **P. Soares**, Effect of current density on the Ca-P doped TiO₂ properties obtained by MAO, 6th COLAOB - Latin American Congress on Artificial Organs and Biomateriais (2010) Gramado – RS, Brazil.
74. D.S. Weiss, J.A.P. Setti, **P. Soares**, The crystallization of calcium phosphate glass containing strontium oxide, ICG 2010 - International Congress on Glass (2010) Salvador - BA, Brazil.
75. P.R. Souza, D. Moser, R.D. Torres, C.M. Lepienski, N.K. Kuromoto, J.E. May, **P. Soares**, Effect of voltage on mechanical properties of a biofunctional oxide layer obtained by anodic oxidation, Third International Conference on Mechanics of Biomaterials and Tissues (2009) Clearwater Beach - FL, USA.
76. G.B. Souza, H.A. Pontes, C.M. Lepienski, C.E. Foerster, N.K. Kuromoto, **P. Soares**, Nanomechanical and nanotribological properties of bioactive titanium surfaces prepared by alkali treatment, Third International Conference on Mechanics of Biomaterials and Tissues (2009) Clearwater Beach - FL, USA.
77. J.H.M. Martin, V. Torno, R.F. Mazur, **P. Soares**, Effect of different fluoride therapies on the microhardness surface of human enamel exposed to bleaching agents, Third International Conference on Mechanics of Biomaterials and Tissues (2009) Clearwater Beach - FL, USA.
78. N.K. Kuromoto, G.B. Souza, G.G. de Lima, A. Mikowski, **P. Soares**, C.M. Lepienski, Elastic modulus and hardness of rough, porous and bioactive Ti anodic films, Third International Conference on Mechanics of Biomaterials and Tissues (2009) Clearwater Beach - FL, USA.
79. N.K. Kuromoto, G.G. Lima, E. Szesz, G.B. Souza, R. Camargo, V. Swinka Filho, C.E. Marino, H.A. Pontes, W. Schreiner, C.M. Lepienski, **P. Soares**, Apatite nucleation on Ca/P anodic film obtained on titanium substrate, 8th World Biomaterials Congress (2008), Amsterdam, The Netherlands.
80. **P. Soares**, N.K. Kuromoto, C. Ravagnani, I. Mazzaro, V. Swinka Filho, O. Peitl, G.A. Soares, E.D. Zanotto, Apatite nucleation on oxidized titanium surface induced by a highly bioactive glass-ceramic, 8th World Biomaterials Congress (2008), Amsterdam, The Netherlands.
81. V. Torno, J.M.H. Martin, R.F. Mazur, A. Mikowski, C.M. Lepienski, S. Vieira, **P. Soares**, Effect of the oxygen-inhibited layer and experimental setup on the Knoop microhardness of composite resins, 8th World Biomaterials Congress (2008), Amsterdam, The Netherlands.
82. J.M.H. Martin, V. Torno, C. Ravagnani, C.M. Lepienski, R.F. Mazur, **P. Soares**, Effects of bioactive glass-ceramic application on the remineralization on artificially carious enamel, 8th World Biomaterials Congress (2008), Amsterdam, Netherlands.
83. L.E. Bertassoni, M.K. Pugach, **P. Soares**, S. Habelitz, S. Marshall, G.W. Marshall, Induced growth of hydroxyapatite in dentin - approaches for functional remineralization, 24th Annual Meeting of SBPqO – Brazilian Society for Dentistry Research (2007) Atibaia –SP,

Brazil.

84. E. Szesz, **P. Soares**, C.E. Marino, H.A. Pontes, F.C. Nascimento, C.M. Lepienski, G.A. Soares, N.K. Kuromoto, Surface analysis of titanium submitted to alkaline treatment by SEM and X-ray diffraction, XXI Congress of Brazilian Society of Microscopy and Microanalysis (2007) Armação de Búzios – RJ, Brazil.
85. J.M.H. Martin, V. Torno, R.N. Rached, **P.C. Soares Jr.**, E.A.R. Rosa, F.H.R. Osternack, R.F. Mazur, Protector effect of fluoride on the human enamel roughness submitted to different dental whiteners, 23rd Annual Meeting of SBPqO – Brazilian Society for Dentistry Research (2006) Atibaia – SP, Brazil.
86. V. Torno, J.M.H. Martin, **P.C. Soares Jr.**, R.F. Mazur, C.M. Lepienski, D.F.M. Machado, S. Vieira, Commercial LCUs irradiance and wavelength effects on microhardness of a composite resin, 23rd Annual Meeting of SBPqO – Brazilian Society for Dentistry Research (2006) Atibaia – SP, Brazil.
87. **P.C. Soares Jr.**, A. Mikowski, E. Szesz, N.K. Kuromoto, C.M. Lepienski, Mechanical and adhesion properties of a titanium dioxide film for biomedical applications, XVII CBECIMAT – Brazilian Materials Engineering Congress (2006), Foz do Iguaçu – PR, Brazil.
88. Mikowski, **P.C. Soares Jr.**, F. Wypych, C.M. Lepienski, Mechanical properties and fracture processes of anisotropic minerals used in ceramic industries, XVII CBECIMAT - Brazilian Materials Engineering Congress (2006), Foz do Iguaçu – PR, Brazil.
89. **P.C. Soares Jr.**, J. Stankiewicz, S. Araújo, T.H.S. Bossa, N.D. Mora, C.M. Lepienski, Surface crystallization of an HV insulator glass, XVII CBECIMAT – Brazilian Materials Engineering Congress (2006), Foz do Iguaçu – PR, Brazil.
90. M.M. Silva, M. Ueda, J.A.N. Gonçalves, C. Otani, H. Reuther, C.M. Lepienski, **P.C. Soares Jr.**, Surface modification of Ti6Al4V alloy by PIII at high temperatures, XVII CBECIMAT- Brazilian Materials Engineering Congress (2006), Foz do Iguaçu – PR, Brazil.
91. **P.C. Soares Jr.**, N.K. Kuromoto, I. Mazzaro, V. Swinka Filho, C. Ravagnani, G.A. Soares, Bioactive films in commercially pure titanium by anodic oxidation, XIV IMRC - International Materials Research Congress (2005) Cancun, México.
92. Araújo, N.D. Mora, A. Mikowski, **P.C. Soares Jr.**, C.M. Lepienski, Effect of surface crystallization on the mechanical properties of glass insulators, III International Symposium on Non-Crystalline Solids - VII Brazilian Symposium on Glass and Related Materials (2005) Maringá – PR, Brazil.
93. M. Lima, S.B. Massardo, **P.C. Soares Jr.**, E.D. Zanotto, Phosphate glass scintillators, III International Symposium on Non-Crystalline Solids - VII Brazilian Symposium on Glass and Related Materials (2005) Maringá – PR, Brazil.
94. **P.C. Soares Jr.**, M.D. Michél, C.M. Lepienski, C.E. Foerster, W. Schreiner, Effects of aqueous corrosion on the mechanical properties of commercial float glass, III International Symposium on Non-Crystalline Solids - VII Brazilian Symposium on Glass and Related Materials (2005) Maringá – PR, Brazil.

95. **P.C. Soares Jr.**, C.M. Lepienski, Residual stress determination on lithium disilicate glass-ceramic by nanoindentation, Annual Meeting of the International Commission on Glass / VI Brazilian Symposium on Glasses and Related Materials / II International Symposium on Glass (2003), Campos do Jordão – SP, Brazil.
96. K.G. Kostov, M. Ueda, I.H. Tan, C.M. Lepienski, **P.C. Soares Jr.**, M.M. Silva, Surface modification of metal alloys by plasma immersion ion implantation and subsequent plasma nitriding, 7th International Workshop on Plasma-Based Ion Implantation (2003) San Antonio - TX, USA.
97. M. Ueda, G.F. Gomes, K.G. Kostov, H. Reuther, C.M. Lepienski, **P.C. Soares Jr.**, O. Takai, M.M. Silva, Results from experiments on hybrid plasma immersion ion implantation - nitriding processing of materials, X Latin American Workshop on Plasma Physics -7th Brazilian Meeting on Plasma Physics (2003) São Pedro – SP, Brazil.
98. **P.C. Soares Jr.**, E.D. Zanotto, V. Fokin, H. Jain, TEM and XRD study of early crystallization of lithium disilicate glasses, Annual Meeting of the International Commission on Glass / VI Brazilian Symposium on Glasses and Related Materials / II International Symposium on Glass (2003) Campos do Jordão – SP, Brazil.
99. **P.C. Soares Jr.**, E.D. Zanotto, A.F. Craievich, SAXS and TEM studies of the early stages of crystallization of lithium disilicate glasses, 12th LNLS – National Synchrotron Laboratory Users Meeting (2002) Campinas – SP, Brazil.
100. **P.C. Soares Jr.**, C. Paucar, V. Fokin, R. Almeida, O. Peitl, E.D. Zanotto, Early and intermediary stages of crystal growth in Li₂O.2SiO₂ glass, First International Symposium on Non-Crystalline Solids in Brazil (2001) Foz do Iguaçu – PR, Brazil.
101. E.D. Zanotto, **P.C. Soares Jr.**, V.R. Mastelaro, Residual stresses in glass-ceramics, Flow and Fracture in Advanced Glasses (2001) Rennes, France.
102. **P.C. Soares Jr.**, E.D. Zanotto, H. Jain, TEM and XRD study of the early and intermediate stages of crystallization of lithium disilicate glass, First International Symposium on Non-Crystalline Solids in Brazil (2001) Foz do Iguaçu – PR, Brazil.
103. **P.C. Soares Jr.**, M.G.L. Leite, O. Peitl, E.D. Zanotto, Crystallization of a Bioglass by TEM, 7th Micromat – Materials Microscopy Congress (2000) São Pedro – SP, Brazil.
104. **P.C. Soares Jr.**, E.D. Zanotto, Influence of water on the crystallization pathway of Li₂O.2SiO₂ glass, 4th Brazilian Symposium on Glasses and Related Materials (1999) Ouro Preto – MG, Brazil.
105. **P.C. Soares Jr.**, E.D. Zanotto, H.J. Kestenbach, A.F. Craievich, TEM and SAXS studies of crystallization in Li₂O.2SiO₂ glasses, 3rd Brazilian Symposium on Glasses and Related Materials (1998) Bonito – MG, Brazil.
106. **P.C. Soares Jr.**, E.D. Zanotto, P.A.P. Nascente, S.G.C. Castro, Investigation of a lithium disilicate glass by XPS, XX National Meeting of Condensed Matter Physics (1997) Caxambú – MG, Brazil.

PATENTS

1. **P. Soares**, V. Torno, Chemical-mechanical polishing paste for dental materials (*in Portuguese*), INPI - BR1020230026699, filed in February 2023.
2. **P. Soares**, V. Torno, Toothpaste containing cerium oxide abrasive agent for chemical mechanical polishing (*in Portuguese*), INPI – BR1020233014177, filed in August 2023.
3. **P. Soares**, J. A. Villanova Jr., B. L. Pereira, S. Blunk, T. D. Toscano, C. A. Neitzke, Bioabsorbable polymer implant for bone fracture treatment and application method (*in Portuguese*), INPI - BR1020230152856, filed in July 2023.

TEACHING

Undergraduate level

- **Experimental Physics:** (2003/1, 2003/2) This course provides first year engineering students with an introduction to the methods of experimental physics. Includes lab exercises on topics chosen from mechanics, both the execution and the documentation of an experiment, and data analysis, including the treatment of statistical and systematic errors, and written reports of experimental procedures and results. Course taught during my pos-doc at the UFPR.
- **Physics I:** (2004/1, 2005/1) This is a first semester introductory physics course. Topics include vectors, displacement, velocity, acceleration, force, equilibrium, mass, Newton's laws, gravitation, work, energy, momentum, impulse, temperature, heat, equations of state, thermodynamic processes, heat engines, refrigerators, first and second laws of thermodynamics, and the kinetic theory of gases. Course taught during my pos-doc at the UFPR.
- **Metallic Materials:** (2008/1 to 2022/1) Fundamental principles of structure and properties of materials commonly used in mechanical engineering. Include lab. practices on metallography, mechanical properties, thermal and thermochemical treatments, corrosion of cast iron and steels, aluminum, and copper alloys. Theoretical and Laboratory classes.
- **Non-Metallic Materials:** (2008/2 to 2023/2) Fundamental principles of structure and properties of non-metallic materials commonly used in mechanical engineering (ceramics, polymers, and composites). Include lab. practices on ceramic sintering and mechanical properties, polymers synthesis and mechanical properties, fiber-reinforced resins properties. Theoretical and Laboratory classes.
- **Senior Graduation Projects:** (2015/1 to 2021/1) Coordination of research projects in mechanical engineering areas under faculty supervision. The aim of this course is to provide the students with an understanding of what is a research project and how it is performed, to present and analyze the main steps of scientific writing, literature search and review, and results' presentation.
- **Engineering of Nanomaterials:** (MECH 432 – Spring 2020): A comprehensive overview of the synthesis and characterization of nanoparticles, nanocomposites, and hierarchical

materials with nanoscale features. Course taught as a visiting professor at CSU.

- **Materials Selection in Mechanical Design:** (2021/2 – 2023/2): The aim of this course is to train students in design-oriented materials selection. The course introduces analytical tools and methods for qualified materials selection for engineering applications, using Ashby plots and Granta Edupack software. Principles for material design for typical applications are also treated where the importance of behavior of specific materials and classes of materials are considered with respect to materials properties, cost, sustainability.

Graduate level (MSc and PhD)

- **Biomaterials:** (2007/2, 2015/2, 2017/2, 2021/1) The primary objective of this course is to teach the material science, physical characterization, properties, materials, and biology, needed to solve challenges in the biomaterials and tissue engineering area.
- **Fundamentals of Materials Science:** (2008/1, 2011/1, 2012/1) This course focuses on the fundamentals of structure, energetics, and bonding that support materials science. Topics include an introduction to thermodynamic functions and laws governing equilibrium properties, relating macroscopic behavior to atomistic models of materials; the role of chemical bonding in determining the properties of materials, phase transformations, symmetry properties of molecules and solids; the structure of crystalline and amorphous materials.
- **Materials Characterization:** (2008/1 to 2024/1) This is a laboratory-based course providing experience with the conventional characterization techniques used in materials science and engineering. Techniques include X-ray diffraction; optical, electron, atomic force, confocal microscopies; differential scanning calorimetry; contact angle and surface energy measurement; Raman, FTIR, and XPS spectroscopies. The primary objective of this course is to teach the students how to select the characterization technique appropriate to their research project, use the instruments effectively, and analyze and evaluate the data that result from the different types of measurements.
- **Mechanical Properties of Materials:** (2009/2 to 2023/2) Influence of structure on the mechanical properties of materials. Definition of different mechanical properties and experimental techniques to measure them. Elastic, viscoelastic, and plastic deformation. The objective of this course is to teach the students how to select the characterization technique appropriate to their research project, use the instruments effectively, and analyze and evaluate the data that result from the different types of measurements.
- **Surface engineering for corrosion and wear resistance:** (2014/2, 2022/2) Mechanisms of corrosion, thermodynamics, and kinetics of corrosion. Passivity; Pourbaix diagrams; corrosion rate testing and measurements; forms of corrosion; effects of alloy and environmental variables; corrosion testing. Wear mechanisms: adhesive, abrasive, erosive. Fretting; surface roughness, wear testing. Coatings for corrosion and wear protection.

ADVISING/MENTORSHIP

Post-doctorate

1. Maria Cândida Magalhães de Faria. Surface modification of titanium alloys at nanoscale level to be used as orthopedic implants (2015). Department of Materials and Technology, UNESP – Guaratinguetá, SP.
2. Rosemeire dos Santos Almeida. Surface modification of titanium alloys at nanoscale level to be used as orthopedic implants (2016). Department of Materials and Technology, UNESP – Guaratinguetá, SP.
3. Bruno Leandro Pereira. Bioactive and bactericidal Ti coatings deposited onto stainless steel (2022-24). PPGEM - Mechanical Engineering Graduate Program, Pontifícia Universidade Católica do Paraná.
4. Vladja Torno. Mechanical and optical properties of composite resins for bleached tooth (2022-24). PPGEM - Mechanical Engineering Graduate Program, Pontifícia Universidade Católica do Paraná.
5. Tarciana Dieb Toscano. Tribocorrosive properties of magnesium alloys modified by PEO (2024-26). PPGEM - Mechanical Engineering Graduate Program, Pontifícia Universidade Católica do Paraná

Graduate Students

Ongoing PhD Thesis

1. Sara Blunk. Tribocorrosion of hard coatings deposited on surgical instruments, (Expected June 2024). PPGEM - Mechanical Engineering Graduate Program, Pontifícia Universidade Católica do Paraná. (Supervisor).
2. Thiago de Lima Gontarski. Decorative PVD coatings deposited on polymeric substrates. (Expected December 2025). PPGEM - Mechanical Engineering Graduate Program, Pontifícia Universidade Católica do Paraná. (Supervisor).
3. Leticia Bembem. Analysis of bioactive and bactericidal properties in titanium prosthetic components modified by PEO at the transgingival interface. (Expected March 2026). PPGEM - Mechanical Engineering Graduate Program, Pontifícia Universidade Católica do Paraná. (Supervisor).
4. Bruno C. N. da Silveira. Enhancing bactericidal and bioactive responses through surface modification of zirconia dental implants. (Expected March 2026). PPGEM - Mechanical Engineering Graduate Program, Pontifícia Universidade Católica do Paraná. (Supervisor).

Finished PhD Thesis

5. Tarciana Toscano. Nanostructured surface on stainless steels with antimicrobial properties (December 2023). PPGEM - Mechanical Engineering

- Graduate Program, Pontifícia Universidade Católica do Paraná.(Supervisor).
6. Denise Stolle da Luz Weiss. Development of phosphate-based glass-ceramics for biomedical applications. (December 2019). PPGEM - Mechanical Engineering Graduate Program, Pontifícia Universidade Católica do Paraná. (Supervisor). Currently as Instructor at Pontifícia Universidade Católica do Paraná.
 7. Luciane Sopchenski Santos. Development of bactericidal coatings on titanium surface. (June 2018). PPGEM - Mechanical Engineering Graduate Program, Pontifícia Universidade Católica do Paraná. (Supervisor). Currently as Researcher at the Vrije Universiteit Brussel, Belgium.
 8. Marcos Eduardo Soares. Evaluation of Mechanical, Tribological and Tribocorrosive Behavior of AISI 4340 Steel Coated with Electroless Ni-P and AlCrN. (2016). PPGEM - Mechanical Engineering Graduate Program, Pontifícia Universidade Católica do Paraná. (Co-Supervisor). Currently as Associate Professor at UTFPR – Federal Technological University of Parana.
 9. Paulo Tancredo de Campos. Wear and Corrosion Resistance of Carbon Steel Coated with Stainless Steel Applied Through GMAW Welding Process (2015) PPGEM - Mechanical Engineering Graduate Program, Pontifícia Universidade Católica do Paraná. (Co-Supervisor). Currently as Welding Company Owner.
 10. Carlos Augusto Henning Laurindo. Influence of PEO parameters on the mechanical, tribological and bioactivity properties of a Ca-P rich TiO₂ layer. (2014) PPGEM - Mechanical Engineering Graduate Program, Pontifícia Universidade Católica do Paraná. (Supervisor). Currently as Associate Professor at PUCPR.
 11. Vladja Torno. Effect of irradiance on heating and mechanical properties of a Led polymerized composite resin (2011) PPGO – Odontology Graduate Program, Pontifícia Universidade Católica do Paraná. (Co-Supervisor). Currently as Dentist, owner of DentTS dental materials company.
 12. Ana Paula Ribeiro Bonilauri Ferreira. LED wavelength influence on the composite resin polymerization (2011) PPGO – Odontology Graduate Program, Pontifícia Universidade Católica do Paraná. (Co-Supervisor). Currently as Assistant Professor at Univille University – Joinville.
 13. Juliana Maria Habith Martin. Influence of energy density on the mechanical properties of a composite resin polymerized by LED (2010) PPGO – Odontology Graduate Program, Pontifícia Universidade Católica do Paraná. (Co-Supervisor). Currently as Dentist.

Ongoing Master Thesis

1. Jennifer Maia. Synthesis of polymer-bioglass hydrogel composite for chronic wound healing applications. (Expected March 2024). PPGEM - Mechanical Engineering Graduate Program, Pontifícia Universidade Católica do Paraná.

(Supervisor)

2. Jaison dos Santos Junior. Biological properties of PEO coatings with bioglass incorporation. (Expected March 2024). PPGEM - Mechanical Engineering Graduate Program, Pontifícia Universidade Católica do Paraná. (Supervisor)
3. Gleiciele Lemes Caetano. PEO-polymer hybrid coatings on magnesium alloys for corrosion and wear resistance. (Expected August 2024). PPGEM - Mechanical Engineering Graduate Program, Pontifícia Universidade Católica do Paraná. (Supervisor)
4. Gustavo Zaninelli Rocha. Mechanical properties of fracture fixation plates produced by 3D printing using polymer and stainless steel composite filaments. (Expected August 2024). PPGEM - Mechanical Engineering Graduate Program, Pontifícia Universidade Católica do Paraná. (Supervisor)

Finished Master Thesis

5. Bruno C. N. da Silveira. Mechanical properties of TiO₂ nanotubes produced by fast route. 2023. PPGEM - Mechanical Engineering Graduate Program, Pontifícia Universidade Católica do Paraná. (Supervisor). Currently as PhD student at PPGEM/PUCPR and Process engineer at Neodent-Straumman.
6. Eduardo Souza. Fatigue resistance of bactericidal TiO₂ coating deposited on dental implants by PEO. (December 2022). PPGEM - Mechanical Engineering Graduate Program, Pontifícia Universidade Católica do Paraná. (Supervisor). Currently as R&D Manager at Neodent- Straumman Implants, Brazil.
7. Guilberth Hobold. Tribocorrosion studies of nitrated biomedical stainless steel 316LVM. (December 2021). PPGEM - Mechanical Engineering Graduate Program, Pontifícia Universidade Católica do Paraná. (Supervisor). Currently as a project freelancer.
8. Blanceliz Higaskino de Lima. Mechanical and corrosion properties of a piezoelectric AlN thin film as a function of deposition temperature. 2020. PPGEM - Mechanical Engineering Graduate Program, Pontifícia Universidade Católica do Paraná. (Supervisor). Currently as Instructor at SENAI/Curitiba.
9. Jéssica Turola. Biofunctionalization of titanium scaffolds. 2019. PPGEM - Mechanical Engineering Graduate Program, Pontifícia Universidade Católica do Paraná. (Supervisor). Currently as PhD student at PPGEM/PUCPR.
10. Leticia Bembem. Bioactive titanium implants produced by an hybrid technique combining Plasma Electrolytic Oxidation and Bioglass deposition. 2019. PPGEM - Mechanical Engineering Graduate Program, Pontifícia Universidade Católica do Paraná. (Supervisor). Currently as R&D Coordinator at Neodent- Straumman Implants, Brazil.
11. André Luiz About Hatem. Tribocorrosion of nanostructured hard coatings on

- titanium alloy. 2018. PPGEM - Mechanical Engineering Graduate Program, Pontifícia Universidade Católica do Paraná. (Supervisor). Currently as postdoctoral researcher at the University of Adelaide, Australia.
12. Amanda Siebert. Comparison of Mechanical and Tribological Properties of Commercially and LENS (Laser Engineered Net Shaping) Titanium Alloys. 2017. Department of Mobility Engineering - Federal University of Santa Catarina (UFSC), Joinville, SC, Brazil. (Co-Supervisor).
 13. Mirella F. Manosso da Silva. Influence of heat treatment temperatures on the mechanical properties and adhesion of TiO₂ nanotubes. 2016. PPGEM - Mechanical Engineering Graduate Program, Pontifícia Universidade Católica do Paraná. (Supervisor). Currently as Head of Corporate Innovation -Straumann Group, Switzerland.
 14. Ana Carolina Crema de Almeida. Tribocorrosion of Ca-P doped TiO₂ nanotubes. 2015. PPGEM - Mechanical Engineering Graduate Program, Pontifícia Universidade Católica do Paraná. (Supervisor). Currently as Lecturer at UniCesumar, Brazil.
 15. Renato Basgal Pessoa. Mechanical and tribological properties of AISI 4140 steel coated with NiP-Al₂O₃ composite. 2014. PPGEM - Mechanical Engineering Graduate Program, Pontifícia Universidade Católica do Paraná. (Supervisor). Currently as Owner/Engineer at ClassicArt Furniture.
 16. Peterson Ronny de Souza. Influence of substrate surface finishing on the TiAlN coating adhesion properties. 2014. PPGEM - Mechanical Engineering Graduate Program, Pontifícia Universidade Católica do Paraná. (Supervisor). Currently as Mechanical Engineer at Ciser Fasteners.
 17. Denise Stolle da Luz Weiss. Master thesis: Effect of TiO₂ and MgO addition on the mechanical and chemical properties of strontium-calcium phosphate glasses for biomedical applications. 2012. PPGEM - Mechanical Engineering Graduate Program, Pontifícia Universidade Católica do Paraná. (Supervisor). Currently as Assistant Professor at PUCPR.
 18. Vítor Amadeu Dalcin. Evaluation of electrolyte containing molybdenum powder on the EDM surface integrity. 2011. PPGEM - Mechanical Engineering Graduate Program, Pontifícia Universidade Católica do Paraná. (Co-Supervisor). Currently as Director of Ambiental Santos Oil Recycling.
 19. Sara Blunk Massardo. Nanoindentation on Lithium Disilicate Glass-ceramics Fractography and Mechanical Properties. 2011. Physics Department, Universidade Federal do Paraná. (Co-Supervisor). Currently as PhD student at PUCPR.
 20. Anderson Luiz Molinetti. Surface modification of AISI H13 steel using EDM with Si and Mg suspended powders. 2010. PPGEM - Mechanical Engineering Graduate Program, Pontifícia Universidade Católica do Paraná. (Co-

Supervisor).

21. Sandro Elias Braum. Effect of crystallization fraction on the mechanical properties of a lithium disilicate glass. 2008. Physics Department, Universidade Federal do Paraná. (Co-Supervisor). Currently as a lecturer at IFRGS.
22. Vladja Torno. Effects of irradiance and wavelength of commercial LCUs on the composite resin hardness. 2005. PPGO – Odontology Graduate Program, Pontifícia Universidade Católica do Paraná. (Co-Supervisor).

COMMITTEES

1. COPESQ – Research Committee of Polytechnic School at PUCPR, 2011-2014
2. PPGEM Graduate Admission Committee, 2012-onwards
3. Committee for Strategic Planning of the Polytechnic School at PUCPR, 2012
4. Several MSc and Ph.D. committees at PUCPR and other Brazilian universities.

PROFESSIONAL AFFILIATIONS AND ACTIVITIES:

Memberships in professional societies

1. SBPMat - Brazilian Materials Research Society (B-MRS), Member since 2006.
2. SLABO - Latin American Society of Biomaterials Tissue Engineering and Artificial Organs, Member since 2010.
3. CREA – Regional Council of Engineering, Architecture and Agronomy, since 2007.

Grant Referring

1. CNPq - Conselho Nacional de Desenvolvimento Científico e Tecnológico (National Council for Scientific and Technological Development), 2013-onwards.
2. Fundação Araucária (Paraná State Funding Agency), 2012-onwards.
3. Conicet - Consejo Nacional de Investigaciones Científicas y Técnicas (Argentinean National Scientific and Technical Research Council), 2013.
4. Capes - Coordination for the Improvement of Higher Education Personnel (Foundation within the Ministry of Education), 2015-onwards.
5. FINEP - Funding Agency for Studies and Projects, 2015-onwards.

Manuscript Reviewer

1. Acta Biomaterialia
2. ACS Applied Materials & Interfaces
3. ACS Omega
4. Applied Physics A
5. Applied Surface Science
6. Chemical Data Collections
7. Ceramics International
8. Corrosion Science
9. Diamond and Related Materials

10. Friction
11. Industrial Lubrication and Tribology
12. International Journal of Applied Ceramic Technology
13. International Journal of Biomedical Materials Research
14. International Journal of Dentistry
15. International Journal of Metallurgy and Metal Physics
16. Journal of Alloys and Compounds
17. Journal of the American Ceramic Society
18. Journal of the Applied Ceramic Technology
19. Journal of Applied Solution Chemistry and Modeling
20. Journal of Biomedical Materials Research. Part B, Applied Biomaterials
21. Journal of Engineering in Medicine
22. Journal of Manufacturing Processes
23. Journal of Materials Processing Technology
24. Journal of Materials Research
25. Journal of Materials Research and Technology
26. Journal of Materials Science
27. Journal of Mechanical Science and Technology
28. Journal of Non-Crystalline Solids
29. Journal of Testing and Evaluation
30. Materials Advances
31. Materials Chemistry and Physics
32. Materials Letters
33. Materials Research
34. Materials Science & Engineering. C, Biomimetic Materials, Sensors and Systems
35. Materialia
36. Metals
37. Physics and Chemistry of Glasses: European Journal of Glass Science and Technology Part B
38. Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science
39. Powder Technology
40. Scientific Reports
41. Surface and Coatings Technology
42. Thin Solid Films
43. Tribology International
44. Vacuum

Editorial Board

1. Journal of Materials & Applied Science

Synergistic Activities

1. XI BrazGlass – Brazilian Symposium on Glasses and Related Materials (Curitiba – Brazil, 13-17 July 2017). Vice-Chair.
(<http://www3.uepg.br/brazglass/>).
2. 24th COBEM – International Congress of Mechanical Engineering (Curitiba – Brazil, 3-8 Dec 2017). Scientific Program Chair / Chair of Bioengineering Symposium (<http://eventos.abcm.org.br/cobem2017/index.php>).

3. HI-PUC Mentor (2015/2017) – Health Innovation Program for Medical Devices Development (Stanford Biodesign methodologies) at PUCPR (<http://hipuc.com>).
4. Guest editor of special issue “Surface Treatment of Alloys for Biomedical Application”, MDPI / Metals (2023).

PROFESSIONAL REFERENCES

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