

Dr. Juliano Alves Bonacin, Professor

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EDUCATION

2007-2009 (Post-doctoral) - INSTITUTE OF CHEMISTRY – UNIVERSITY OF SÃO PAULO (USP) – São Paulo-SP, Brazil
Postdoctoral, “Development of molecular systems for the construction of nanodevices to convert and transfer energy” – FAPESP (fellowship); Supervisor: Prof. Dr. Henrique E. Toma

2002-2007 (PhD) INSTITUTE OF CHEMISTRY – UNIVERSITY OF SÃO PAULO (USP) – São Paulo-SP, Brazil
PhD. Inorganic Chemistry, “Supramolecular Chemistry and Nanodevices Based on Terpyridine Complexes” – FAPESP (fellowship); Advisor: Prof. Dr. Henrique E. Toma

1998 – 2002 (Bachelor in chemistry) - DEPARTAMENT OF CHEMISTRY, UNIVERSITY OF MARINGÁ (UEM), Maringá-PR, Brazil
Bachelor in chemistry – CAPES/Sesu (fellowship)

EXPERIENCE

1. Jan, 2007-Jun, 2012 (Co-Founder) NovaNano – nanotechnology startup focused on services to the pharmaceutical industry and R&D developments

- Created the first company in Brazil that provided polymorphism analysis of pharmaceutical solids for the pharmaceutical industry; Experience in reverse engineering and formulation of generic drugs
- The main researcher in the development of two new technologies based on silver nanoparticles: biocide additive for polymers and biocide additive for coatings, which resulted in functional pilots, patents, lead to licensing negotiations and a deal of technological transfer
- Manager of RHA/CNPq project (CNPq-National Council for Scientific and Technological Development) - “Development of Supramolecular UV dosimeter” (2008-2010). The project had US\$ 100,000 in funding and resulted in a functional pilot, but no further commercial development.
- Manager of Innovation Project Senai 2009 (SENAI - National Service for Industrial Training): “Intelligent Paint with Bactericidal Properties” (2009-2011). The project had US\$ 100,000 in funding.
- Manager of PRIME/FINEP Project 2009 (FINEP-Financier of Studies and Projects): “Active package to increase shelf-life” (2009-2011). The project had US\$ 85,000 in funding.
- Former Member of the Forum of Competitiveness in Nanotechnology from the Brazil's Ministry of Development, Industry and Foreign Trade, which is responsible for the creation of the nanotechnology regulatory framework in Brazil

2. Mar, 2007 – Aug, 2007 - Assistant Professor at RIO DE JANEIRO STATE UNIVERSITY (UERJ), Rio de Janeiro, RJ-Brazil

3. Jul 2012 - to the present - Professor MS3.2 at Department of Inorganic Chemistry at UNIVERSITY OF CAMPINAS (UNICAMP), Campinas, SP-Brazil

- Founder of Molecular Nanotechnology Laboratory at UNICAMP (Laboratório de Nanotecnologia Molecular – **LNanoMol**, inanomol.iqm.unicamp.br)
Lattes curriculum - <http://lattes.cnpq.br/9730622542566256>
- **Visiting Researcher** at University of Ottawa (Dec/12 – Mar/13), Laboratory of Prof. Juan Cesar (Tito) Scaiano. (<http://photo.chem.uottawa.ca/>)
- **Visiting Researcher** at Metropolitan Manchester University (Apr/17 – May/17), Laboratory of Prof. Craig E Banks (<http://craigbanksresearch.com/>)
- Coordinator of the Committee of Safety and Environmental Ethics (Institute of Chemistry – UNICAMP) (Sep/13 – Mar/15)
- Coordinator of the Laboratory of Analytical Service (Apr/15 – to the present)

ACADEMIC ACHIEVEMENTS

Patents registered

- *UV Dosimeter Based on supramolecular junctions TiO₂/Dye - I.N.P.I. - PI0702995-0. 2006.*
- *Chemical signal of organic solvents' vapor - INPI - PI0903804-3. 2009.*
- *Bactericide additive and production process - INPI-NPRJ Nº 020110066623. 2011*

Honors and Award

- Highest score for graduates in Chemistry Course 2001, Department of Chemistry, Universidade Estadual de Maringá. (2002)
- Best poster: Award NanoEurope 2006, EMPA Materials Science & Technology (2006)
- Best poster: Inorganic Chemistry Division - 29th Brazilian Meeting Chemical Society, Brazilian Chemical Society (2006)
- Best poster: Nanotech-Materials: “*Characterization of the B-cyclodextrin stabilizing layer around silver nanoparticles*”, Congresso da Sociedade Brasileira de Microscopia e Microanálise -CSBMM (2013)

Articles Published

- 29. B. M. Pires, F. E. Galdino, J. A. Bonacin; “Electrocatalytic reduction of oxygen by metal coordination polymers produced from pentacyanidoferrate (II) complex” *Inorganica Chimica Acta*, **2017**, 466, 166.
- 28. M. C. Monteiro, K. F. C. Toledo, B. M. Pires, R. Wick, J. A. Bonacin; “Improvement of efficiency of electrocatalytic reduction of hydrogen peroxide by Prussian blue produced from [Fe(CN)₅(mpz)]²⁻ complex” *European Journal of Inorganic Chemistry*, **2017**, 13, 1979.
- 27. J. A. Bonacin, S. H. Toma, M. Nakamura, H. E. Toma; “Electrocatalytic activity in sensing of nitrite by films produced by electropolymerization from the complex [Fe(Br-ph-tpy)₂]²⁺”. *Journal of Coordination Chemistry*, **2017**, 70, 1137.
- 26. K. F. C. Toledo, B. M. Pires, J. A. Bonacin, B. A. Iglesias; “Stabilization of meso-tetraferrocenyl-porphyrin films by formation of composite with Prussian blue” *Journal of Porphyrins and Phthalocyanines*, **2017**, 21, 10.
- 25. P. L. Santos, R. A. Timm, L. T. Kubota, J. A. Bonacin; “Modulation of electrochemical properties of graphene oxide by photochemical reduction using UV-Light Emitting Diodes” *ChemistrySelect*, **2016**, 1, 1168.

24. J. A. Bonacin, V. Katic, K. C. F. Toledo, H. E. Toma; "Spectroscopic and electrochemical behavior of a supramolecular tetrapyrrolylporphyrin encompassing four terpyridine(oxalato)chloridoruthenium(II) complexes and its use in nitrite sensors" *Inorganica Chimica Acta* **2015**, *437*, 127.
23. F. E. Galdino, J. P. Smith, S. I. Kwamou, D. K. Kampourins, J. Iniesta, G. C. Smith, J. A. Bonacin, C. E. Banks; "Graphite Screen-Printed Electrodes Applied for the Accurate and Reagentless Sensing of pH" *Analytical Chemistry*, **2015**, *87*, 11666.
22. C. S. Ferreira, P. L. Santos, J. A. Bonacin, R. R. Passos, L. A. Pocrifka; "Rice husk reuse in the preparation of SnO₂/SiO₂ nanocomposite". *Materials Research*, **2015**, *18*, 639.
21. S. C. Santos, L. M. Moreira, D. L. R. Novo, L. R. R. Santin, D. Bianchini, J. A. Bonacin, A. P. Romani, A. U. Fernandez; M. Baptista, H. P. M. de Oliveira; "Photophysical properties of porphyrin derivatives: Influence of the alkyl chains in homogeneous and micro-heterogeneous systems" *Journal of Porphyrins and Phthalocyanines*, **2015**, *19*, 1.
20. F. E. Galdino, C. W. Foster, J. A. Bonacin, C. E. Banks; "Exploring the electrical wiring of screen-printed configurations utilised in Electroanalysis" *Analytical Methods*, **2015**, *7*, 1208.
19. M. C. Gallo, B. M. Pires, K. C. F. Toledo, S. A. V. Jannuzzi, Arruda, E. G. R. Arruda, A. L. B. Formiga, J. A. Bonacin; "The use of modified electrodes by hybrid systems gold nanoparticles/Mn-porphyrin in electrochemical detection of cysteine" *Synthetic Metals*, **2014**, *198*, 335.
18. B. M. Pires, S. A. V. Jannuzzi, A. L. B. Formiga, J. A. Bonacin; "Prussian blue Films Produced by Pentacyanidoferrate(II) and their Application as Active Electrochemical Layer" *European Journal of Inorganic Chemistry*, **2014**, *5812*. (Cover Picture)
17. K. C. F. Toledo ; T. A. Matias, H. B. Jorge, H. E. Toma, J. A. Bonacin, V. R. de Souza; "Non-innocent behavior of 1-(2-pyridylazo)-2-naphtholate coordinated to polypyridine ruthenium (II) complexes" *Journal of Coordination Chemistry*, **2014**, *67*, 3311.
16. A. M. C. Assumpção, J. A. Bonacin, S. H. Toma, V. M. Zamarion, H. E. Toma; "Probing Surface-Complex Interactions with the bis(4-thienylterpyridine) iron (II) complex anchored on TiO₂ and gold nanoparticles" *Canadian Journal of Chemistry*, **2014**, *92*, 91.
15. P. F. Andrade, A. F. de Faria, D. S. da Silva, J. A. Bonacin, M. C. Gonçalves; "Structural and morphological investigations of b-cyclodextrin-coated silver nanoparticles" *Colloids and Surfaces. B, Biointerfaces*, **2014**, *118*, 289.
14. J. A. Bonacin, S. H. Toma, J. N. Freitas, A. F. Nogueira, H. E. Toma; "On the behavior of the carboxyphenylterpyridine(8-quinolinolate) thiocyanatoruthenium(II) complex as a new black dye in TiO₂ solar cells modified with carboxymethyl-beta-cyclodextrin" *Inorganic Chemistry Communications*, **2013**, *36*, 35.
13. M. A. Carvalho, P. F. Andrade, F. C. A. Corbi, M. C. Gonçalves, A. L. B. Formiga, I. O. Mazali, J. A. Bonacin, P. P. Corbi; "A simple method to synthesize fluorescent modified gold nanoparticles using tryptamine as the reducing and capping agent" *Synthetic Metals*, **2013**, *185-186*, 61.
12. S. Nikolau, S. H. Toma, V. R. de Souza, J. A. Bonacin, K. Araki, H. E. Toma; "Triangular ruthenium acetate clusters containing the bis(pyridyl)propane ligand and their inclusion chemistry with β-cyclodextrin" *Transition Metal Chemistry*, **2011**, *36*, 775.
11. K. P. Naidek, F. Bianconi, T. C. R. da Rocha, D. Zanchet, J. A. Bonacin, M. A. Novak, M. G. F. Vaz, H. Winnischofer; "Structure and morphology of spinel MFe₂O₄ (M=Fe, Co, Ni) nanoparticles chemically synthesized from heterometallic complexes" *Journal of Colloid and Interface Science*, **2011**, *358*, 39.
10. J. A. Bonacin; "Nanotecnologia com Inovação a Fármacos e Medicamentos" *Fármacos & Medicamentos*, **2009**, *58*, 50.
9. J. A. Naue, S. H. Toma, J. A. Bonacin, K. Araki, H. E. Toma; "Probing the Binding of Tetraplatinum(pyridyl)porphyrin Complexes to DNA by means of Surface Plasmon Resonance" *Journal of Inorganic Biochemistry*, **2009**, *103*, 182.
8. L. M. Moreira, A. Lima, R. R. S. Soares, V. R. Batistela, A. P. Gerola, N. Hioka, J. A. Bonacin, D. Severino, M. S. Baptista, A. E. H. Machado, M. R. Rodrigues, L. Codognoto, H. P. M. de Oliveira; "Metallochlorophylls of Magnesium, Copper and Zinc: Evaluation of the influence of the first coordination sphere on their solvatochromism and aggregation properties" *Journal of the Brazilian Chemical Society*, **2009**, *20*, 1653
7. J. A. Bonacin, F. M. Engelmann, D. Severino, H. E. Toma, M. S. Baptista; "Singlet oxygen quantum yields (Φ_D) in water using beetroot extract and an array of LEDs" *Journal of the Brazilian Chemical Society*, **2009**, *20*, 31.
6. A. L. A. Parussulo, J. A. Bonacin, S. H. Toma, K. Araki, H. E. Toma; "Unravelling the Chemical Morphology of a Mesoporous Titanium Dioxide Interface by Confocal Raman Microscopy: New Clues for Improving the Efficiency of Dye Solar Cells and Photocatalysts" *Langmuir*, **2009**, *25*, 11269.
5. R. A. Timm, J. A. Bonacin, A. L. B. Formiga, H. E. Toma; "A Theoretical Study of the Tautomerism and Vibrational Spectra of 4,5-Diamine-2,6-dimercaptopyrimidine" *Journal of the Brazilian Chemical Society*, **2008**, *19*, 287.
4. V. R. de Souza, H. R. Rechenberg, J. A. Bonacin, H. E. Toma; "Spectroscopic and electrochemical properties of iron(II) complexes of polydentate Schiff bases containing pyrazine, pyridine and imidazole groups" *Spectrochimica Acta. Part A, Molecular and Biomolecular Spectroscopy*, **2008**, *71*, 1296
3. J. A. Bonacin, A. L. B. Formiga, V. H. S. de Melo, H. E. Toma; "Vibrational spectra and theoretical studies of tautomerism and hydrogen bonding in the violuric acid and 6-amino-5-nitrosouracil system" *Vibrational Spectroscopy*, **2007**, *44*, 133.
2. S. H. Toma, J. A. Bonacin, K. Araki, H. E. Toma; "Controlled stabilization and flocculation of gold nanoparticles by means of pyrazine-ethanethiol and pentacyanoferrate(II) complexes" *European Journal of Inorganic Chemistry*, **2007**, *3356*.
1. S. H. Toma, J. A. Bonacin, K. Araki, H. E. Toma; "Selective Host-Guest Interactions on Mesoporous TiO₂ Films Modified With Carboxymethyl-beta-Cyclodextrin" *Surface Science*, **2006**, *600*, 4591.

ADDITIONAL INFORMATION

Scientific meetings: national and international: 77 posters; **Scientific presentations:** 39

Graduated students under my supervision: 5; **Ungraduated students under my supervision:** 1; **Alumni:** 14

Technological transfer to industry: 1

Partners/Clients (companies): Achè, EMS, Eurofarma, Biolab, Analytics, Blanver, Buckman, Chem4u, Cifarma, Cimed, Clariant, EcoTag, Elekeiroz, Erowlabs, Formiline, FlowScience, Gerbras, Hypermarcas, ICF, IIPF, IPT, KMC, Microbiológica, Mikron, Momentive, Natura, Orbys, Plasticolor, Polyanalitik, Saturno Tintas, Tortuga and Unigel

Reviewer: Química Nova, Journal of Materials Chemistry A, B and C, RSC Advances, Physical Chemistry Chemical Physics, Journal of the Brazilian Chemical Society, Journal of Molecular Structure, Chemical Communications, Journal of the Chemical Society of Pakistan, Langmuir, ChemPhysChem, Dalton Transactions, New Journal of Chemistry, Journal of Nanostructure in Chemistry, ChemSusChem, ChemElectroChem, Microchemical Journal, Inorganica Chimica Acta, NANO, Electroanalysis.

Campinas, July, 2017