

Rúbia Young Sun Zampiva

INFORMAZIONI GENERALI

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ESPERIENZE DI LAVORO

Assegnista di Ricerca presso il Dipartimento di Scienze di Base e Applicate per l'Ingegneria
Giugno 2020 - Ad oggi. Sapienza Università di Roma, Italia.

Oggetto: Sviluppo di sensori per rilevamento di gas tossici basati su nanotubi di carbonio dopati con ioni metallici e loro integrazione su tessuti industriali.

Contratto di collaborazione con **Nanoshare Srl. Roma, Italia. Settembre 2019 – Marzo 2020.**

Oggetto: Realizzazione di soluzioni con nanotubi di carbonio per utilizzo in stampe a getto su tessuti industriali nell'ambito della commessa NANOFAB gestita da **Klopman Srl.**

Post Dottorato in Ingegneria dei Materiali **Marzo 2019 – Maggio 2020.**

Post Dottorato in Ingegneria della Produzione **Settembre 2017 - Marzo 2019.**

Università Federale (Rio Grande do Sul), UFRGS, Brasile.

Oggetto: Produzione di rivestimenti con proprietà di upconversion e antiriflessiva applicati nel miglioramento dell'efficienza delle celle fotovoltaiche commerciali basate su silicio.

ISTRUZIONE E FORMAZIONE

Ph.D. in Ingegneria dei Materiali **Maggio 2013 - Giugno 2017**

Università Federale (Rio Grande do Sul), UFRGS, Brasile.

Università della California Davis (UCDavis) California, USA.

Titolo: "Synthesis of nanostructured erbium doped forsterite and its microstructural and optical characterization".

M.Sc. in Ingegneria dei Materiali **2011 - 2013**

Università Federale (Rio Grande do Sul), UFRGS, Brasile.

Titolo: "CVD synthesis of magnesium borate $Mg_2B_2O_5$ nanostructured (nanorods) and microstructural characterization".

Laurea in Chimica **2006 - 2011**

Università Pontificia Cattolica (Rio Grande do Sul), PUCRS, Brasile.

Titolo: "Study of the mechanical properties of CNT/PLGA nanocomposites applied to biomedicine".

LINGUE

- Portoghese (madrelingua);
- Inglese (avanzato);
- Italiano (avanzato);
- Spagnolo (intermedio).

ALTRE ESPERIENZE

Esperienza nell'insegnamento **2018**

ENG09007 – Professoressa di Metrologia - Ingegneria della Produzione – UFRGS, Brasile.

Tirocinio **2009 - 2011**

Mechanical and structural evaluation of bio-absorbable polymeric nanocomposites (PLLA, PLGA, CNT): synthesis and physicochemical characterization - PUCRS, Brasile.

Tirocinio **2009 - 2010**

Synthesis of polyethylene / graphite nanocomposites by polymerization in situ - PUCRS, Brasile.

Tirocinio **2008 - 2009**

Development of a dental resin composite reinforced with nanostructured material - PUCRS, Brasile.

COMPETENZE TECNICHE E DI LABORATORIO

Chimica sperimentale: sintesi e caratterizzazione dei materiali.

- Produzione di strutture e nanostrutture quali polveri, fibre, barre, nanotubi, film sottili con diverse composizioni chimiche.
- Test strumentali ed interpretazione dei risultati ottenuti, focalizzati sulle proprietà chimico-fisiche, morfologiche e ottiche dei materiali.
- **Caratterizzazione chimica e strutturale:** X-Ray Diffraction (XRD); Transmission Electron Microscopy (TEM); Scanning Electron Microscopy (SEM); X-Ray Fluorescence (XRF); Raman Spectroscopy; Surface area (BET); Differential Scanning Calorimetry (DSC); Thermogravimetric Analysis (TGA); Granulometry; Contact angle; Fourier Transform Infrared Spectroscopy (FTIR); UV-Vis Spectroscopy.
- **Tecniche di sintesi e fabbricazione di materiali:** Chemical-Vapor-Deposition (CVD), spin coating, electrospinning, combustion solution synthesis, thermal evaporation, sol-gel, co-precipitation, anodization.

COMPETENZE RELAZIONALI

- Capacità di lavorare in gruppo e buona capacità di leadership, maturata in particolare durante l'esperienza di post-doc, dirigendo attività di laboratorio: supervisione del team, organizzazione di progetti con scadenza e sicurezza nell'ambito lavorativo.

PREMI E SCHOLARSHIP

2015 - Science without Borders (SwB) – *Split PhD scholarship*

2013 – National Counsel of Technological and Scientific Development (CNPq) - *PhD scholarship*

2010 – National Counsel of Technological and Scientific Development (CNPq) - *M.Sc. scholarship*

2009 - Best research presentation award – Materials workshop UFPEL, Pelotas-RS.

2006 - Government department of education scholarship- graduation scholarship

CONGRESSI ORGANIZZATI

2018 - Raman Workshop. UFRGS, Engineering School.

2018 - Science Education Workshop. UFRGS.

ARTICOLI PUBBLICATI IN RIVISTE SCIENTIFICHE

1. RUBIA Y.S. ZAMPIVA, CLAUDIR G. KAUFMANN JR, JANIO VENTURINI, SABRINA ARCARO, TASSO O. SALES, CARLOS JACINTO, CARLOS P. BERGMANN, ANNEISE K. ALVES. Energy conversion dynamics of novel lanthanide-doped forsterite photoactive devices. *Applied Surface Science*, **2021**.

2. R.Y.S. ZAMPIVA, C. G. KAUFMANN JR, J. VENTURINI, L. M. DOS SANTOS, G. H. YAMASHITA, A. C. VIEGAS, M. J ANZANELLO, C. T. CATEN, C. P. BERGMANN, A. K. ALVES. Role of the fuel stoichiometry and post-treatment temperature on the spinel inversion and magnetic properties of NiFe₂O₄ nanoparticles produced by solution combustion synthesis. *Materials Research Bulletin*, **2021**.

3. C. G. KAUFMANN JR., R. Y. S. ZAMPIVA, M. J. ANZANELLO, A. K. ALVES, C. P. BERGMANN, S. R. MORTARI. One-step synthesis of carbon nanoflowers by arc discharge in water. *Ceramics International*, **2020**.

4. D. M. RODRIGUES, L. M. DOS SANTOS, F. L. BERNARD, I. S. PINTO, **R. ZAMPIVA**, G. KAUFMANN & S. EINLOFT. Imidazolium-based ionic liquid silica xerogel as catalyst to transform CO₂ into cyclic carbonate. *SN Applied Sciences*, **2020**.

5. C. G. KAUFMANN JR, R. Y. S. ZAMPIVA, S. ARCARO, T. B. WERMUTH, M. J. ANZANELLO, L. H. ACAUAN, A. K. ALVES, C. P. BERGMANN, S. R. MORTARI. Ecofriendly synthesis of MWCNTs by electric arc in aqueous medium: Comparative study of 6B pencil and mineral graphite. *International Journal of The American Ceramic Society*, **2020**.

6. ZAMPIVA, R. Y. S., VENTURINI JUNIOR, J., ACAUAN, L.H., KAUFMANN JUNIOR, C. G., ALVES, A. K., BERGMANN, C. P., ten CATEN, C. S. Self-catalyzed additive-free growth of Mg₂B₂O₅ nanorods: The impact of the reaction atmosphere. *Ceramics International*, **2019**.

7. ARCARO, S.; WERMUTH, T.B.; **ZAMPIVA, R.Y.S.**; VENTURINI, J.; TEN CATEN, C.S.; BERGMANN, C.P.; ALVES, A.K.; DE OLIVEIRA, A.P. NOVAES; MORENO, R. Li₂O-ZrO₂-SiO₂/Al₂O₃ nanostructured composites for microelectronics applications. *Journal of the european ceramic society*, **2019**.
8. JANIO VENTURINI, AMANDA MALLMANN TONELLI, TIAGO BENDER WERMUTH, **RUBIA YOUNG SUN ZAMPIVA**, SABRINA ARCARO, ALEXANDRE DA CAS VIEGAS, CARLOS PÉREZ BERGMANN. Excess of cations in the sol-gel synthesis of cobalt ferrite (CoFe₂O₄): a pathway to switching the inversion degree of spinels, *Journal of magnetism and magnetic materials* **2019**.
9. KAUFMANN JUNIOR, C. G., **ZAMPIVA, R. Y. S.**, SANTOS, L. M., FLORENCE, C., FERNANDES, E. S., MORTARI, S. R., BERGMANN, C. P., ten CATEN, C. S., ALVES, ANNELEISE KOPP. CNT sponges with outstanding absorption capacity and electrical properties: Impact of the CVD parameters on the product structure. *Ceramics International*, **2019**.
10. **ZAMPIVA, R. Y. S.**, KAUFMANN JUNIOR, C. G., ACAUAN, L., SEEGER, R. L., BONATTO, F., BOEIRA, C., SANTOS, W. Q., SILVA, C. J., FIGUEROA, C. A., DORNELES, L. S., ALVES, A. K., BERGMANN, C. P., ten CATEN, C. S. Luminescent anti-reflection coatings based on Er³⁺ doped forsterite for commercial silicon solar cells applications. *Solar Energy*, **2018**.
11. **RUBIA YOUNG SUN ZAMPIVA**, LUIZ HENRIQUE ACAUAN, JÂNIO VENTURINI JÚNIOR, JOSE AUGUSTO MARTINS GARCIA, DIEGO SILVERIO DA SILVA, ZHAOHONG HAN, LUCIANA REYES PIRES KASSAB, NIKLAUS URSUS WETTER, ANURADHA AGARWAL, ANNELEISE KOPP ALVES, CARLOS PÉREZ BERGMANN. Tunable green/red luminescence by infrared upconversion in biocompatible forsterite nanoparticles with high Erbium doping uptake. *Optical Materials*. **2018**.
12. VENTURINI, JANIO; **ZAMPIVA, RÚBIA YOUNG SUN**; PIVA, DIÓGENES HONORATO; PIVA, ROGER HONORATO; DA CUNHA, JOÃO BATISTA MARIMON; BERGMANN, CARLOS P. Conductivity Dynamics of Metallic-to-Insulator Transition near Room Temperature in Normal Spinel CoFe₂O₄ Nanoparticles. *Journal of Materials Chemistry C*. **2018**.
13. Jânio Venturini Júnior, **Rubia Young Sun Zampiva**, Sabrina Arcaro, Carlos Pérez Bergmann. Sol-gel Synthesis of Substoichiometric Cobalt Ferrite (CoFe₂O₄) Spinel: Influence of Additives on their Stoichiometry and Magnetic Properties. *Ceramics International*, **2018**.
14. **ZAMPIVA, R. Y. S.**, KAUFMANN JUNIOR, C. G., ALVES, A. K., BERGMANN, C.P. Influence of the Fuel Composition and the Fuel/Oxidizer Ratio on the Combustion Solution Synthesis of MgFe₂O₄ Catalyst Nanoparticles. *FME Transactions*, **2018**.
15. KAUFMANN JUNIOR, C. G., **ZAMPIVA, R. Y. S.**, BERGMANN, C.P., ALVES, A. K., MORTARI, S. R., PAVLOVIC A. Production of Multi-wall Carbon Nanotubes Starting from a Commercial Graphite Pencil using an Electric Arc Discharge in Aqueous Medium. *FME Transactions*, **2018**.
16. **RUBIA YOUNG SUN ZAMPIVA**, CLAUDIR GABRIEL KAUFMANN JUNIOR, JULIANO SCHORNE PINTO, PRISCILA CHAVES PANTA, ANNELEISE KOPP ALVES, CARLOS PÉREZ BERGMANN. 3D CNT macrostructure synthesis catalyzed by MgFe₂O₄ nanoparticles—a study of surface area and spinel inversion influence. *Applied surface science*. **2017**.
17. **RUBIA YOUNG SUN ZAMPIVA**, LUIZ ACAUAN, LEONARDO MOREIRA DOS SANTOS, RICARDO CASTRO, ANNELEISE KOPP ALVES, CARLOS PEREZ BERGMANN. Synthesis of single phase nanocrystalline forsterite powder by reverse strike co-precipitation and its high optical and mechanical properties. *Ceramics International*. **2017**.

18. ZAMPIVA, R.Y.S., ACAUAN, L., ALVES, A.K., BERGMANN, C.P. Novel forsterite nanostructures with high aspect ratio via catalyst-free route. *Materials Research Bulletin*, v. 60, p. 507-509. **2014.**

CAPITOLI DI LIBRI PUBBLICATI

1. Rúbia Young Sun Zampiva, Rare-Earth Doped Forsterite: Anti-reflection Coating with Upconversion Properties as Solar Capture Solution. Book: *Nanomaterials for Eco-friendly Applications*, Springer – **2019.**

2. Rubia Young Sun Zampiva, Annelise Kopp Alves, Carlos Perez Bergmann. Mg₂SiO₄: Er³⁺ Coating for Efficiency Increase of Silicon-Based Commercial Solar Cells. Book: *Sustainable Design and Manufacturing 2017*, Springer – **2017.**

3. Panta, Priscila Chave; Sun Zampiva, Rúbia Young; Forte, Sabrina Karnopp; Bergmann, Carlos Pérez. Magnetic and Mossbauer Behavior of Iron Oxide Nanoparticle stabilized with polyethylene glycol. Book: *Processing and Properties of Advanced Ceramics and Composites VI*. 1. ed. John Wiley & Sons, Inc.- **2014.**

ARTICOLI PUBBLICATI IN EVENTI (articolo completo)

1. ZAMPIVA, R Y S; ALVES, A K; BERGMANN, C P; GIORGINI, L. Solution combustion synthesis of Mo-Fe/MgO: Influence of the fuel composition on the production of doped catalyst nanopowder. *IOP Conference Series: Materials Science and Engineering*, v. 659, p. 012078, IRMES Kragujevac, Serbia **2019.**

2. KAUFMANN JUNIOR, C G; **ZAMPIVA, R Y S;** ALVES, A K; BERGMANN, C P; GIORGINI, L. Synthesis of cobalt ferrite (CoFe₂O₄) by combustion with different concentrations of glycine. *IOP Conference Series: Materials Science and Engineering*, v. 659, p. 012079, IRMES Kragujevac, Serbia **2019.**

3. ZAMPIVA, R. Y. S.; KAUFMANN JUNIOR, C. G. ; Alves A. K. ; Bergmann, Carlos Pérez . Síntese de nanopartículas de conversão ascendente Mg₂SiO₄:Er para aplicação em imageamento e terapia fotodinâmica. In: *8 Workshop em nanociências Santa Maria-RS, Brazil* **2017.**

4. KAUFMANN JUNIOR, C. G.; **ZAMPIVA, R. Y. S.;** MORTARI, S. R.; Bergmann, Carlos Pérez; Alves A. K. Síntese e tratamento térmico de magnésio ferrita (MgFe₂O₄) nanoparticulada para produção de nanotubos de carbono. In: *8º workshop em nanociências. Santa Maria-RS, Brazil* **2017.**

5. RUBIA YOUNG SUN ZAMPIVA, ANNELISE KOPP ALVES, CARLOS PEREZ BERGMANN. Mg₂SiO₄: Er³⁺ Coating for Efficiency Increase of Silicon-Based Commercial Solar Cells. *SDM17 Conference Bologna, Italy* **2017.**

6. KAUFMANN, C. G. JR.; **ZAMPIVA, R. Y. S.;** MORTARI, S. R.; ALVES, A. K. Síntese de Esponja de NTC por CVD, com catalisador magnésio ferrita In: *6 Encontro do INCT de Nanomateriais de Carbono., Curitiba-PR, Brazil* **2016.**

7. Panta, P.C; **ZAMPIVA, R. Y. S.;** LUBINI, M.; FORTE, S.; BERGMANN, C. P. Polyethylene glycol influence as a coating on magnetite nanoparticles obtaining. In: *57º Congresso Brasileiro de Cerâmica & 5º Congresso Ibero-Americano de Cerâmica. Natal-RN, Brazil* **2013.**

8. Panta, P.C; **ZAMPIVA, R. Y. S.;** FORTE, S.; BERGMANN, C. P. Magnetic and Mössbauer Behavior of Iron Oxide Nanoparticles Stabilized with Polyethylene Glycol. In: *MS&T 2013 - Materials Science & Technology 2013, MS&T, Quebec, Canada* **2013.**

- 9. ZAMPIVA, R. Y. S.;** PANTA, P.C; ALVES A. K.; BERGMANN, C. P. CVD synthesis of magnesium borate Mg₂B₂O₅ nanostructured (nanorods) and microstructural characterization. In: Nanosmat Conference, Granada, Spain **2013**.
- 10. PANTA, P.C;** **ZAMPIVA, R. Y. S.;** URMERBACH, V.; BERGMANN, C. P. Influência da utilização de NaOH e NH₄OH na Síntese de Nanopartículas de Óxido de Ferro por Coprecipitação. In: 56^o CBC - Congresso Brasileiro de Cerâmica, 1^o Congresso Latino-Americano de Cerâmica, IX Brazilian Symposium on Glass Related Materials. Curitiba-PR Brazil **2012**.
- 11. ZAMPIVA, R. Y. S.;** PANTA, P.C; CARLOS, R. B.; BERGMANN, C. P. Influence of the fuel in the synthesis of nanostructured oxide catalysts. In: 56^o CBC - Congresso Brasileiro de Cerâmica, 1^o Congresso Latino-Americano de Cerâmica, IX Brazilian Symposium on Glass Related Materials, 2012, Curitiba-PR. Brazil **2012**.
- 12. PANTA, P.C;** **ZAMPIVA, R. Y. S.;** GERCHMAN, D.; BERGMANN, C. P. Study of the Biocompatibility of the Surfactant of Iron Oxide Nanoparticles. In: MS&T'12 - Materials Science & Technology, Pittsburgh, PA, United States **2012**.
- 13. PANTA, P.C;** **ZAMPIVA, R. Y. S.;** GERCHMAN, D.; FORTE, S.; BERGMANN, C. P. Study of the magnetic behavior of iron oxide nanoparticles synthesized by coprecipitation. In: 20^o CBECIMat - Congresso Brasileiro de Engenharia e Ciência dos Materiais, 2012, Joenville- SC. Brazil **2012**.
- 14. ZAMPIVA, R. Y. S.;** PANTA, P.C; CARLOS, R. B.; Alves A. K. Influence of the catalyst diameter on nanotubes structures synthesized by CVD. In: 20^o CBECIMat - Congresso Brasileiro de Engenharia e Ciência dos Materiais, 2012, Joinville, SC, Brasil., 2012, Joenville-SC.Brazil **2012**.
- 15. ZAMPIVA, R. Y. S.;** SCARDOSIM, M. G.; PANTA, P.C; HUBLER, R. Influence of the CNTs incorporation on the mechanical and degradation time of PLGA membranes. In: 20^o CBECIMat - Congresso Brasileiro de Engenharia e Ciência dos Materiais, 2012, Joenville- SC.Brazil **2012**.
- 16. SCARDOSIM, M. G.;** SOARES B. S.; GOTARDI J.; **ZAMPIVA, R. Y. S.;** SILVA, J. L. B.; HUBLER, R. Development of PLGA porous multilayer conducts for nerve regeneration. In: 20^o CBECIMat - Congresso Brasileiro de Engenharia e Ciência dos Materiais, 2012, Joenville- SC. Brazil **2012**.
- 17. BRITES, F.;** KINDLEIN JUNIOR, W.; LUZ, F.; **ZAMPIVA, R. Y. S.** Analysis of similars: A study about plastic cups by MEV and FTIR. In: 20^o CBECIMat - Congresso Brasileiro de Engenharia e Ciência dos Materiais, 2012, Joenville- SC. Brazil **2012**.
- 18. Panta, P.C;** **ZAMPIVA, R. Y. S.;** GERCHMAN, D.; FORTE, S.; BERGMANN, C. P. Study of the magnetic behavior of commercial Iron oxide Nanoparticles functionalized with pluronic acid. In: 20^o CBECIMat - Congresso Brasileiro de Engenharia e Ciência dos Materiais, 2012, Joinville, 2012, Joenville- SC. Brazil **2012**.
- 19. M. G. SCHARDOSIM;** **ZAMPIVA, R. Y. S.;** ANDRÉ LUÍS MARIN VARGAS; ROBERTO HÜBLER. Development of PLGA porous structures for biomedical applications. In: XXII CBEB Tiradentes- MG. Brazil **2010**.
- 20. ANDRÉ LUÍS MARIN VARGAS;** MARIANE G. SCHARDOSIM; **ZAMPIVA, R. Y. S.;** ROBERTO HÜBLER. Confecção de filmes porosos de PLGA para produção de tubos permeáveis para aplicações biomédicas. In: XXII CBEB, Tiradentes- MG. Brazil **2010**.
- 21. ZAMPIVA, R. Y. S.;** MARIANE G. SCHARDOSIM; ANDRÉ LUÍS MARIN VARGAS; ROBERTO HÜBLER. Study of the mechanical properties of nanocomposites applied to biomedicine. In: 6 COLAOb, 2010, Gramado-RS. COLAOb. Brazil **2010**.

22. MARIANE G. SCHARDOSIM; **ZAMPIVA, R. Y. S.**; ANDRÉ LUÍS MARIN VARGAS; ROBERTO HÜBLER. Obtenção e caracterização de nanoestruturas para aplicações biomedicas. In: 6 COLAQB, 2010, Gramado- RS. 6 COLAQB. Brazil **2010**.

23. **ZAMPIVA, R. Y. S.**; SCHARDOSIM, M. G.; MONTAGNA, L.; VARGAS, A. L. M.; HUBLER, R. Study of the mechanical properties of functionalized and non-functionalized PLGA-NTCS nanocomposites. In: 19^o CBECIMat - Congresso Brasileiro de Engenharia e Ciência dos Materiais, 2010, Campos do Jordão-SP. Brazil **2010**.

ARTICOLI PUBBLICATI IN EVENTI (expended abstract):

1. Panta, P.C; **ZAMPIVA, R. Y. S.**; FORTE, S.; BERGMANN, C. P. Synthesis and Magnetic Characterization of Superparamagnetic Nanoparticles of Iron Oxide Stabilized with Dextran. Spain. European Congress and Exhibition on Advanced Materials and Processes. Sevilla, Spain **2013**.

2. Panta, P.C; **ZAMPIVA, R. Y. S.**; GERCHMAN, D.; BERGMANN, C. P. Synthesis and characterization of magnetite nanoparticles different from aqueous solutions by coprecipitation. In: XI SBPMat - Encontro da Sociedade Brasileira de Pesquisa em Materiais, Florianópolis- SC. Brazil **2012**.

3. **ZAMPIVA, R. Y. S.**; Panta, P.C; CARLOS, R. B.; Alves A. K.; BERGMANN, C. P. Iron, Magnesium and Molybdenum based catalysts production by Solution-Combustion Synthesis. In: XI SBPMat - Encontro da Sociedade Brasileira de Pesquisa em Materiais, Florianópolis- SC. Brazil **2012**.

4. **ZAMPIVA, R. Y. S.**; Saulo Davila Jacobsen; André Luís Marin Vargas; Roberto Hübler; Ana Spohr; Nara Regina Basso. Development of dental resin reinforced with nanostructured material. In: Salão de Iniciação Científica, 2009, Porto Alegre RS. Salão de Iniciação Científica. **2009**.

5. **ZAMPIVA, R. Y. S.**; Fabiana Fim; André Luís Marin Vargas; Nara Regina Basso; Roberto Hübler; Griselda B. Galland. Synthesis of polyethylene-graphite nanocomposites by in situ polymerization. In: XI Salão de iniciação científica da PUCRS, 2009, Porto Alegre-RS. XI Salão de IC **2009**.