

## **CURRICULUM VITAE**

### **1. Background Information**

NAME: ZYSLER, Roberto Daniel  
Nationality: Argentine  
Mailing Address: Centro Atómico Bariloche, 8400 Bariloche, RN  
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### **2. Degree or Diploma**

- Licenciado en Física: Instituto Balseiro, Universidad Nacional de Cuyo - Centro Atómico Bariloche, Argentina (1985).
- Ph.D. in Physics: Instituto Balseiro, Universidad Nacional de Cuyo - Centro Atómico Bariloche, Argentina (1990).
- Post-doctoral experience: Studies in magnetic nanoparticle systems and High temperature superconductors related family, placed in the Istituto de Chimica dei Materiali (CNR), Roma - Italia, 12/1992-12/1993.

### **3. Professional Positions**

- Senior Researcher at the National Council of Scientific and Technical Research (CONICET-Argentina) from 1/1995 (permanent position).
- Professor at Instituto Balseiro - Universidad Nacional de Cuyo.
- Manager of the Research, Development & Innovation of the National Commission of Atomic Energy (GAIDI-CNEA)

### **4. Research lines**

- Metallic alloys that presents spin glass ordering.
- Magnetism in high  $T_c$  superconductor systems.
- Nanostructured materials: synthesis of the magnetic nanoparticles (usually by chemical route), the morphological characterization, and the magnetic property research, mainly the magnetic order, the effective magnetic anisotropy and the superparamagnetic relaxation of the magnetic moment of the nanoparticles (DC Magnetization, AC Susceptibility, Mössbauer spectroscopy and Ferromagnetic Resonance). The experimental results are describing with theoretical models or simulating by Monte Carlo method. 1993-present.
- Applications of magnetic nanoparticles in biology and medicine: diagnostic & treatment (MRI contrast, hyperthermia, drug delivery, ophthalmologic treatments, etc.) 2005-present.

### **5. Research projects**

- Director of projects on magnetic properties of nanostructures: nanoparticles, granted by argentine agencies (Science Ministry, Conicet) and Universidad Nacional de Cuyo.
- Coordination of international cooperation projects: CONICET-CONICIT Venezuela: 1997-2004, Conicet- Consiglio Nazionale delle Ricerche (CNR)- Italia

1997-2002, 2013-2014; Conicet-Colciencias (Colombia) 2003-2004; SECYT-MAEIT/PA03-EIII/085 (Italia) 2004-2005; Secyt-CAPES (Brasil) BR/PA03-EIII/004 2004-2006; MINCYT-CAPES (Brasil) BR/08/24 2009-2010.

6. **Scientific Publications:** 179 publications in international scientific regular journals (25 in the last 5 years), 12 books/chapters. 2 general interest publications.

Google scholar: <https://scholar.google.com/citations?hl=es&user=O-1RekAAAAAJ>

Scopus Author ID: 7004132175

ORCID ID: 0000-0003-0687-5898

[https://www.researchgate.net/profile/Roberto\\_Zysler/research](https://www.researchgate.net/profile/Roberto_Zysler/research)

7. **Congress Communications:** 195 (25 in the last 5 years) contributions presented in international scientific meetings and 103 (13 in the last 5 years) contributions presented in argentine scientific meetings.

#### 8. **Patents**

- 2 presented patents in Argentine related to the use of nanoparticles in medicine.
- 2 patents approved in USA and Japan related to the use of nanoparticles in medicine.

#### 9. **Thesis supervision**

- Supervision of 6 Graduate Theses in Physics & Material Science.
- Supervision of 2 Master Thesis in Physics.
- Supervision of 1 Master Thesis in Medical Physics.
- Supervision (and co-supervision) of 8 Doctoral Thesis in Physics, 1 Doctoral Thesis in Engineering, 1 Doctoral Thesis in Medicine.

#### 10. **Other**

- Member of the *Magnetism National Network* (Argentina).
- Member of the Advisor Commission of Conicet in physics
- Member of the Academic Committee in Medical Physics of the Instituto Balseiro – Cuyo Natl. Univ.
- Different university management activities
- Committee Member of the International Committee on Nanostructured Materials (ICNM).
- Advisor editor board member of the *Journal of Magnetism and Magnetic Materials* (Elsevier). 2018-2022.
- Consultant of the National agencies to evaluate projects proposals, grants and fellowships.
- Independent expert in the evaluation of Conicyt-Fondecyt (Chile) projects.
- Independent expert in the evaluation of the 7th Frame Program of the European Union (FP7- UE).
- CIVR Experts Board (Comitato di Indirizzo per la Valutazione della Ricerca).
- Independent expert in the evaluation of Laboratorio Nacional Luz Sincrotron (LNLS) projects, Campinas, Brasil.
- Examiner of several Phd Thesis in Physics
- Examiner of Professor public competitive examination.
- Referee of the publications: *Physical Review B*, *Physical Review Letters*, *Journal of Magnetism and Magnetic Materials*, *Applied Surface Science*, *Journal of Solid State*

*Chemistry, Physica B, Journal of Physics: Condensed Matter, Nanotechnology, Journal of Material Science, Chemical Physics Letters, Materials Chemistry and Physics, Biomacromolecules.*

- Consultant of *GLG Technology, Media & Telecommunications Councils.*

- Secretary of the Bariloche branch of the Argentine Physic Association (Asociación Física Argentina) 2000-2006.

**June 2023**

## Publications in the last 5 years

**Bifunctional CoFe<sub>2</sub>O<sub>4</sub>/ZnO Core/Shell Nanoparticles for Magnetic Fluid Hyperthermia With Controlled Optical Response**, Gabriel Lavorato, Enio Lima, Jr., Marcelo Vasquez Mansilla, Horacio E. Troiani, Roberto Daniel Zysler, and Elin Winkler, *J. Phys. Chem. C* **122** (5), 3047–3057 (2018). DOI: 10.1021/acs.jpcc.7b11115

**Unravelling the Elusive Antiferromagnetic Order in Wurtzite and Zinc Blende CoO Polymorph Nanoparticles** Alejandro G. Roca, Igor V. Golosovsky, Elin Winkler, Alberto López-Ortega, Marta Estrader, Roberto D. Zysler, María Dolores Baró, and Josep Nogués, *Small* **14**, 1703963 (2018). Article selected for the backcover illustration. DOI: 10.1002/sml.201703963.

**Zinc removal by *Chlorella sp.* biomass and harvesting with low cost magnetic particles**, Gisela Ferraro, Regina M. Toranzo, Delfina M. Castiglioni, Enio Lima Jr, Marcelo Vasquez Mansilla, Nicolas A. Fellenz, Roberto D. Zysler, Daniel M. Pasquevich, Carolina Bagnato, *Algal Research* **33**, 266–276 (2018). DOI: 10.1016/j.algal.2018.05.022

**Interaction between natural magnetite sub-micrometric particles and the Fasciola hepatica egg: The role of the exposed surface area**, Mariana Raineri, Enio Lima Jr., Marcela Larroza, M. Sergio Morena, Marcelo Vásquez Mansillaa, Juan Sebastián Pappalardo, Roberto D. Zysler, *Experimental Parasitology* **199**, 59–66, (2019). Doi: 10.1016/j.exppara.2019.02.006

**Controlling the Dominant Magnetic Relaxation Mechanisms for Magnetic Hyperthermia in bimagnetic cores-shell nanoparticles**, Fernando Fabris, Enio Lima, Emilio De Biasi, Horacio E Troiani, Marcelo Vasquez Mansilla, Teobaldo Enrique Torres, Rodrigo Fernández-Pacheco, M. Ricardo Ibarra, Gerardo F. Goya, Roberto Zysler and Elin Winkler, *Nanoscale* **11**, 3164-3172 (2019), *back cover illustration article*, DOI: 10.1039/C8NR07834C.

**Effects of Zn Substitution in the Magnetic and Morphological Properties of Fe-Oxide Based Core-Shell Nanoparticles Produced in a Single Chemical Synthesis**, Javier Lohr, Adriele Aparecida De Almeida, M. Sergio Moreno, Horacio E. Troiani, Gerardo F. Goya, Teobaldo Enrique Torres Molina, Rodrigo Fernandez-Pacheco, Elin L Winkler, Marcelo Vasquez Mansilla, Renato Cohen, Luiz C.C.M. Nagamine, Luis M. Rodriguez, Daniel E. Fregenal, Roberto D Zysler, and Enio Lima, *J. Phys. Chem. C* **123**, 1444-1453 (2019). DOI: 10.1021/acs.jpcc.8b08988

**Tunnel magnetoresistance in self-assemblies of exchange-coupled core-shell nanoparticles**, Fernando Fabris, Enio Lima Jr., Cynthia Quinteros, Lucas Neñer, Mara Granada, Martín Sirena, Roberto D. Zysler, Horacio E. Troiani, Víctor Leborán, Francisco Rivadulla, and Elin L. Winkler, *Phys. Rev. Applied* **11**, 054089 (2019). Doi: 10.1103/PhysRevApplied.11.054089.

**Recovery and characterization of nickel particles by chemical reduction method from wastes generated in electroless industry**, S. Y. Martinez Stagnaro, C. D. Mesquida, F. M. Stábile, R. Zysler, S. B. Ramos, A. Giaveno, *Journal of Hazardous Materials* **376**, 133–140 (2019). Doi: 10.1016/j.jhazmat.2019.05.020

**Free-Radical Formation by the Peroxidase-Like Catalytic Activity of MFe<sub>2</sub>O<sub>4</sub> (M = Fe, Ni, and Mn) Nanoparticles**, Ana Carolina Moreno Maldonado, Elin L. Winkler, Mariana Raineri, Alfonso Toro Córdova, Luis M. Rodríguez, Horacio E. Troiani, Mary Luz Mojica Piscioti, Marcelo Vasquez Mansilla, Dina Tobia, Marcela S. Nadal, Teobaldo E. Torres, Emilio De Biasi, Carlos A. Ramos, Gerardo F. Goya, Roberto D. Zysler, Enio Lima, Jr., *J. Phys. Chem. C* **123**, 20617–20627 (2019). DOI: 10.1021/acs.jpcc.9b05371

**Effects of biological buffer solutions on the peroxidase-like catalytic activity of Fe<sub>3</sub>O<sub>4</sub> nanoparticles**, Mariana Raineri, Elin Winkler, Teobaldo Enrique Molina, Marcelo Vasquez Mansilla, Marcela S Nadal, Roberto Zysler, Enio Lima, *Nanoscale* **11**, 18393-18406 (2019). doi 10.1039/C9NR05799D

**Reply to “Comment on “Free-Radical Formation by the Peroxidase-like Catalytic Activity of  $MFe_2O_4$  ( $M = Fe, Ni$  and  $Mn$ ) Nanoparticles.””**, Ana Carolina Moreno Maldonado, Elin L Winkler, Mariana Raineri, Alfonso Toro Cordova, Luis M. Rodriguez, Horacio E. Troiani, Mary Luz Mojica Piscioti, Marcelo Vasquez Mansilla, Dina Tobia, Marcela S Nadal, Teobaldo Torres, Emilio De Biasi, Carlos A. Ramos, Gerardo F. Goya, Roberto D Zysler, Enio Lima, *J. Phys. Chem. C* **123**, 28511–28512, (2019). Doi: 10.1021/acs.jpcc.9b09804

**$\beta$ -cyclodextrin coating: improving biocompatibility of magnetic nanocomposites for biomedical applications**, Mariela Agotegaray, María Gabriela Blanco, Adrián Campelo, Elba García, Roberto Zysler, Virginia Massheimer, María José De Rosa, Verónica Lassalle, *J Mater Sci: Mater Med* **31**: 22 (2020). Doi: 10.1007/s10856-020-6361-4

**Modeling the Magnetic-Hyperthermia Response of Linear Chains of Nanoparticles with Low Anisotropy: A Key to Improving Specific Power Absorption**, Daniela P. Valdés , Enio Lima Jr., Roberto D. Zysler , Emilio De Biasi, *Phys. Rev. Appl.* **14**, 014023 (2020). DOI: 10.1103/PhysRevApplied.14.014023. **Classified: Editors’ Suggestion**

**Low Dimensional Assemblies of Magnetic  $MnFe_2O_4$  Nanoparticles and Direct In Vitro Measurements of Enhanced Heating Driven by Dipolar Interactions: Implications for Magnetic Hyperthermia**, Beatriz Sanz, Rafael Cabreira Gomes, Teobaldo Enrique Torres, Daniela Paola Valdés, Enio Lima, Emilio De Biasi, Roberto D Zysler, Manuel Ricardo Ibarra, Gerardo Fabián Goya, *ACS Appl. Nano Mater.* **3**, 8719–8731 (2020). DOI: 10.1021/acsnm.0c01545

**Adjusting the Néel relaxation time of  $Fe_3O_4/Zn_xCo_{1-x}Fe_2O_4$  core/shell nanoparticles for optimal heat generation in magnetic hyperthermia**, Fernando Fabris, Javier Lohr, Enio Lima Jr., Adriele Aparecida de Almeida, Horacio E. Troiani, Luis M. Rodríguez, Marcelo Vásquez Mansilla, Myriam H. Aguirre, Gerardo F. Goya, Daniele Rinaldi, Alberto Ghirri, Davide Peddis, Dino Fiorani, Roberto D. Zysler, Emilio De Biasi, Elin L. Winkler, *Nanotechnology* **32**, 065703 (11pp) (2020). DOI: 10.1088/1361-6528/abc386

**Magnetic Hyperthermia Experiments with Magnetic Nanoparticles in Clarified Butter Oil and Paraffin: A Thermodynamic Analysis**, Adriele A. de Almeida, Emilio De Biasi, Marcelo Vasquez Mansilla, Daniela P. Valdés, Horacio E. Troiani, Guillermina Urretavizcaya, Teobaldo E. Torres, Luis M. Rodríguez, Daniel E. Fregenal, Guillermo C. Bernardi, Elin L. Winkler, Gerardo F. Goya, Roberto D. Zysler, and Enio Lima, Jr, *Journal of Physical Chemistry C* **124** (50), 27709-27721 (2020). doi: 10.1021/acs.jpcc.0c06843

**Role of anisotropy, frequency, and interactions in magnetic-hyperthermia applications: Noninteracting nanoparticles and linear chain arrangements**, Daniela Paola Valdés, Enio Lima Jr., Roberto Daniel Zysler, Gerardo Fabián Goya, Emilio De Biasi, *Physical Review Applied* **15**, 044005 (2021). DOI: 10.1103/PhysRevApplied.15.044005

**Reactive oxygen species in emulated Martian conditions and their effect on the viability of the unicellular algae *Scenedesmus dimorphus***, Carolina Bagnato, Marcela S. Nadal, Dina Tobia, Mariana Raineri, Marcelo Vasquez Mansilla, Elin Winkler, Roberto D. Zysler, Enio Lima Jr., *Astrobiology* **21**, 692-705 (2021). Doi: 10.1089/ast.2020.2329

**Cation occupancy in bimagnetic  $CoO$ -core/ $Co_{1-x}Zn_xFe_2O_4$ -shell ( $x=0-1$ ) nanoparticles**, G.C. Lavorato, M.E. Saleta, S.J.A Figueroa, D. Tobia, J.C. Mauricio, J. Lohr, E. Baggio-Saitovitch, H.E. Troiani, R.D. Zysler, E. Lima Jr, E.L. Winkler, *Journal of Alloys and Compounds* **877**, 160172 (2021). Doi: 10.1016/j.jallcom.2021.160172

**Improving Degradation of Real Wastewaters with Self-Heating Magnetic Nanocatalysts**, Alvaro Gallo-Cordova, Juan José Castro, Elin L. Winkler, Enio Lima Jr., Roberto D. Zysler, María del Puerto Morales, Jesús G. Ovejero, Daniela Almeida Streitwieser, *Journal of Cleaner Production* **308**, 127385 (2021). Doi: 10.1016/j.jclepro.2021.127385

**Dependence of the composition, morphology and magnetic properties with the water and air exposure during the  $Fe_{1-y}O/Fe_3O_4$  core-shell nanoparticles synthesis**, J. Lohr, M. Vasquez Mansilla,

M. V. Gerbaldo, M. S. Moreno, G. F. Goya, E. L. Winkler, R. D. Zysler, E. Lima Jr., *Journal of Nanoparticle Research* **23**, 140 (2021). Doi: 10.1007/s11051-021-05275-5

**Next generation of nanozymes: a perspective of the challenges to match biological performance**, G.F. Goya, A. Mayora, E. Winkler, R.D. Zysler, C. Bagnato, M. Raineri, J.A. Fuentes-García, E. Lima Jr., *Journal of Applied Physics* **130**, 190903 (2021). doi: 10.1063/5.0061499

**Zinc ferrite nanoparticles embedded in Hydroxyapatite for Magnetic Hyperthermia and sensitive to ionizing radiation**, N. Nuñez, M. Raineri, H. E. Troiani, D. Tobia, R. D. Zysler, E. Lima Jr., E. L. Winkler, *Journal of Alloys and Compounds* **929**, 165887 (2022). doi: 10.1016/j.jallcom.2022.165887

**Onion-like Fe<sub>3</sub>O<sub>4</sub>/MgO/CoFe<sub>2</sub>O<sub>4</sub> magnetic nanoparticles: new ways to control magnetic coupling between soft/hard magnetic phases**, Jorge M. Nuñez, Simon Hettler, Enio Lima Jr., Gerardo F. Goya, Raul Arenal, Roberto D. Zysler, Myriam H. Aguirre, Elin L. Winkler, *Journal of Materials Chemistry C* **10**, 15339 (2022). Article selected for the frontcover illustration. doi: 10.1039/d2tc03144b

**Thermographical method to assess the performance of magnetic nanoparticles in hyperthermia experiments through spatiotemporal temperature profiles**, D.P. Valdés and T.E. Torres, A.C. Moreno Maldonado, G. Urretavizcaya, M.S. Nadal, M. Vasquez Mansilla, R.D. Zysler, G.F. Goya, E. De Biasi, El Lima Jr., *Phys. Rev. Applied* **19**, 014042 (2023). doi: 10.1103/PhysRevApplied.19.014042

**Biogenic selenium nanoparticles with antifungal activity against the wood-rotting fungus *Oligoporus pelliculosus***, Micaela Pescuma, Francisca Aparicio, Roberto D. Zysler, Enio Lima, Claudia Zapata, Jorge A. Marfetán, M.Laura Vélez, Omar F. Ordoñez, *Biotechnology Reports* **37**, e00787 (2023). doi: 10.1016/j.btre.2023.e00787

**Magnetic behavior of oxide passivated (Fe<sub>0.85</sub>Nd<sub>0.15</sub>)<sub>0.6</sub>B<sub>0.4</sub> amorphous nanoparticles**, M. Tortarolo, A. Mijovilovich, W.A.A. Macedo, R.D. Zysler, C.P. Ramos, *MRS Communications* (2023). Doi: 10.1557/s43579-023-00368-9

#### Book chapter (last 5 years):

**Core/Shell Bimagnetic Nanoparticles (Chapter 4)**, Elin L. Winkler and Roberto D. Zysler, in *New Trends in Nanoparticle Magnetism*, Peddis, Davide, Laureti, Sara, Fiorani, Dino (Eds.), Springer Series in Materials Science 308, Springer Nature Switzerland AG. Publication: 2021. pp 87-106. ISBN 978-3-030-60472-1, e-book ISBN 978-3-030-60473-8 Doi: 10.1007/978-3-030-60473-8\_4

**Science and Technology of Novel Integrated Biocompatible Superparamagnetic Oxide Nanoparticles Injectable in the Human Eye and External Ultrananocrystalline Diamond (UNCD™)-Coated Magnet for a New Retina Reattachment Procedure**, Mario J. Saravia, Roberto D. Zysler, Enio Lima, Jr., Pablo Gurman, and Orlando Auciello, in *Ultrananocrystalline Diamond Coatings for Next-Generation High-Tech and Medical Devices*, Orlando Auciello (ED.), Cambridge University Press, July 2022, pp 121- 140. ISBN: 9781107088733 . DOI:10.1017/9781316105177.005

#### International Conference presentations in the last 5 years

**Control of the effective magnetic anisotropy by interface coupling in Fe<sub>3</sub>O<sub>4</sub>-core/Co<sub>1-x</sub>Zn<sub>x</sub>Fe<sub>2</sub>O<sub>4</sub>-shell nanoparticles**, Fabris F, Lima Jr. E., Zysler R, Troiani H, Winkler E, XXIII Latin American Symposium on Solid State Physics (XXIII SLAFES), April 10-15, 2018 S.C. de Bariloche, Argentina.

**Peroxidase-like activity of Me<sub>x</sub>Fe<sub>3-x</sub>O<sub>4</sub> Magnetic Nanoparticles with potential application in Magnetic Hyperthermia**, Moreno Maldonado A. C., Lima Junior E, Winkler E, Ramos C, Ranieri M, Troinani H, Mojica Piscioti M. L, Rodriguez L., Zysler R, XXIII Latin American Symposium on Solid State Physics (XXIII SLAFES), April 10-15, 2018 S.C. de Bariloche, Argentina.

**Zn<sub>x</sub>Fe<sub>3-x</sub>O<sub>4</sub> nanoparticles: effects of morphology, magnetism and composition on the Magnetic Fluid Hyperthermia response**, Almeida A., Lima Jr. E., Winkler E., Vasquez Mansilla M., Troiani H., De Biasi E, Zysler R., Valdés D, Rodriguez L, Fregenal D., Goya G., Torres Molina T., XXIII Latin American Symposium on Solid State Physics (XXIII SLAFES), April 10-15, 2018 S.C. de Bariloche, Argentina.

**Magnetic hyperthermia: the influence of dipolar interactions in a magnetosome-like nanoparticle system**. Valdés D., De Biasi E., Lima Jr. E., Zysler., XXIII Latin American Symposium on Solid State Physics (XXIII SLAFES), April 10-15, 2018 S.C. de Bariloche, Argentina.

**Bifunctional magnetic nanoparticles systems for gamma-dosimetry**, Tobia D., Lima Jr. E., Facchini G., Zysler R., Raineri M., Troiani H., Winkler E, XXIII Latin American Symposium on Solid State Physics (XXIII SLAFES), April 10-15, 2018 S.C. de Bariloche, Argentina.

**Characterization of a magnetic nanoparticle manipulation system. Towards HUS diagnosis**, C. Notcovich, C. Ferrari, A. Kukulanski, S. Ortiz, G. Berlin, L. Steren, M. Vasquez Mansilla, E. Lima Junior, R. Zysler, 17th International Meeting on Chemical Sensors - IMCS 2018, Vienna, Austria, July 2018, 15-19. DOI 10.5162/IMCS2018/P1DH.11, ISBN 978-3-9816876-9-9.

**Cation inversion in bimagnetic CoO/Co<sub>1-x</sub>Zn<sub>x</sub>Fe<sub>2</sub>O<sub>4</sub> core/shell nanoparticles: a XANES study**, Martín E. Saleta, Gabriel Lavorato, Santiago J. A. Figueroa, Junior C. Mauricio, Dina Tobia, Enio Lima Jr, Elin L. Winkler, Roberto D. Zysler, LNLS 28th Annual Users' Meeting (RAU), November 6-9, 2018, Campinas, Brazil

**Tuning the magnetic anisotropy in exchange coupled bimagnetic core/shell nanoparticles**, F. Fabris, G. Lavorato, E. Lima Jr., C. Quinteros, L. Neñer, M. Granada, M. Sirena, R. Zysler, H. Troiani, V. Leborán, F. Rivadulla, E. Winkler, 9th Joint European Magnetic Symposia (9th JEMS 2018), September 3-7, 2018, Mainz, Germany.

**Magnetosome-like nanoparticle systems for magnetic hyperthermia: modeling the effect of dipolar interactions**, D.P. Valdés, E. De Biasi, E. Lima Jr. and R.D. Zysler, 14<sup>th</sup> Joint MMM-Intermag Conference, January 14-18, 2019, Washington, DC, USA.

**Peroxidase catalytic activity of iron oxide nanoparticles and its effect on biological systems**, *Invited talk*, Ana Carolina Moreno Maldonado, Elin L. Winkler, Mariana Raineri, Alfonso Toro Córdova, Luis Rodriguez, Horacio E. Troiani, Mary Luz Mojica Piscioti, Marcelo Vasquez Mansilla, Carlos A. Ramos, Gerardo F. Goya, Roberto D. Zysler, Enio Lima Jr, International Conference on Fine Particle Magnetism (ICFPM19), 26th to 31st May 2019, Gijón, Spain.

**Tuning the magnetic anisotropy and magnetotransport of self-assemblies of exchange coupled core/shell nanoparticles**, F. Fabris, E. Lima Jr., C. Quinteros, L. Neñer, M. Granada, M. Sirena, R. D. Zysler, H. E. Troiani, V. Leborán, F. Rivadulla, E. L. Winkler, International Conference on Fine Particle Magnetism (ICFPM19), 26th to 31st May 2019, Gijón, Spain.

**Controlling the dominant magnetic relaxation mechanisms for magnetic hyperthermia in bimagnetic core-shell nanoparticles**, Fernando Fabris, Enio Lima Jr., Emilio De Biasi, Javier Lohr, Horacio E. Troiani, Marcelo Vásquez Mansilla, Teobaldo E. Torres, Rodrigo Fernández Pacheco, M. Ricardo Ibarra, Gerardo F. Goya, Roberto D. Zysler, Elin L. Winkler, International Conference on Fine Particle Magnetism (ICFPM19), 26th to 31st May 2019, Gijón, Spain.

**Magnetic and Morphological Properties of Zn-Fe-Oxide-Based Core-Shell Nanoparticles**, Javier Lohr, Adriele A Almeida, Luiz C C M Nagamine, M Sergio Moreno, Horacio Troiani, Gerardo F Goya, Teobaldo H T Molina, Rodrigo Fernandez-Pacheco, Elin L Winkler, Marcelo V Mansilla, Renato Cohen, Luis M Rodríguez, Daniel E Fregenal, Roberto D Zysler, Enio Lima, Jr, Joint European Magnetic Symposia (JEMS 2019), Uppsala, Sweden, August 26-30 2019.

**Controlling the Dominant Magnetic Relaxation Mechanisms through the shell composition of bimagnetic core-shell Fe<sub>3</sub>O<sub>4</sub>/Zn<sub>x</sub>Co<sub>1-x</sub>Fe<sub>2</sub>O<sub>4</sub> nanoparticles**, *invited talk* F. Fabris, E. Lima, Jr., E. De Biasi, H.E. Troiani, M. Vásquez Mansilla, T.E. Torres, R. Fernández Pacheco, M.R. Ibarra, G.F. Goya,

R.D. Zysler, E.L. Winkler, 5th International Conference on Nanoscience, Nanotechnology and Nanobiotechnology (3NANO), University of Brasília, December 8th to 12th, 2019.

**Low-dimensional assemblies of magnetic nanoparticles improve in vitro heating power through dipolar Interactions**, Beatriz Sanz, Rafael Cabreira-Gomes, Teobaldo E. Torres, Daniela P. Valdés, Enio Lima Jr., Emilio De Biasi, Roberto D. Zysler, M. Ricardo Ibarra, Gerardo F. Goya, 5th International Conference on Nanoscience, Nanotechnology and Nanobiotechnology (3NANO), University of Brasília, December 8th to 12th, 2019.

**Optimizing the Heat Generation in Magnetic Hyperthermia by Adjusting the Magnetic Anisotropy of  $\text{Fe}_3\text{O}_4/\text{Zn}_x\text{Co}_{1-x}\text{Fe}_2\text{O}_4$  Core/Shell Nanoparticles**, Elin Winkler, Fernando Fabris, Enio Lima, Jr., Emilio De Biasi, Horacio E. Troiani, Marcelo Vasquez Mansilla, Teobaldo E. Torres, Gerardo F. Goya, Roberto D. Zysler, 6th NANO Boston Conference, virtual, December 7-9, 2020.

**Controlling the Dominant Magnetic Relaxation Mechanisms through the shell composition of  $\text{Fe}_3\text{O}_4/\text{Zn}_x\text{Co}_{1-x}\text{Fe}_2\text{O}_4$  nanoparticles**, invited talk F. Fabris, E. Lima, Jr., E. De Biasi, H.E. Troiani, M. Vásquez Mansilla, T.E. Torres, R. Fernández Pacheco, M.R. Ibarra, G.F. Goya, E.L. Winkler, , International Baltic Conference on Magnetism (IBCM 2021), Svetlogorsk, R.D. Zysler Russia, August 29-September 2, 2021.

**In situ formation and thermographical analysis of nanoparticle chain-like arrangements in polyacrylamide phantom during hyperthermia experiments**, D.P. Valdés, T.E. Torres, A.C. Maldonado, M.S. Nadal, E. DE Biasi, R.D. Zysler, G.F. Goya, E. Lima Jr, International Baltic Conference on Magnetism (IBCM 2021), Svetlogorsk, Russia, August 29-September 2, 2021.

**Determining the key parameters to reach synergistic effects between magnetic hyperthermia and ROS production in  $\text{Zn}_x\text{Fe}_{3-x}\text{O}_4$  magnetic Nanoparticles**, Teobaldo E. Torres, Adriele A. de Almeida, Ana C. Moreno-Maldonado, Manuel R. Ibarra, Gerardo F. Goya, Myriam Aguirre, Elin L. Winkler, Roberto D. Zysler, Enio Lima Jr., *13th International Conference on the Scientific and Clinical Applications of Magnetic Carriers*, June 14-17, 2022, London, UK.

**Surface and interfaces effects in two and three phases magnetic nanoparticles with onion-like architecture**, J.M. Núñez, F. Fabris, M. Vasquez Mansilla, T. Torres, H.E. Troiani, S. Hettler, G.F. Goya, R. Arenal, R.D. Zysler, E. Lima Jr., M.H. Aguirre, E.L. Winkler, *3NANO-22*, September 20-23, 2022. Rome, Italy

**Role of particle-intrinsic parameters, experimental conditions and interactions in magnetic fluid hyperthermia**, Daniela P. Valdés, Enio Lima Jr., Roberto D. Zysler, Gerardo F. Goya, Emilio De Biasi, *3NANO-22*, September 20-23, 2022. Rome, Italy

**Surface and interface effects in magnetic  $\text{Fe}_3\text{O}_4@\text{MgO}@\text{CoFe}_2\text{O}_4$  onion-like nanoparticles**, Jorge M. Nuñez, Simon Hettler, Enio Lima Jr., Gerardo. F. Goya, Raul Arenal, Roberto D. Zysler, Myriam H. Aguirre, Elin L. Winkler, *3NANO-22*, September 20-23, 2022. Rome, Italy

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