

Silvia Nuti, PhD

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Experience

- 2025 ♦ **Post-Doctoral Researcher**, Luminescent Nanomaterials and Sensors for Health and Environment Group, University of Bologna, Bologna, Italy.
- 2020-2024 ♦ **Researcher - PhD Candidate**, BIOSCOPE Group, NOVA University of Lisbon, Lisbon, Portugal.
- 2023 ♦ **Visiting PhD candidate**, Palomo Group - Chemical Biology and Biocatalysis, Consejo Superior de Investigaciones Científicas (CSIC), Madrid, Spain.
- 2018-2019 ♦ **Researcher**, EMAT - DuEL, University of Antwerp, Antwerp, Belgium.

Education

- 2020-2024 ♦ **PhD Chemistry**, NOVA University of Lisbon, Lisbon, Portugal
- 2018 ♦ **MSc Photochemistry and Molecular Materials**, University of Bologna, Bologna, Italy.
Thesis title: *Synthesis and characterization of antibiotic loaded nanoparticles.*
- 2017-2018 ♦ **ERASMUS+**, NOVA University of Lisbon, Lisbon, Portugal.
- 2015 ♦ **BSc Chemistry and Materials Chemistry**, University of Bologna, Bologna, Italy.
Thesis title: *Structural study of two green algae Chlamydomonas reinhardtii enzymes: glyceraldehyde-3-phosphate dehydrogenase and phosphoglycerate kinase.*

Publications

Journal Articles

- 1 Fernández-Lodeiro, A., Fernández-Lodeiro, C., **Nuti, S.**, Pérez-Juste, I., Pastoriza-Santos, I., Pérez-Juste, J., ... Fernández-Lodeiro, J. (2025). Precise Control of Silver Nanoplate Dimensions and Optical Properties via pH, EDTA and AMP Mediated Synthesis. *Journal of Colloid and Interface Science*, 680, 286–297. 🔗 doi:<https://doi.org/10.1016/j.jcis.2024.10.179>
- 2 **Nuti, S.**, Fernández-Lodeiro, A., Ortiz-Gómez, I., Lodeiro, C., & Fernández-Lodeiro, J. (2025). Scalable Production and Multifunctional Coating of Gold Nanostars for Catalytic Applications. *Nanomaterials*, 15(9). 🔗 doi:[10.3390/nano15090692](https://doi.org/10.3390/nano15090692)
- 3 **Nuti, S.**, Fernández-Lodeiro, A., Galhano, J., Oliveira, E., Duarte, M. P., Capelo-Martínez, J. L., ... Fernández-Lodeiro, J. (2024). Tailoring Mesoporous Silica-Coated Silver Nanoparticles and Polyurethane-Doped Films for Enhanced Antimicrobial Applications. *Nanomaterials*, 14(5). 🔗 doi:[10.3390/nano14050462](https://doi.org/10.3390/nano14050462)

- 4 **Nuti, S.**, Fernández-Lodeiro, J., Palomo, J. M., Capelo-Martinez, J.-L., Lodeiro, C., & Fernández-Lodeiro, A. (2024). Synthesis, Structural Analysis, and Peroxidase-Mimicking Activity of AuPt Branched Nanoparticles. *Nanomaterials*, *14*(13). [doi:10.3390/nano14131166](https://doi.org/10.3390/nano14131166)
- 5 Fernández-Lodeiro, A., Fernández-Lodeiro, J., Losada-Garcia, N., **Nuti, S.**, Capelo-Martinez, J. L., Palomo, J. M., & Lodeiro, C. (2023). Copper(I) as a Reducing Agent for the Synthesis of Bimetallic PtCu Catalytic Nanoparticles. *Nanoscale Adv.*, *5*, 4415–4423. [doi:10.1039/D3NA00158J](https://doi.org/10.1039/D3NA00158J)
- 6 Fernández-Lodeiro, C., Fernández-Lodeiro, J., Fernández-Lodeiro, A., **Nuti, S.**, Lodeiro, C., LaGrow, A., ... Pastoriza-Santos, I. (2023). Synthesis of Tuneable Gold Nanostars: the Role of Adenosine Monophosphate. *J. Mater. Chem. C*, *11*, 12626–12636. [doi:10.1039/D3TC01567J](https://doi.org/10.1039/D3TC01567J)
- 7 Fernández-Lodeiro, C., Tambosi, R., Fernández-Lodeiro, J., Fernández-Lodeiro, A., **Nuti, S.**, Ouchane, S., ... Lodeiro, C. (2023). Adenosine-Monophosphate-Assisted Homogeneous Silica Coating of Silver Nanoparticles in High Yield. *Nanomaterials*, *13*(20). [doi:10.3390/nano13202788](https://doi.org/10.3390/nano13202788)
- 8 **Nuti, S.**, Fernández-Lodeiro, A., Chinchilla, L. E., Hungría, A. B., Capelo-Martinez, J.-L., Lodeiro, C., & Fernández-Lodeiro, J. (2023). Synthesis and Structural Characterization of Branched Bimetallic AuPd Nanoparticles with a Highly Tunable Optical Response. *The Journal of Physical Chemistry Letters*, *14*(27), 6315–6320. [doi:10.1021/acs.jpclett.3c01431](https://doi.org/10.1021/acs.jpclett.3c01431)
- 9 **Nuti, S.**, Fernández-Lodeiro, C., Fernández-Lodeiro, J., Fernández-Lodeiro, A., Pérez-Juste, J., Pastoriza-Santos, I., ... Lodeiro, C. (2022). Polyallylamine Assisted Synthesis of 3D Branched AuNPs with Plasmon Tunability in the vis-NIR Region as Refractive Index Sensitivity Probes. *Journal of Colloid and Interface Science*, *611*, 695–705. [doi:https://doi.org/10.1016/j.jcis.2021.12.047](https://doi.org/10.1016/j.jcis.2021.12.047)
- 10 Borah, R., Ninakanti, R., Nuyts, G., Peeters, H., Pedrazo-Tardajos, A., **Nuti, S.**, ... Verbruggen, S. W. (2021). Selectivity in the Ligand Functionalization of Photocatalytic Metal Oxide Nanoparticles for Phase Transfer and Self-Assembly Applications. *Chemistry – A European Journal*, *27*(35), 9011–9021. [doi:https://doi.org/10.1002/chem.202100029](https://doi.org/10.1002/chem.202100029)
- 11 Jiménez, R., Duarte, F., **Nuti, S.**, Campo, J. A., Lodeiro, C., Cano, M., & Cuerva, C. (2020). Thermochromic and Acidochromic Properties of Polymer Films Doped with pyridyl- β -diketonate Boron (III) Complexes. *Dyes and Pigments*, *177*, 108272. [doi:https://doi.org/10.1016/j.dyepig.2020.108272](https://doi.org/10.1016/j.dyepig.2020.108272)
- 12 Blommaerts, N., Vanrompay, H., **Nuti, S.**, Lenaerts, S., Bals, S., & Verbruggen, S. W. (2019). Unraveling Structural Information of Turkevich Synthesized Plasmonic Gold–Silver Bimetallic Nanoparticles. *Small*, *15*(42), 1902791. [doi:https://doi.org/10.1002/smll.201902791](https://doi.org/10.1002/smll.201902791)
- 13 **Nuti, S.**, Fernández-Lodeiro, J., Del Secco, B., Rampazzo, E., Rodríguez-González, B., Capelo, J. L., ... Lodeiro, C. (2018). Engineered Nanostructured Materials for Ofloxacin Delivery. *Frontiers in Chemistry*, *6*, 554. [doi:10.3389/fchem.2018.00554](https://doi.org/10.3389/fchem.2018.00554)

Oral and Poster Presentations

Oral presentations

- 2024 ♦ **Silvia Nuti**, Adrián Fernández-Lodeiro, Javier Fernández-Lodeiro, José Luis Capelo-Martínez, Carlos Lodeiro
“*Versatile Synthesis of Branched Au, AuPd, and AuPt Nanoparticles for Tunable Optical and Catalytic Applications*”.
5th International Caparica Christmas Conference on Translational Chemistry (IC3TC 2024) , December 8th - 12th, 2024, Costa da Caparica, Portugal.
- ♦ **Silvia Nuti**, Adrián Fernández-Lodeiro, Javier Fernández-Lodeiro, José Luis Capelo-Martínez, Carlos Lodeiro
“*High-Yield Synthesis of Core-Shell Nanoparticles with Gold and Silver Cores and Mesoporous Silica Shells*”.
6th International Caparica Symposium on Nanoparticles/Nanomaterials and Applications (ISN2A 2024) , January 22nd - 25th, 2024, Costa da Caparica, Portugal.
- 2023 ♦ **Silvia Nuti**, Adrián Fernández-Lodeiro, Javier Fernández-Lodeiro, Elisabete Oliveira, Maria Paula Duarte, José Luis Capelo-Martínez, Carlos Lodeiro
“*Mesoporous Silica Coated Silver Nanoparticles as Antibacterial Materials for Health and Food Applications*”.
5th International Caparica Conference on Pollutant Toxic Ions and Molecules (PTIM 2023) , November 6th - 9th, 2023, Costa da Caparica, Portugal.
- 2022 ♦ **Silvia Nuti**, Carlos Fernández-Lodeiro, Javier Fernández-Lodeiro, Adrián Fernández-Lodeiro, Jorge Pérez-Juste, Isabel Pastoriza-Santos.
“*Polyallylamine assisted synthesis of 3D branched AuNPs with plasmon tunability in the vis-NIR region*”.
5th International Caparica Symposium on Nanoparticles/Nanomaterials and Applications (ISN2A 2022), January 24th - 27th, 2022, Costa da Caparica, Portugal.
- ♦ Carlos Fernández-Lodeiro, Adrián Fernández-Lodeiro, **Silvia Nuti**, Carlos Lodeiro, Jorge Perez-Juste, Isabel Pastoriza-Santos, Javier Fernández-Lodeiro.
“*Gold Nanostars: new versatile synthesis*”.
5th International Caparica Symposium on Nanoparticles/Nanomaterials and Applications (ISN2A 2022), January 24th - 27th, 2022, Costa da Caparica, Portugal.
- 2021 ♦ **Silvia Nuti**, Carlos Fernández-Lodeiro, Javier Fernández-Lodeiro, Adrián Fernández-Lodeiro, Jorge Pérez-Juste, Isabel Pastoriza-Santos.
“*Synthesis of Highly Branched Gold Nanoparticles with Tunable Optical Properties*”.
4th International Caparica Christmas Conference on Translational Chemistry (IC3TC 2021), December 06th - 08th, 2021, Costa da Caparica, Portugal.
- 2018 ♦ **Silvia Nuti**, Elisabete Oliveira, Enrico Rampazzo, Javier Fernández-Lodeiro, Hugo M. Santos, Nelsi Zaccheroni, Luca Prodi, José Luis Capelo, Carlos Lodeiro.
“*Ofloxacin: colorimetric detection and enhancement of bactericidal properties by means of silver nanoparticle*”.
3rd International Caparica Conference on Chromogenic and Emissive Materials (IC3EM 2018), September 3rd - 6th, 2018, Costa da Caparica, Portugal.

Oral and Poster Presentations (continued)

- ◇ **Silvia Nuti**, Elisabete Oliveira, Enrico Rampazzo, Nelsi Zaccheroni, Luca Prodi, Carlos Lodeiro. *“Synthesis of Nanoparticles as new drug delivery systems to fight antibiotic resistance”*.
3rd International Symposium on Nanoparticles/Nanomaterials and Applications (ISN2A 2018), January 22nd - 25th, 2018, Costa da Caparica, Portugal.

Poster presentations

- 2024 ◇ Javier Fernández-Lodeiro, **Silvia Nuti**, Carlos Fernández-Lodeiro, Adrián Fernández-Lodeiro, Alec LaGrow, Jorge Pérez-Juste, Ignacio Pérez-Juste, Isabel Pastoriza Santos, José Luís Capelo-Martínez and Carlos Lodeiro.
“Divergent Paths: Tailoring Gold Nanoparticles for Catalytic and Optical Applications, from Nanostar to Branched Morphologies”.
6th International Caparica Symposium on Nanoparticles/Nanomaterials and Applications (ISN2A 2024) , January 22nd - 25th, 2024, Costa da Caparica, Portugal.
- ◇ Adrián Fernández-Lodeiro, Javier Fernández-Lodeiro, **Silvia Nuti**, José M. Palomo, José Luis Capelo-Martínez, Carlos Lodeiro.
“Advancements in Catalytic Nanomaterial Synthesis: Exploring Direct and Template Mediated Approaches”.
6th International Caparica Symposium on Nanoparticles/Nanomaterials and Applications (ISN2A 2024) , January 22nd - 25th, 2024, Costa da Caparica, Portugal.
- 2023 ◇ **Silvia Nuti**, Adrián Fernández Lodeiro, Javier Fernández-Lodeiro, Carlos Fernández Lodeiro, José Juan Calvino Gámez, José Luis Capelo, Carlos Lodeiro.
“Synthesis and characterization of highly tunable branched Au and AuPd NPs and their optical and catalytic properties”.
12th International Colloids Conference, June 11th - 24th, 2023, Palma de Mallorca, Spain.
- 2022 ◇ Adrián Fernández Lodeiro, Javier Fernández-Lodeiro, Noelia Losada-Garcia, **Silvia Nuti**, Carlos Lodeiro, José Luis Capelo, José M. Palomo.
“New synthesis of platinum nanoparticles and catalytic application, from Fe to Cu”.
5th International Caparica Symposium on Nanoparticles/Nanomaterials and Applications (ISN2A 2022), January 24th - 27th, 2022, Costa da Caparica, Portugal.
- 2021 ◇ Adrián Fernández Lodeiro, Javier Fernández-Lodeiro, **Silvia Nuti**, Carlos Lodeiro, José Luis Capelo, José M. Palomo.
“Synthesis of platinum nanoparticles and catalytic application”.
4th International Caparica Christmas Conference on Translational Chemistry (IC3TC 2021), December 06th - 08th, 2021, Costa da Caparica, Portugal.
- ◇ Frederico Duarte, Raquel Jiménez, **Silvia Nuti**, Cristián Cuerva, Mercedes Cano, José Luis Capelo-Martínez, Carlos Lodeiro.
“Luminescent hydrophilic micro and nanoparticles as potential drugnanocarriers. A comparative study using Eu(III) and B(III) complexes as emitters”.
4th International Caparica Christmas Conference on Translational Chemistry (IC3TC 2021), December 06th - 08th, 2021, Costa da Caparica, Portugal.

Oral and Poster Presentations (continued)

- 2020 ♦ **Silvia Nuti**, Elisabete Oliveira, Enrico Rampazzo, Javier Fernández-Lodeiro, Nelsi Zaccaroni, Luca Prodi, José Luis Capelo, Carlos Lodeiro.
“*Silver nanoparticles as tools for colorimetric detection and delivery of antibiotics*”.
4th International Symposium on Nanoparticles/Nanomaterials and Applications (ISN2A 2020), January 20th – 23rd, 2020, Costa da Caparica, Portugal.
- 2019 ♦ Natan Blommaerts, **Silvia Nuti**, Hans Vanrompay, Ramesh Asapu, Sara Bals, Silvia Lenaerts, Sammy W. Verbruggen.
“*Turkevich synthesis of plasmonic gold-silver bimetallic nanoparticles revisited*”.
National Symposium for Applied Biological Sciences (NSABS 2019), February 4th, 2019, Ghent, Belgium.
- 2018 ♦ Raquel Jiménez, **Silvia Nuti**, Adrián Fernández-Lodeiro, Cristián Cuerva, José Antonio Campo, Carlos Lodeiro, Mercedes Cano.
“*Pyridine-functionalised β -diketone compounds as a support of new luminescent boron(III) and europium(III) compounds with liquid crystal properties*”.
3rd International Caparica Conference on Chromogenic and Emissive Materials (IC3EM 2018), September 3rd - 6th, 2018, Costa da Caparica, Portugal.

Funding

- 2019-2023 ♦ **PhD Scholarship**
SFRH/BD/144618/2019
Fundação para a Ciência e a Tecnologia (FCT), Portugal.
- 2021-2023 ♦ **Fellow**
“*Development of adjustable Silver@Silica nanocarriers and their stabilization in solid materials against drug resistant and non-resistant pathogenic bacteria. Towards advanced nano-antibiotics, wound dressing and anti-biofilm surfaces.*”
PTDC/QUI-COL/1517/2020
Fundação para a Ciência e a Tecnologia (FCT), Portugal.
€ 233,032.55
[URL: FCT - Projects Database](#)
- 2022-2023 ♦ **Fellow**
“*Novel synthetic methodologies for metal nanocatalyst based in Gold, Palladium and Platinum and the study of their catalytic performance in key reactions.*”
EXPL/QUI-COL/0263/2021
Fundação para a Ciência e a Tecnologia (FCT), Portugal.
€ 50,000.00
[URL: Dimensions Project Database](#)

Peer-review activity

- 2025 ♦ *Materials Letters*, Elsevier
♦ *Materials Today Chemistry*, Elsevier
♦ *ACS Omega*, American Chemical Society

Courses

- 2023 ♦ **Practical course to obtain the license for independent access to the SEM (FEI Quanta 650 FEG, 6 hours) and TEM (JEOL JEM-2100-HT 80-200 KV, 12 hours)** at the International Iberian Nanotechnology Laboratory (INL, Braga, Portugal). 24th-26th January 2023, INL, Braga, Portugal.
- 2022 ♦ **Research Ethics Course - 22nd edition**, NOVA Doctoral School - Lisbon.
♦ **Sciencepreneur - Entrepreneurship and Science Course - 3rd edition**, NOVA Doctoral School - Lisbon.
- 2021 ♦ **Project Managment Course - 22nd edition**, NOVA Doctoral School - Lisbon.
♦ **Design Thinking Course - 25th edition**, NOVA Doctoral School - Lisbon.
♦ **Scientific Text Processing with L^AT_EX Course - 11th edition**, NOVA Doctoral School - Lisbon.

Awards

- 2021 ♦ **Excellent Poster Shotgun Communication Award**, PROTEOMASS Scientific Society.
4th International Caparica Christmas Conference on Translational Chemistry (IC3TC 2021), selected by the conference attendees. Caparica, Portugal.
- 2018 ♦ **Excellent Shotgun Communication Award**, PROTEOMASS Scientific Society.
III International Symposium on Nanoparticles/Nanomaterials and Applications (ISN2A 2018), selected by the conference attendees. Caparica, Portugal.
- 2010 ♦ **Youth Merit Award**, Rotary Club Bologna Sud, Bologna, Italy.

Languages

- Italian ♦ Native
- English ♦ Fluent
- Spanish ♦ Working proficiency
- Portuguese ♦ Working proficiency

Skills

- Chemistry ♦ Design and synthesis of new materials and nanomaterials with tailored properties, in particular: gold, silver, platinum, palladium nanoparticles with different morphologies and functionalities. Nanomaterials surface modifications with organic or inorganic materials
Study of the interaction of materials and molecules with light.
Tuning of the chemical and physical properties of functional and structural materials.

Skills (continued)

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|------------------|---|
| Characterization | ◇ Knowledge of standard laboratory techniques for purification: silica column, TLC, centrifugation, freeze-drying, crystallization.
Knowledge of characterization techniques for materials and nanomaterials: UV-Vis, DLS, ζ -potential, fluorescence and emission spectroscopy, FTIR, NMR, ICP, SEM, and TEM. |
| Teaching | ◇ Experience in teaching laboratory practice classes to first-year chemistry students at FCT-UNL, Portugal. |
| Communication | ◇ Scientific and technical data in international meetings as oral or poster presentations.
Organization of scientific congresses. |
| Informatic | ◇ Knowledge of Office package, $\text{\LaTeX}$ typesetting. |
| Misc. | ◇ Technical writing and data report, academic writing, research. |