Riccardo MARIN *born on 01/12/1987*

PhD (joint Canada-Italy)

RESUME

Profile. **Ramón y Cajal Fellow** and **Marie-Skłodowska Curie Alumnus** with experience in the research field of nanomaterials, coordination compounds, and optical sensing. Highly skilled at **proposal writing** (≈3,000,000 € secured in fellowships and grants). Passionate **teacher and mentor** with experience in teaching. Enthusiast about **design** and its use for science communication.

Contacts.

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Education.

2013–2017 **Doctoral Degree** with honours, **Chemistry**, U. Ca' Foscari Venice (IT) and Institut National de la Recherche Scientifique (CA)

2009–2011 **Master's Degree** with full grade and honours, **Materials Science**, U. Ca' Foscari Venice (IT)

2006–2009 **Bachelor's Degree** with full grade and honours, **Sciences and Technologies of Materials**, U. Ca' Foscari Venice (IT)

Academic work experience.

2022–now **Ramón y Cajal Fellow**, UAM (ES)

2021–2022 **Postdoctodal Fellow**, UAM (ES)

2019–2021 **Marie Skłodowska-Curie Fellow**, UAM (ES)

2017–2019 **Postdoctoral Fellow**, U. Ottawa (CA)

Awards and fellowships.

2022 Ramón y Cajal Fellowship [236,350 EUR]

2022 Academy of Finland Fellowship [800,000 EUR] *declined*

2018 Marie Skłodowska-Curie Fellowship [160,000 EUR]

2018 Juan de la Cierva Incorporación [50,000 EUR] *declined*

2014 Best tutor of the year, U. Ca' Foscari Venice

4 prizes for best oral presentation (2023, 2021, 2016)

Teaching and mentoring activity.

Co-supervisor of the internship of **12 students** (5 PhD, 4 MSc, 3 BSc). 1 defended PhD thesis.

Professor of Physics courses at UAM (since 2023) and during the 31st Jyväskylä Summer School (2022)

Guest lecturer during courses at U. Ottawa (2021, 2017), U. Ca' Foscari Venice (2020, 2013, 2011), U. Aveiro (2019)

Maths and Physics **Tutor**, U. Ca' Foscari Venice (2011-2014)

International collaborations

Vast network of collaborators, counting several groups worldwide (Canada, Italy, Singapore, Germany, Spain, Portugal, Brazil, Finland)

Publications and oral contributions.

Author of **68 papers** (28 as first author, 15 as corresponding author, 6 review articles)

>2490 total citations (**h-index = 31**)

Co-author of **1 book chapter** on optical coherence tomography, and **1 patent** on luminescent materials

21 oral contributions at conferences, of which **10 invited talks** and 1 highlight talk

Projects as PI.

2024 ERC Starting Grant [1,500,000 EUR]

2023 Spanish National Project [190,000 EUR + PhD scholarship]

Memberships.

2022-now Institute for Advanced Research in Chemical Sciences (IAdChem)

2022-now Instituto Nicolas Cabrera (INC)

2020-now American Chemical Society

Event organization.

2024 **Organizer** of *2024 Light-nanoMatter Interaction Summer School – LnMI 2024*, UAM

2019 **Organizer** of *1st Workshop on Luminescence & Magnetism in Molecules & Materials - LM³*, U. Ottawa

2017 Member of **Local Organizing Committee** for the *International School of Physical Chemistry – Materials for Biomedical Applications*, Venice, Italy

Reviewing activity.

2021-now Evaluator for Spanish Research Agency (AEI), National Science Centre Poland, FONDECYT-Chile

2022 Referee for doctoral thesis, U. Bologna (IT)

Referee for **international journals**: Nat. Nanotech., Adv. Sci., Adv. Mater., ACS Nano, Angew. Chem., Chem, Nanoscale, ACS Appl. Mater. Interfaces, ACS Photonics…

Languages.

Italian (native speaker), **English** (fluent), **Spanish** (fluent), **French** (basic user)

Extended CV

Education.

2013–2017 **Doctoral Degree (PhD)** with honours in **Chemistry** at University Ca' Foscari Venice (Italy) and Institut National de la Recherche Scientifique, INRS (Canada). *Thesis: "Copper Sulfide and Copper Indium Sulfide Nanoparticles: Two Optically Active Materials with a Bright Future"*, supervisors *Prof. Patrizia Canton* and *Prof. Fiorenzo Vetrone.*

2009–2011 **Master's Degree** with full grade and honours (110 *summa cum Laude*) in **Materials Science** at University Ca' Foscari Venice. *Thesis: "Impregnation of mesoporous siliceous supports for biomedical applications",* supervisor *Prof. Pietro Riello*.

2006–2009 **Bachelor's Degree** with full grade and honours (110 *summa cum Laude*) in **Sciences and Technologies of Materials** at University Ca' Foscari Venice. *Thesis: "Sintesi di biolabels a base di erbio"* supervisor *Prof. Pietro Riello*.

Academic work experience.

Dec 2022–now **Ramón y Cajal fellow** at Universidad Autónoma de Madrid (Spain). *Project: "Development of near-infrared nanoparticles for imaging and sensing"*.

May 2021–Ago 2022 **Postdoctoral fellow** at Universidad Autónoma de Madrid (Spain). *Project: "NANONERV Super-bright nanoparticles for theranostics of nervous system-associated pathologies"*, advisor *Prof. Daniel Jaque*.

May 2019–Apr 2021 **Marie Skłodowska-Curie fellow** at Universidad Autónoma de Madrid (Spain). *Project: "LANTERNS: Lanthanide-doped ternary quantum dots"*, advisor *Prof. Daniel Jaque*.

Nov 2017–Apr 2019 **Post-doctoral fellow** at University of Ottawa (Canada). *Project: "Preparation and characterization of lanthanide-based materials displaying opto-magnetic properties"*, advisors *Prof. Eva Hemmer* and *Prof. Muralee Murugesu.*

Nov 2012–Jul 2013 **Research Fellow** at University Ca' Foscari Venice (Italy) Department of Molecular Sciences and Nanosystems.

Jun 2012–Sept 2012 **Research Fellow** at University of Verona (Italy) Department of Biotechnology, supervisor *Prof. Adolfo Speghini*.

Mar 2012–May 2012 **Research Fellow** at University Ca' Foscari Venice (Italy) Department of Molecular Sciences and Nanosystems.

Fellowships and bursaries.

2022 *Ramon y Cajal Fellowship*, Agencia Estatal de Investigación Spain [236,350 EUR]

2022 *Academy of Finland Fellowship*, Academy of Finland (***declined***) [800,000 EUR]

2018 *Marie Skłodowska-Curie Action Individual Fellowship* (**H2020-MSCA-IF-2017**) [160,000 EUR]

2018 *Juan de la Cierva Formación* (**JdC-2017**), Spanish National Fellowship (***declined***) [50,000 EUR]

2018 *International Travel Grant* - University of Ottawa [500 CAD]

2013 *PhD bursary*, University Ca' Foscari Venice

Awards.

2023 *Best Oral Communication Prize*, NANOSERIES "2nd Annual Conference on Global Nanotechnology" 2023, 19-21/06/2023, Instituto de Ciencia de Materiales (ICMM-CSIC), Madird, Spain

2023 *Best Oral Communication Prize*, II-IAdChem Workshop "Materials for Biosensing and Bioimaging" 2023, 17/02/2023, Universidad Autónoma de Madrid, Madird, Spain

2021 *Best Oral Communication Prize*, European Chemical Biology Symposium (ECBS) 2021, 26-28/05/2021, online

2017 **"***Seal of Excellence"* Marie Skłodowska-Curie Action Individual Fellowship application (**H2020-MSCA-IF-2016**)

2016 *3rd Prize Best Oral Presentation Award*, International Conference on Optical, Optoelectronic and Photonic Materials and Applications, 12-17/6/2016, Montreal, Quebec, Canada

2014 *Best tutor of the year*, Dpt. of Molecular Sciences and Nanosystems, University Ca' Foscari Venice

International research internships.

Jan 2024, Aug 2024 Visiting Researcher (competitively funded position: 3,000 €) at **University of Jyväskylä**. *Project:* "*Near-infrared metal complexes with soft donors*", host *Prof. Jani Moilanen.*

Oct 2019–Dec 2019 Internship at **CICECO** (Universidade de Aveiro). *Project:* "*Development of rare-earth complexes based on chalcogen-rich ligands*", supervisor *Prof. Luís Dias Carlos.*

Jan 2015–Jul 2015 Internship at **INRS-EMT** (Insitut National de la Recherche Scientifique – Energie Materiaux Telecommunications) of Varennes. *Project: "Synthesis of heavy-metal-free quantum dots"*, supervisor *Prof. Fiorenzo Vetrone*.

2008–2011 Various stays at the MCX beamline (*X-ray diffraction*) of the **Elettra synchrotron** in Trieste, Italy. *Theme: "Study of the thermally induced structural evolution of crystalline solids".*

Projects.

2024-now ERC Starting Grant (ERC-StG-2024) 101162875 – "MAtCHLESS Untapping multiparametric 2D luminescence sensing through MACHine LEarning and Spectral Sorting" [*1,500,000 €*]

Role: **PI**, Granting body: *European Research Council* (ERC – EU)

2023-now Spanish National Project PID2022-142410NA-I00 – "NAMASTEPS Novel nanomaterials and machine learning for simultaneous, remote temperature and pressure sensing." [*190,000 € + PhD scholarship*]

Role: **PI**, Granting body: *Ministerio de Ciencia e Innovación* (Spain)

2021-2023 Spanish National Project PID2019-106211RB-I00 – "NANONERV Super-bright nanoparticles for theranostics nervous system-associated pathologies"

Role: **research staff**, Granting body: *Ministerio de Ciencia e Innovación* (Spain)

2020 Spanish National Project MAT2016-75362-C3-1-R – "Nano materiales para el estudio de afecciones cardio-vasculares"

Role: **research staff**, Granting body: *Ministerio de Ciencia e Innovación* (Spain)

2019-2021 MSCA-IF-2017 #797945 – "LANTERNS Lanthanide ion doping of ternary quantum dots" [*160,000 €*]

Role: **PI**, Granting body: *European Commission*

Patents.

1. M. Back, R. Marin, N. Mazzucco *Optical compounds, use and method for producing thereof*. **(2014)** Patent no. *WO 2015025297A1*

Manuscripts in peer-reviewed journals.

I have published: **68** manuscripts in peer-reviewed journals,
28 (41%) as a **first author** or **equally contributing first author,**
9 (13%) as a **second author,**
15 (22%) as a **corresponding author.**

2492 total citations on the rise, **h-index = 31**
(*Google Scholar*, 31/08/2024, https://scholar.google.com/citations?user=HS-irwkAAAAJ&hl=en).
† Equally contributing author.
* Corresponding author.

68. G. Butkiene, A. M. Daugelaite, V. Poderys, R. Marin, S. Steponkiene, E. Kazlauske, D. Daunoravicius, D. Jaque, R. Rotomskis, A. Skripka, F. Vetrone*, V. Karabanovas* "PEGylated Opto-Magnetic Gold and Silver Sulfide Iron Oxide Nanoprobes for Synergistic Photothermal Therapy" *ACS Appl. Mater. Interfaces* **2024,** *accepted.*

67. J. W. de Wit, I. Zabala-Gutierrez, R. Marin, A. Zhakeyev, S. Melle, O. G. Calderon, J. Marques-Hueso, D. Jaque, J. Rubio-Retama, A. Meijerink* "New Insights in Luminescence and Quenching Mechanisms of Ag_2S Nanocrystals through Temperature-dependent Spectroscopy" *J. Phys. Chem. Lett.* **2024,** *15,* 8420.

66. K. El-Boubbou*, E. Ximendes, F. J. Terán, R. Marin, Á. Artiga, D. H. Ortgies, D. Jaque "PEGylated Opto-Magnetic Gold and Silver Sulfide Iron Oxide Nanoprobes for Synergistic Photothermal Therapy" *ACS Appl. Nano Mater.* **2024,** *7,* 13959.

65. J. Lifante, Á. Moreno-Rupérez, E. Ximendes, R. Marin, T. Priego, A. López-Calderón, A. Isabel Martín, M. Paz Nieto-Bona, E. Nebot, G. Lifante-Pedrola, D. Jaque*, L. Monge, N. Fernández, M. Granado "Early in vivo detection of denervation-induced atrophy by luminescence transient nanothermometry" *J. Biophotonics* **2024,** *17,* e202300249.

64. W. M. Piotrowski, M. Szymczak, E. Martín-Rodríguez, R. Marin, M. Henklewska, B. Pozniak, M. Dramicanin, L. Marciniak* "Step by step optimization of luminescence thermometry in $MgTiO_3$: Cr^{3+}, Nd^{3+}@SiO_2 nanoparticles towards bioapplications" *Mat. Chem. Phys.* **2024,** *312,* 128623.

63. M. París Ogáyar, D. Méndez González, I. Zabala-Gutierrez, Á. Artiga Folch, J. Rubio-Retama, O. G. Gomez Calderon, S. Melle, A. Serrano, A. Espinosa de los Monteros Royo, D. Jaque, R. Marin* "Ion-induced bias in Ag_2S luminescent nanothermometers" *Nanoscale* **2023,** *15,* 17956.

62. W. Mohammad, K. D. Wegner, C. Comby-Zerbino, V. Trouillet, M. Paris Ogayar, J. Coll, R. Marin, D. Jaque, U. Resch-Genger, R. Antoine,* X. Le Guevel* "Enhanced brightness of ultra-small gold nanoparticles in the second biological window through thiol ligand shell control" *J. Mater. Chem. C* **2023,** *11,* 14714.

61. L. Ming, I. Zabala-Gutierrez, P. Rodríguez-Sevilla, J. Rubio-Retama, D. Jaque, R. Marin*, E. Ximendes* "Neural Networks Push the Limits of Luminescence Lifetime Nanosensing" *Adv. Mater.* **2023,** *27,* 2306606. [*publication of supervised student L. Ming*]

60. L. Aldaz-Caballero, U. R. Rodriguez-Mendoza, V. Lavín, P. Canton, A. Benayas*, R. Marin* "Copper Indium Sulfide Quantum Dots as Nanomanometers: Influence of Size and Composition" *Adv. Sensors Res.* **2023,** *2,* 2300078. [*publication of supervised student L. Aldaz-Caballero*]

59. T. Muñoz-Ortiz, I. Alayeto, J. Lifante, D. H. Ortgies, R. Marin, E. Martín Rodriguez, M. C. Iglesias de la Cruz, G. Lifante-Pedrola, J. Rubio-Retama*, D. Jaque* "3D Optical Coherence Thermometry Using Polymeric Nanogels" *Adv. Mater.* **2023,** *35,* 2301819.

58. C. Brites†, R. Marin†, M. Suta,† E. Ximendes, D. Jaque, and L. D. Carlos* "Spotlight on Luminescence Thermometry: Basics, Challenges, and Cutting-Edge Applications" *Adv. Mater.* **2023,** *35,* 2302749.

57. L. Ming, I. Zabala-Gutierrez, O. G. Calderón, S. Melle, E. Ximendes, J. Rubio-Retama, and R. Marin* "A brighter era for silver chalcogenide semiconductor nanocrystlas" *Opt. Mater* **2023,** *141,* 113940. [*publication of supervised student L. Ming*]

56. W. M. Piotrowski*, R. Marin, M. Szymczak, E. Martín Rodríguez, D. H. Ortgies, P. Rodríguez-Sevilla, P. Bolek, M. D. Dramićanin, D. Jaque, L. Marciniak* "Critical evaluation of the thermometric performance of ratiometric luminescence thermometers based on $Ba_3(VO_4)_2$:Mn^{5+},Nd^{3+} for deep-tissue thermal imaging" *J. Mater. Chem. C* **2023,** *11,* 6713-6723.

55. J. Yao, G. Lopez-Peña, J. Lifante, M. Carmen Iglesias-de la Cruz, R. Marin, E. Martín Rodriguez, D. Jaque, and D. Ortgies* "Adjustable near-infrared fluorescence lifetime emission of biocompatible rare-earth-doped nanoparticles for in vivo multiplexing" *Opt. Mater X.* **2023,** *17,* 100225. [*publication of supervised student J. Yao*]

54. W. M. Piotrowski*, R. Marin, M. Szymczak, E. Martín Rodríguez, D. H. Ortgies, P. Rodríguez-Sevilla, M. D. Dramićanin, D. Jaque, L. Marciniak* "Mn^{5+} lifetime-based thermal imaging in the optical transparency windows through skin-mimicking tissue phantom" *Adv. Opt. Mater.* **2022,** 2202366.

53. D. Mendez-Gonzalez, J. Lifante, I. Zabala Gutierrez, R. Marin, E. Ximendes, E. Sanz-de Diego, M. C. Iglesias-de la Cruz, F. J. Teran, J. Rubio-Retama, D. Jaque* "Optomagnetic nanofluids for controlled brain hyperthermia: a critical study" *Nanoscale* **2022,** 10.1039/D2NR03413A.

52. T. Muñoz-Ortiz, L. Abiven, R. Marin, J. Hu, D. H. Ortgies, A. Benayas, F. Gazeau, V. Castaing, B. Viana, C. Chanéac, D. Jaque, F. E. Maturi, L. D. Carlos, E. Martín Rodríguez* and J. García Solé "Temperature dependence of water absorption in the biological windows and its impact on the performance of Ag_2S luminescent nanothermometers" *Part. Part. Syst. Charact.* **2022,** 2200100. [10% Most Downloaded Papers in 2023]

51. D. Lu, J. Rubio Retama, R. Marin, M. I. Marqués, P. Haro-González*, and D. Jaque* "Thermoresponsive polymeric nanolenses magnify the thermal sensitivity of single upconverting nanoparticles" *Small*, **2022,** *18*, 2202452.

50. A. Pasćiak, R. Marin, L. Abiven, A. Pilch-Wróbel, M. Misiak, W. Xu, K. Prorok, O. Bezkrovnyi, Ł. Marciniak, C. Chanéac, F. Gazeau, R. Bazzi, S. Roux, B. Viana, V.-P. Lehto, D. Jaque, and A. Bednarkiewicz "Quantitative Comparison of the Light-to-Heat Conversion efficiency in Nanomaterials Suitable for Photothermal Therapy" *ACS Appl. Mater. Interfaces* **2022,** *14*, 33555–33566.

49. E. Ximendes,*† R. Marin,*† L. D. Carlos, and D. Jaque "Less is more: dimensionality reduction as a general strategy for more precise luminescence thermometry" *Light Sci. Appl.* **2022,** *11*, 237.

48. R. Marin*, D. A. Gálico, R. Gayfullina, J. O. Moilanen, L. D. Carlos, D. Jaque and M. Murugesu* "A zero-field single-molecule magnet with luminescence thermometry capabilities containing soft donors" *J. Mater. Chem. C.* **2022,** *10*, 13946. [Part of the *"2022 Emerging Young Investigators"* themed collection]

47. R. Marin, E. Ximendes, and D. Jaque "New opportunities for light-based tumor treatment with an "iron fist"" *Light Sci. Appl.* **2022,** *11*, 65. [*News and Views article*]

46. J. Yao,† T. Muñoz Ortiz,† F. Sanz-Rodríguez, E. Martín Rodríguez, D. Ortgies, J. García Solé, D. Jaque* and R. Marin* "Bismuth selenide nanostructured clusters as optical coherence tomography contrast agents: Beyond gold-based particles" *ACS Photonics* **2022,** *9*, 559-566. [*publication of supervised student J. Yao*]

45. R. Marin, N. C. Millan, L. Kelly, E. M. Rodrigues, M. Murugesu* and E. Hemmer* "Luminescence thermometry using sprayed films of metal complexes" *J. Mater. Chem. C* **2022,** *10*, 1767-1775.

44. I. Zabala Gutierrez, C. Gerke, Y. Shen, E, Ximendes, M. Manso Silván, R. Marin, D. Jaque, O. Calderón, S. Melle* and J. Rubio-Retama* "Boosting the Near-Infrared Emission of Ag_2S Nanoparticles by a Controllable Surface Treatment for Bioimaging Applications" *ACS Appl. Mater. Interfaces* **2022,** *14*, 4871-4881.

43. Y. Shen,† J. Lifante,† I. Zabala Gutierrez, M. de la Fuente-Fernández, M. Granado, N. Fernández, J. Rubio-Retama, D. Jaque, R. Marin, E. Ximendes* and A. Benayas* "Reliable and remote monitoring of absolute temperature during liver inflammation via luminescence-lifetime-based nanothermometry" *Adv. Mater.***2021,** *34*, 2107764.

42. A. Skripka, D. Mendez-Gonzalez, R. Marin, E. Ximendes, B. del Rosal, D. Jaque* and P. Rodríguez-Sevilla* "Near infrared bioimaging and biosensing with semiconductor and rare-earth nanoparticles: recent developments in multifunctional nanomaterials" *Nanoscale Adv.* **2021,** *3*, 6310-6329 [*invited REVIEW article*]

41. R. Marin*, A. Benayas, N. García Carillo, J. Lifante, J. Yao, D. Mendez-Gonzalez, F. Sanz-Rodríguez, J. Rubio-Retama, L. V. Besteiro and D. Jaque* "Nanoprobes for Biomedical Imaging with Tunable Near-Infrared Optical Properties Obtained via Green Synthesis" *Adv. Photonics Res.* **2021,** *3*, 2100260 . [*invited contribution*]

40. J. Yao, J. Lifante, P. Rodríguez, F. Sanz-Rodríguez, D. Ortgies, E. Ximendes, D. Jaque* and R. Marin* "*In vivo* near-infrared imaging with ternary selenide semiconductor nanocrystals with an uncommon structure" *Small* **2021,** *17*, 2103505. [*publication of supervised student J. Yao*]

39. E. Ximendes,† R. Marin,† Y. Shen, D. Ruiz, D. Gómez-Cerezo, P. Rodríguez, J. Lifante, P. X. Viveros-Méndez, F. Gámez, D. García-Soriano, G. Salas, A. Espinosa, C. Zalbildea, A. Benayas, N. García-Carrillo, L. Cussó, M. Desco, F. J. Teran, B. H. Juárez and D. Jaque. "Infrared-Emitting Multimodal Nanostructures for Controlled In Vivo Magnetic Hyperthermia" *Adv. Mater.* **2021,** *33*, 2100077.

38. E. Ximendes, A. Benayas, D. Jaque* and R Marin* "*Quo Vadis* Nanoparticle-Enabled Fluorescence *In Vivo* Imaging?" *ACS Nano* **2021,** *15*, 1917 [*invited PERSPECTIVE article*]

37. R. Marin*, D. Jaque and A. Benayas* "Switching to the Brighter Lane: Pathways to Boost the Emission Intensity of Lanthanide-Doped Nanoparticles" *Nanoscale Horiz.* **2021,** *6*, 209 [*invited REVIEW article – *corresponding author;*

Selected for *"Horizons Community Board collection: optical and photonic materials"* and "*Nanoscale Horizons Most Popular 2021 Articles*" themed collections]

36. R. Marin†, G. Brunet† and M. Murugesu "Shining new light on multifunctional lanthanide single-molecule magnets" *Angew. Chem. Int. Ed.* **2021,** *60,* 1728 [*REVIEW article*]

35. R. Marin* and D. Jaque* "Doping lanthanide ions in semiconductor nanocrystals for brighter photoluminescence" *Chem. Rev.* **2021,** *121,* 1425 [*REVIEW article*]

34. P. Richardson, R. Marin, Y. Zhang, B. Gabidullin, J. Ovens, J. O. Moilanen and M. Murugesu "Asymmetric Ring Opening in Tetrazine-based Ligand Affording a Tetranuclear Opto-Magnetic Ytterbium Complex" *Chem. Eur. J.* **2021,** *27,* 2361.

33. G. E. Gomez,† R. Marin†, A. N. Carneiro Neto, A. M. P. Botas, J. Ovens, A. A. Kitos, M. C. Bernini, L. D. Carlos, G. J. A. A. Soler-Illia and M. Murugesu "Tunable Energy-Transfer Process in Heterometallic MOF Materials Based on 2,6-Naphthalenedicarboxylate: Solid-State Lighting and Near-Infrared Luminescence Thermometry" *Chem. Mater.* **2020,** *32,* 7458.

32. A. Skripka, T. Cheng, C. Jones, R. Marin, J. Marques Hueso and F. Vetrone "Spectral characterization of $LiYbF_4$ upconverting nanoparticles" *Nanoscale* **2020,** *12,* 17545. [Selected for *"2020 nanoscale HOT Article Collection"* themed collection]

31. B. Handel, V. Vladimirova, E. Ximendes, J. García Solé, D. Jaque and R. Marin* "Investigation of the Concentration- and Temperature-Dependent Motion of Colloidal Nanoparticles." *Nanoscale* **2020,** *12,* 12561.

30. R. Marin, A. Skripka, Y.-C. Chuang, T. A. J. Loh, D. H. C. Chua, C.-L. Dong, P. Canton and F. Vetrone "Influence of Halide Ions on the Structure and Properties of Copper Indium Sulphide Quantum Dots" *Chem. Commun.* **2020,** *56,* 3341.

29. R. Marin, J. Lifante, L. V. Besteiro, Z. Wang, A. O. Govorov, F. Rivero, F. Alfonso, F. Sanz-Rodriguez and D. Jaque García "Plasmonic copper sulfide nanoparticles enable dark contrast in optical coherence tomography" *Adv. Healthc. Mater.* **2020,** *9,* 1901627.

28. I. Halimi, E. M. Rodrigues, S. Maurizio, H.-Q. T. Sun, M. Grewal, E. M. Boase, R. Marin and Eva Hemmer "Pick your Precursor! Tailoring Size and Crystal Phase of Microwave-Synthesized sub-10 nm Upconverting Nanoparticles" *J. Mater. Chem. C* **2019,** *7,* 15364.

27. D. A. Gálico†, R. Marin†, G. Brunet, D. Errulat, E. Hemmer, F. A. Sigoli, J. Moilanen and M. Murugesu "Triplet state position and crystal field tuning in opto-magnetic lanthanide complexes: two sides of the same coin" *Chem. Eur. J.* **2019,** *25,* 14625.

26. G. Brunet, R. Marin, M.-J. Monks, U. Resch-Genger, D. A. Gálico, F. A. Sigoli, E. A. Suturina, E. Hemmer and M. Murugesu "Exploring the dual functionality of an ytterbium complex for molecular optical thermometry and slow magnetic relaxation" *Chem. Sci.* **2019,** *10,* 6799. [Selected by Chemical Science Editors for the *"International Open Access Week 2020"* themed collection]

25. D. Errulat†, R. Marin†, D. A. Gálico, K. L. M. Harriman, A. Pialat, B. Gabidullin, F. Iikawa, O. D. D. Couto, J. O. Moilanen, E. Hemmer, F. A. Sigoli and M. Murugesu "A Luminescent Thermometer Exhibiting Slow Relaxation of the Magnetization: Toward Self-Monitored Building Blocks for Next-Generation Optomagnetic Devices" *ACS Centr. Sci.* **2019,** *5,* 1187.

24. R. Marin, A. Vivian, A. Skripka, A. Migliori, V. Morandi, F. Enrichi, F. Vetrone, C. Aprile and P. Canton "Mercaptosilane-Passivated $CuInS_2$ Quantum Dots for Luminescence Thermometry and Luminescent Labels" *ACS Appl. Nano Mater.* **2019,** *2,* 2426.

23. N. Liu, R. Marin, Y. Mazouzi, G. O. Cron, A. J. Shuhendler and E. Hemmer "Cubic versus hexagonal – Effect of host crystallinity on the T_1 shortening behavior of $NaGdF_4$ nanoparticles" *Nanoscale* **2019,** *11,* 6794.

22. R. Marin, F. Oussta, S. N. Katea, S. Prabhudev, G. A. Botton, G. Westin and E. Hemmer "Europium-doped ZnO nanosponges – Controlling optical properties and photocatalytic activity" *J. Mater. Chem. C* **2019,** *7,* 3909.

21. R. Marin, I. Halimi, D. Errulat, Y. Mazouzi, G. Lucchini, A. Speghini, M. Murugesu and E. Hemmer "Harnessing the synergy between upconverting nanoparticles and lanthanide complexes in a multi-wavelength responsive hybrid system" *ACS Photonics* **2019,** *6,* 436. [*publication of supervised student I. Halimi*]

20. A. Skripka, V. Karabanovas, G. Jarockyte, R. Marin, V. Tam, M. Cerruti, R. Rotomskis and F. Vetrone "Decoupling Theranostics with Rare Earth Doped Nanoparticles" *Adv. Funct. Mater.* **2018,** *2,* 1807105. [*selected for front cover*]. *Highlighted on the web* (*https://www.x-mol.com/paper/5604424, https://mp.weixin.qq.com/s/S9SoOa6jK0Dl0zbv2rIaPw, https://www.vgtu.lt/vgtu-naujienu-portalas/naujienos/mokslininku-komandos-tyrimai-prestiziniame-medziagotyros-bei-nanotechnologiju-zurnale/246059?nid=306481, https://www.ff.vu.lt/mokslo-ir-studiju-naujienos/736-vu-profesoriaus-su-kolegomis-atlikti-tyrimai-didina-nanodaleliu-panaudojimo-teranostikoje-galimybes*) *and in the press* (Lietuvos Žinios).

19. N. Panov, R. Marin and E. Hemmer "Microwave-Assisted Solvothermal Synthesis of Upconverting and Downshifting Rare-Earth-Doped $LiYF_4$ Microparticles" *Inorg. Chem.* **2018,** *57,* 14920.

18. T. Cheng†, R. Marin†, A.Skripka† and F. Vetrone "Small and Bright Lithium-Based Upconverting Nanoparticles" *J. Am. Chem. Soc.* **2018,** *140,* 12890.

17. R. Marin†, A. Skripka†, L. V. Besteiro†, A. Benayas, Z. Wang, A. O. Govorov, P. Canton and F. Vetrone "Highly Efficient Copper Sulfide-Based Near-Infrared Photothermal Agents: Exploring the Limits of Macroscopic Heat Conversion" *Small* **2018,** *14,* 1803282. [*selected for inside back-cover*]

16. R. Marin, L. Labrador, A. Skripka, A. Benayas, P. Haro, P. Canton, D. Jaque and F. Vetrone "Upconverting Nanoparticle to Quantum Dot Förster Resonance Energy Transfer: Increasing the Efficiency through Donor Design" *ACS Photonics* **2018,** *5,* 2261.

15. A. Gobbo†, R. Marin† and P. Canton "Seeded Growth of Gold Nanorods: the Effect of Sulfur-Containing Quenching Agents" *J. Nanopart. Res.* **2018,** *20,* 66.

14. G. Glorani†, R. Marin†, M. Pinto, G. Conti, G. Fracasso, P. Canton and P. Riello "Effect of Pegylation on the Interaction of Silica Nanoparticles with Biological Environments" *J. Nanopart. Res.* **2017,** *19,* 294.

13. A. Skripka†, R. Marin†, A. Benayas, P. Canton, E. Hemmer and F. Vetrone "Covering the optical spectrum through collective rare-earth doping of $NaGdF_4$ nanoparticles: 800 and 980 nm excitation routes" *Phys. Chem. Chem. Phys.* **2017,** *19,* 11825.

12. A. Skripka, A. Benayas, R. Marin, P. Canton, E. Hemmer and F. Vetrone "Double Rare-Earth Nanothermometer in Aqueous Media: Opening the Third Optical Transparency Window to Temperature Sensing" *Nanoscale* **2017,** *9,* 3079. [*ranked by ISI Web of Science in the top 1% most cited papers in the field of Physics*]

11. M. Back, R. Marin, M. Franceschin, N. Sfar Hancha, F. Enrichi, E. Trave and S. Polizzi "Energy transfer in color-tunable water-dispersible Tb-Eu codoped CaF_2 nanocrystals" *J. Mater. Chem. C* **2016,** *4,* 1906.

10. R. Marin,* G. Sponchia, M. Back and P. Riello "Determining Europium Distribution in Doped Tetragonal Stabilized Zirconia Nanopowders: a Non-Line Broadening-Based Method" *Acta Crystallogr. B* **2016,** *B72,* 29.

9. E. Moretti, M. Aversa, A. Scrivanti, L. Storaro, A. Talon, R. Marin, J. A. Cecilia, E. Rodriguez-Castellon and S. Polizzi "A novel triphenylamine-based dye sensitizer supported on titania nanoparticles and the effect of titania fabrication on its optical properties" *Chem. Papers* **2015,** *70,* 218.

8. M. Back, E. Trave, R. Marin, N. Mazzucco, D. Cristofori and P. Riello "Energy Transfer in Bi- and Er-doped Y_2O_3 Nanocrystals: An Effective System for Rare Earth Fluorescence Enhancement" *J. Phys. Chem. C* **2014,** *118,* 30071.

7. C. Malba, U. Sudhakaran, S. Borsacchi, M. Geppi, F. Enrichi, M. Natile, L. Armelao, R. Marin, P. Riello and A. Benedetti "Structural and photo-physical properties of rare earth complexes encapsulated into surface modified mesoporous silica nanoparticles" *Dalton Trans.* **2014,** *43,* 16183. [*selected for front cover*]

6. A. Massari, M. Beggio, S. Hreglich, R. Marin, S. Zuin "Behaviour of TiO_2 nanoparticles during incineration of solid paint waste: a lab-scale test" *Waste Management* **2014,** *34,* 1897.

5. G. Sponchia, R. Marin, I. Freris, E. Moretti, L. Storaro, P. Canton, A. Lausi, A. Benedetti and P. Riello "Mesoporous silica nanoparticles with tunable pore size for tailored gold nanoparticles" *J. Nanopart. Res.* **2014,** *16,* 2245.

4. R. Marin, M. Back, N. Mazzucco, F. Enrichi and P. Riello "Unexpected Optical Activity of Cerium in Y_2O_3:Ce^{3+},Yb^{3+},Er^{3+} Up&Down-Conversion System" *Dalton Trans.* **2013,** *42,* 16837. [*Correction: Dalton Trans.* **2015,** *44,* 7066]

3. M. Back, M. Boffelli, A. Massari, R. Marin, F. Enrichi and P. Riello "Energy Transfer Between Tb^{3+} and Eu^{3+} in co-doped Y_2O_3 nanocrystals prepared by Pechini Method" *J. Nanopart. Res.* **2013**, *15,* 1753.

2. R. Marin, G. Sponchia, E. Zucchetta, P. Riello, F. Enrichi, G. De Portu and A. Benedetti "Monitoring the *t→m* martensitic phase transformation by photoluminescence emission in Eu^{3+}-doped zirconia powders" *J. Am. Ceram. Soc.* **2013,** *96,* 2628.

1. R. Marin*, G. Sponchia, P. Riello, R. Sulcis and F. Enrichi* "Photoluminescence properties of YAG:Ce^{3+},Pr^{3+} phosphors synthesized via the Pechini method for white LEDs" *J. Nanopart. Res.* **2012,** *14,* 886.

Book chapters.

1. T. Muñoz, R. Marin, D. Ortgies, E. Martín-Rodriguez, and J. García Solé "Optical Coherence Tomography (OCT)" In *WSPC Reference on Plasmonic Nanomaterials: Principles, Design and Bio-applications: Vol 5. Plasmonics in Diagnostics and Therapy* Editor-in-chief: Luis Liz-Marzan **March 2022,** *DOI: 10.1142/12236-vol5* [*invited BOOK CHAPTER*]

Conference contributions.

21 conference contributions as **presenting author**.
10 contributions are **invited talks**

21. R. Marin "Extending the reach of luminescence sensing: 3D thermal mapping" *The 7th International Conference on the Physics of Optical Materials (ICOM 2024)*, Aug **2024**, Montenegro, Serbia. [*invited talk*]

20. R. Marin "Pushing the Limits of Luminescence Nanothermometry" *11th International Symposium on Inorganic Phosphate Materials and International Workshop on Forward-Looking Materials (ISIPM-11 & FLM2023)*, Nov **2023**, Venice, Italy. [*invited talk*]

19 R. Marin "Luminescence nanothermometry" *NWPU-UAM Advanced Materials Symposium*, Sept **2023**, Xi'an, China. [*invited talk*]

18. R. Marin, E. Ximendes, I. Zabala-Gutierrez, L. Ming, Y. Shen, J. Lifante, N. Fernandez, A. Benayas, J. Rubio-Retama, D. Jaque. "Brighter, Better, Faster: Pushing the limits of luminescence thermometry with silver sulfide nanocrystals" *20th Intl. Conference on Luminescence – ICL 2023*, Aug-Sept **2023**, Paris, France. [*invited talk*]

17. R. Marin, E. Ximendes, L. Días Carlos, D. Jaque "Less is more in luminescence thermometry" *11th International conference on f-elements – ICFE-11*, Aug **2023**, Strasbourg, France. (*poster*)

16. R. Marin, E. Ximendes, I. Zabala-Gutierrez, L. Ming, Y. Shen, J. Lifante, N. Fernandez, A. Benayas, J. Rubio-Retama, D. Jaque. "Pushing the limits of Luminescence Thermometry with Silver Sulfide Nanocrystals" *2nd Annual Conference on Global Nanotechnology*, Jun **2023**, Madrid, Spain. [*invited talk* - ***Best Oral Presentation Award***]

15. R. Marin, D. Ortgies, E. Martín-Rodríguez, A. Benayas, E. Ximendes, P. Haro-González, N. Fernández, M.C. Iglesias de la Cruz, M. Granado, L. Monge, D. Jaque "It has been a long time… Fluorescence lifetime-based imaging and sensing techniques" *II IAdChem Whorkshop – Materials for Biosensing & Bioimaging*, Feb **2023**, Madrid, Spain. [***Best Oral Presentation Award***]

14. R. Marin "Silver sulfide nanocrystals: Workhorses in fluorescence imaging and thermal sensing" *SHIFT 2022 - Spectral sHapIng For biomedical and energy applicaTions*, Oct **2022**, Tenerife, Canary Island. [*invited talk*]

13. R. Marin "Silver sulfide nanocrystals for imaging and sensing: A *Bildungsroman.*" *V annual meeting CINBIO*, Jul **2022**, Vigo, Spain. [*invited talk*]

12. R. Marin "Silver sulfide nanocrystals: synthesis properties, and their use in fluorescence imaging" *ICAMS 2021 - 1st International Conference on Advances in Materials Science*, September **2021**, online conference. [*invited talk*]

11. R. Marin, E. Ximendes et al. "Infrared-emitting multimodal nanostructures for controlled in vivo magnetic hyperthermia" *European Chemical Biology Symposium (ECBS) 2021*, May **2021**, online conference. [***Best Oral Presentation Award***]

10. R. Marin, J. Lifante, L. Besteiro, F. Rivero, F. Alfonso, F. Sanz-Rodríguez, D. Jaque "Plasmonic copper sulfide nanoparticles afford negative contrast in optical coherence tomography" *Materials Science and Engineering 2020 (MSE),* Sept **2020**, online conference. [*highlight talk*]

9. R. Marin, M. Murugesu and E. Hemmer "Dinuclear lanthanide complexes as multifunctional magneto-optical systems" *ICACC19: 43rd International Conference and Exposition on Advanced Ceramics and Composites*, Jan-Feb **2019**, Daytona Beach, Florida, USA.

8. R. Marin "A colorful journey on the bandwagon of lanthanide ions through commitment, perseverance, and friendship" *ACerS Winter Workshop 2019*, Jan **2019**, Daytona Beach, Florida, USA. [*invited talk*]

7. R. Marin, D. Errulat, I. Halimi, G. Lucchini, A. Speghini, M. Murugesu and E. Hemmer "Dimeric Lanthanide Complexes as Versatile Opto-Magnetic Species and Their Amalgamation with Upconverting Nanoparticles" *Materials Challenges in Alternative and Renewable Energy (MCARE) 2018*, Aug **2018**, Vancouver, British Columbia, Canada.

6. R. Marin, L. Labrador-Paéz, A. Skripka, P. Haro-González, A. Benayas, D. Jaque, F. Vetrone, D. Errulat, M. Murugesu and E. Hemmer "Upconverting nanoparticles meet quantum dots and lanthanide complexes: exploring unconventional Förster resonance energy transfer pairs" *UPCON18: 2nd Conference and Spring School on Properties, Design and Applications of Upconversion Nanomaterials*, Apr **2018**, Valencia, Spain.

5. R. Marin, M. Murugesu and E. Hemmer "Lanthanide-based Materials: Exploring Multifunctional Platforms for Opto-Magnetic Applications" *1st uOttawa Advanced Materials Workshop*, Mar **2018**, Ottawa, Ontario, Canada.

4. R. Marin, M. Cavallini, F. Vetrone and P. Canton "One-pot Synthesis of Water Dispersible Plasmonic Copper Sulphide Nanoparticles" *ICOOPMA16 International Conference on Optical, Optoelectronic and PhotonicMaterials and Applications*, Jun **2016**, Montréal, Québec, Canada. [***3rd Prize Best Oral Presentation Award***]

3. R. Marin, P. Canton, T.A.J. Loh, D.H.C. Chua and F. Vetrone **"**Rationalising the Anions Effect in the Synthesis of $CuInS_2$ Quantum Dots" *CSACS/CQMF Advanced Materials Annual Conference*, May **2016**, Montréal, Québec, Canada. (*poster*)

2. R. Marin, A. Migliori, V. Morandi, F. Enrichi and P. Canton "Non-Injection, Alkyl-Thiol-Free Synthesis of $CuInS_2$ Quantum Dots" *ICACC16: 40th International Conference and Expo on Advanced Ceramics and Composites*, Feb **2016**, Daytona Beach, Florida, USA. [*invited talk*]

1. R. Marin and P. Canton "$CuInS_2$-based Quantum Dots for Biomedical Applications" *Faraday Discussion 175: Physical Chemistry of Functionalised Biomedical Nanoparticles*, Sept **2014**, Bristol, United Kingdom. (*poster*)

Invited seminars.

1. R. Marin "A Lightbulb, a Magnet, a Thermometer: Multifuncitonal (nano)Materials from Design to Application." Sept **2024**, Technical University of Vienna, Vienna, Austria.
2. R. Marin "A Lightbulb, a Magnet, a Thermometer: Multifuncitonal (nano)Materials from Design to Application." Aug **2024**, Trinity College of Dublin, Dublin, Ireland.
3. R. Marin "Machine Learning Meets Luminescence Nanothermometry." Aug **2024**, Jyväskylä University, Jyväskylä, Finland.
4. R. Marin "Machine Learning Meets Luminescence Nanothermometry." Aug **2024**, Turku University, Turku, Finland.
5. R. Marin "Luminescence nanothermometry: At the interface between materials science and machine learning." June **2024**, Universidad Complutense, Madrid, Spain.
6. R. Marin "Silver sulfide nanocrystals for imaging and sensing: A *Bildungsroman*." April **2023**, Institute of Low Temperature and Structure Research, Wroclaw, Poland.
7. R. Marin "Communication of science in the digital era: User Experience design, design thinking, and practical pointers." March **2023**, University of Aveiro, Aveiro, Portugal.
8. R. Marin "Communication of science in the digital era: User Experience design, design thinking, and practical pointers." Dec **2022**, The Molecular Foundry, California, USA.
9. R. Marin "Luminescent nanoplatforms for optical imaging and thermal sensing." May **2022**, Jyväskylä University, Jyväskylä, Finland.
10. R. Marin "How it is made: Lanthanide complexes with opto-magnetic properties" Jan **2020**, Università Ca' Foscari Venezia, Venice, Italy.
11. R. Marin "Semiconductors and lanthanide ions: great alone, better together" June **2019**, CICECO, Aveiro, Portugal.
12. R. Marin "High performance multipurpose luminescent nanoparticles" *Italy-Japan Symposium* May **2014**, Università Ca' Foscari Venezia, Venice, Italy.

Collaborations.

- *Prof. Luis Carlos*, *Prof. Carlos Brites*, *Dr. Albano Carneiro*, University of Aveiro, **Portugal** – "Modelling of energy transfer processes in lanthanide-based optical materials and in nanothermometry"

- *Dr. Diogo Gálico Alves*, University of Ottawa, **Canada** – "Magnetic circular dichroism in molecules and solids"
- *Prof. Jani Moilanen*, University of Jyväskylä, **Finland** – "Theoretical modelling of rare-earth complexes for prediction of electronic structure and magnetic behavior"
- *Dr. Lucas Besteiro*, Biomedical Research Center (CINBIO), Universidade de Vigo, **Spain** – "Theoretical modelling of calorimetric properties in nanoparticles"
- *Dr. Juan Pedro Cascales*, Universidad Complutense de Madrid, Madrid, **Spain** – "Development of luminescence-based wearable sensors for biomarkers"
- *Prof. María Ribagorda Lobera*, Universidad Autónoma de Madrid, Madrid, **Spain** – "Development of hybrid luminescent materials based n semicodnuctor and lanthanide complexes"
- *Prof. Ute Resch-Genger*, BAM Federal Institute for Materials Research and Testing, **Germany** – "Spectroscopic characterization of nanomaterials and metal complexes"
- *Prof. Carmela Aprile*, Université de Namur, **Belgium** – "Characterization of surface properties of quantum dots"
- *Prof. Fernando A. Sigoli*, University of Campinas, **Brazil** – "Spectroscopic characterization of metal complexes"
- *Prof. Daniel Chua*, National University of Singapore, **Singapore** – "Characterization quantum dots' electronic properties through ultraviolet photoelectron spectroscopy"
- *Prof. Adolfo Speghini*, Università di Verona, **Italy** – "Luminescent rare-earth-based nanoparticles"

Event organization.

July 2024 — Organizer of the "***2024 Light-nanoMatter Interaction (LnMI 2024) Summer School***", 30/6-5/7/2024, Miraflores de la Sierra, Madrid, Spain (55 attendees)

March 2019 — Organizer of the "***1st Workshop on Luminescence & Magnetism in Molecules & Materials - LM³***", 11/3/2019, University of Ottawa, Ottawa, Ontario, Canada (30 attendees)

Jul 2017 — Member of the Local Organizing Committee for the "***International School of Physical Chemistry – Materials for Biomedical Applications***", 2-7/7/2017, San Servolo, Venice, Italy (https://sites.google.com/a/unive.it/ispc2017/committee)

Teaching experience.

Attended several teacher training courses, including:

- **Collaborative learning** (code 1576). 26 h (9 h in person). 1 ECTS. Prof. Matthew Banks Berry
- **Effective presentation in class** (code 1591). 26 h (8 h in person). 1 ECTS. Prof. Pedro Pablo Sigüenza
- **Evaluation of transversal competences** (code 1666). 16 h (6 h in person). 0.5 ECTS. Prof. Miguel Valero García

2023-2024 — **Professor** of "*Física 1*". BSc Chemistry course (code: 16319), 09-12/2023 [20 h]
Professor of "*Trabajo de fin de grado*". BSc Physics course (code: 16416), 11-12/2023 [8 h]
Professor of "*Tecnicas Experimentales III*". BSc Physics course (code: 16409), 01-06/2024 [60 h]

2022-2023 — **Professor** of "*Tecnicas Experimentales III*". BSc Physics course (code: 16409), 01-03/2023 [18 h]

2021 — **Lecturer** during the graduate course "*Advanced Topics in Inorganic Chemistry*" (course code: CHM 8302), 23/02/2021, University of Ottawa, Canada (online class) [1h]

2020 — **Symposium**: "*How it is made: lanthanide complexes with opto-magnetic properties*". Università Ca' Foscari di Venezia, 29/01/2020, Venezia, Italy. [1h]

2019 — **Lecturer** during the course "*Topics in Nanomedicine*" (course code: 40770) of the 5-year degree in Biomedical Engineering at Universidade de Aveiro, 15/11/2019, Aveiro, Portugal. [2h]

2019 — **Symposium**: "*Semiconductors and lanthanide ions: great alone, better together*". Universidade de Aveiro, 06/11/2019, Aveiro, Portugal. [1h]

2017 — **Lecturer** during the undergraduate course "Advanced Characterization Methods of Materials Science and Catalysis" (course code: CHM 4380), 30/11/2017, University of Ottawa, Canada. [1h]

2013-2014 — **Physics 101 Tutor** at U. Ca' Foscari: training students to the resolution of Physics tests.

Mathematics 101 Tutor at U. Ca' Foscari: training students to the resolution of Maths tests.

Lecturer: "*X-Ray Powder Diffraction method and the Rietveld analysis*" during the course of "Laboratorio di Scienze dei Materiali", University Ca' Foscari. [2h]

Symposium: "*Mesoporous Silica Nanoparticles: a Multifunctional Platform*" at Università di Torino, 25/10/2013, Torino. [1h]

2011-2012 **Physics 101 Tutor** at University Ca' Foscari: I trained students to the resolution of Physics tests.

Lecturer: "*X-Ray Powder Diffraction method and the Rietveld analysis*" during the course of "Laboratorio di Scienze dei Materiali", University Ca' Foscari. [2h]

Mentoring activities.

I have been or currently are the official **co-supervisor of 12 internships** at the graduate and undergraduate level.

As the only postdoctoral fellow in the group of Prof. Eva Hemmer (University of Ottawa), I directly superintended the experimental work of 1 PhD, 3 Master's students and several undergraduates. I also oversaw the experimental work of several students at the University Ca' Foscari of Venice as a PhD student, acting as a *de facto* supervisor.

2024-2025 **Co-supervisor** with Dr. Juan Pedro Cascales of the *Bachelors' internship* of Ms. Sonia Aragón Sánchez at Universidad Autónoma de Madrid. Thesis title: "*Nanopartículas con emisión infrarroja cercana para implantes subcutaneos luminiscentes*".

2024-2025 **Co-supervisor** with Dr. Erving Ximendes of the *Bachelors' internship* of Ms. Ángela Melek Ilhan Rupérez at Universidad Autónoma de Madrid. Thesis title: "*Tejidos fantasmas: una serie de idrogeles con propriedades ópticas de relevancia biológicas*".

2024 **Supervisor** of the *Bachelors' internship* of Mr. Diego Salvador Valdeolmillos at Universidad Autónoma de Madrid. Thesis title: "*Desarrollo de nanopartículas novedosas para aplicaciones en luminiscencia*".

2024-now **Supervisor** of the *PhD internship* of Ms. Emily Andreato at Universidad Autónoma de Madrid. Thesis title: "*A novel generation of luminescent fluoride nanoparticles*".

2023-now **Co-supervisor** with Prof. Daniel Jaque of the *PhD internship* of Mr. Nikita Panov at Universidad Autónoma de Madrid. Thesis title: "*Multiparametric luminescence sensing with novel nanomaterials*".

2023 **Supervisor** of the *ERASMUS+ Master´s internship* of Ms. Emily Andreato at the Universidad Autónoma de Madrid. Thesis title: "*Novel luminescent fluoride nanoparticles*".

2022-now **Co-supervisor** with Dr. Erving Ximendes of the *PhD internship* of Miss. Liyan Ming at Universidad Autónoma de Madrid. Thesis title: "*Luminescence lifetime thermometry in the near infrared*".

2022 **Co-supervisor** with Dr. Antonio Benayas of the *Master's internship* of Miss. Nicol Caetano at Universidad Autónoma de Madrid. Thesis title: "*Surface engineering of oxide-based plasmonic nanoparticles*".

2021-now **Co-supervisor** with Dr. Antonio Benayas of the *PhD internship* of Miss. Leyre Aldaz at Universidad Autónoma de Madrid. Thesis title: "*Luminescent nanoparticles working in the near-infrared for bioimaging*".

2020-2021 **Co-supervisor** with Dr. Antonio Benayas of the *Master's internship* of Miss. Leyre Aldaz at Universidad Autónoma de Madrid. Thesis title: "*Microwave-assisted synthesis of rare-earth doped semiconductor nanoparticles*".

2020-2021 **Co-supervisor** with Dr. Dirk Ortgies of the *PhD internship* of Mr. Jingke Yao at Universidad Autónoma de Madrid. Thesis title: "*Near-infrared emitting nanoparticles for bioimaging*".

2019-2020 **Co-supervisor** with Prof. Daniel Jaque of the *Master's internship* of Miss. Eulalia Martínez Olmos at Universidad Autónoma de Madrid. Thesis title: "*Síntesis verde de nanopartículas de Ag_2S con café*".

Outreaching activities.

2024 Responsible for a multi-station activity "*Light to diagnose, Light to cure*" at the "*Noche de los Investigadores y las Investigadoras*". To be held on 27th of September 2024. Theme "Science for Healthcare".

2008/2009 Laboratory tutor for the outreaching activity "*Settimana della Scienza dei Materiali*" to promote the university's scientific courses among high school students (Department of Molecular Sciences and Nanosystems, University Ca' Foscari Venice).

Memberships.

2022-now Member of the Institute for Advanced Research in Chemical Sciences (IAdChem - https://www.iadchem.uam.es/)
2022-now Member of the Instituto Nicolas Cabrera (INC - https://www.inc.uam.es/)
2020-now Member of the American Chemical Society
2016-now Member of the American Ceramic Society

Referee and reviewing activity.

2014- now **Referee for international peer-reviewed journals:** Nature Nanotechnology, ACS Nano, Journal of the American Chemical Society, Advanced Science, Advanced Materials, Angewandte Chemie, Chem, ACS Applied Materials and Interfaces, ACS Photonics, Nanoscale, Dalton Transactions, Scientific Reports, Optics Express, Journal of Nanoparticle Research, Frontiers in Chemistry, ChemNanoMat, Optical Materials, Physica B: Physics of Condensed Matter, Materials Science and Engineering, Journal of Luminescence, Journal of Rare Earths.

2024-now **Evaluator** for the Spanish Agencia Estatal de Investigación (AEI) for the Ramón y Cajal fellowship (Biomaterials Panel)

2023-now **Evaluator** for Fondo Nacional de Desarrollo Científico y Tecnológico of the Ministry of Education (Chile)

2022 **External referee** for a Doctoral Thesis, Università di Bologna (IT).

2021-now **Evaluator** for the National Science Centre Poland for the SHENG-2, PRELUDIUM-20, and OPUS-22 funding schemes

Language skills.

Native language: **Italian**
Other languages: **English** *(fluent)*, **Spanish** *(fluent)*, **French** *(basic user)*