

# Cristina Santamaría Olivera

I am a dynamic professional with an international academic and scientific background currently working as a predoctoral researcher in three different Institutes of Consejo Superior de Investigaciones Científicas (CSIC). I have more than 4 years of experience working in the research and innovation sector. During these years, I have learnt how to transition between simply "doing" a research project and "owning" one. I have developed a mindset where I am not only doing what I am told to do, instead, I have tried to answer the questions that have arisen during my, yet short, research career, and dictate my own path. In my scientific career I have dealt with two different topics, mainly focused in organic chemistry and material science, in which I have tried to contribute, in a greater or lesser way, to improve people's lives and to make a more sustainable future. Currently, I am involved in two projects, one that focuses on the development of new drugs for the inhibition of an enzyme that is involved in the regulation of degenerative processes, and the second and main objective of my PhD is oriented to the design and implementation of new materials for making renewable energy storage possible.

## EDUCATION

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|--------------|--|----------------|
| 2019-Present | <b>Organic Chemistry PhD</b><br><b>Universidad Autónoma de Madrid</b><br><i>PhD Title: "Synthesis and structure of useful compounds for the manufacture of electrical storage devices"</i>   | Madrid, Spain  |
| 2018-2019    | <b>Interuniversity Master in Drug Discovery Universidad Complutense de Madrid, CEU San Pablo, Universidad de Alcalá de Henares and Consejo Superior de Investigaciones Científicas (CSIC)</b><br><i>Final Research Project: "Synthesis, structure and properties of peptide-arene hybrids"</i> | Madrid, Spain  |
| 2014-2018    | <b>Degree in Chemistry</b><br><b>Universidad de La Rioja</b><br><i>Specialized in Organic Chemistry; Final research project "Design of new glycosilation methods"</i>  | Logroño, Spain |
| 2016-2017    | <b>Year 4 Master in Science with Honours in Chemistry</b><br><b>Queen's University Belfast</b><br><i>Erasmus Grant</i>   | Belfast, UK    |
| 2012-2014    | <b>Professional Music Education (up to fourth year)</b><br><b>Conservatorio Oficial de Música de La Rioja</b><br><i>Piano</i>  | Logroño, Spain |
| 2008-2012    | <b>Elemental Music Education</b><br><b>Conservatorio Oficial de Música de Haro</b><br><i>Piano</i>   | Haro, Spain    |

## PROFESIONAL EXPERIENCE

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|----------------------------|---|----------------|
| 2019-Present               | <b>Consejo Superior de Investigaciones Científicas</b><br>Predoctoral Researcher contract   | Madrid, Spain  |
| October 2017-<br>July 2018 | <b>Universidad de La Rioja, Project Engineering Department</b><br>Department Collaboration Scholarship contract                                     | Logroño, Spain |
| July -October<br>2017      | <b>Grupo Faustino</b><br><b>R&amp;D Department, Analysis and quality control. Harvest Manager Bodegas Marqués de Vitoria</b><br>Researcher contract | Oyón, Spain    |

## SCHOLARSHIPS

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|-----------|--|----------------|
| 2021-2022 | <b>Residencia de Estudiantes Grant, Ministry of Science and Innovation</b><br>Accommodation grant at the historical Institution Residencia de Estudiantes de Madrid to promote and develop my research projects. | Madrid, Spain  |
| 2017-2018 | <b>Research Grant Universidad de La Rioja</b><br>Collaborating researcher in the Biological Organic Chemistry research group   | Logroño, Spain |
| 2017-2018 | <b>Collaboration Grant Universidad de La Rioja</b><br>Engineering Project Department   | Logroño, Spain |
| 2017      | <b>Santander Internship Scholarship, Grupo Faustino</b><br>Quality and R&D Department, responsible chemist for grape harvests  | Oyón, Spain    |
| 2016-2017 | <b>Erasmus Grant, Queen's University Belfast</b>   | Belfast, UK    |
| 2012      | <b>Campus Científicos de verano, Universidad de Oviedo</b>   | Gijón, Spain   |

## PARTICIPATION IN R&D PROJECTS

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|--------------|--|
| 2022-Present | "Baterías avanzadas y sostenibles de ión sodio e ión potasio de estado sólido (SOSNaKBat)" Reference: PID2021-1278640B-I00   |
| 2018-2021    | "Dispositivos de almacenamiento eléctrico guiados por aspectos medioambiental: de los materiales a prototipos de baterías de ión-sodio." Reference: RTI2018-095425-B-I00           |
| 2017-2018    | "Investigación de la aplicación de plasma atmosférico para a la desinfección bacteriana en el ámbito de la alimentación y la salud (Plasformers)" Reference: ADER 2016-I-IDD-00054 |

## ADDITIONAL TRAINING AND COURSES

VIII Course "Los avances de la química y su impacto en la sociedad"  
II Edition SUPERBAT "International course on batteries and supercaps: principles and applications"  
Resonancia Magnética Nuclear de Sólidos cursos de formación de personal CSIC.  
I Edition SUPERBAT "International course on batteries and supercaps: principles and applications"  
Materials for energy and sustainability (Sección territorial de Madrid de la RSEQ)  
Curso de Posgrado Fronteras en la Ciencia de Materiales (II) ICMM/CSIC.

## CONGRESSES AND COMMUNICATIONS

### V Edition Brainwars "The Future is in our hands".

"Sodium ion batteries. Past, present and future" Authors: C. Santamaría, E. Morales, B. Herradón, J. M. Amarilla.

### I Course "La carrera investigadora: de los inicios a la consolidación".

"Liderazgo científico" Author: C. Santamaría.

### IV Edition Trivulgando: Investigación, sociedad y divulgación.

"Científico vs. Editoriales: ¿cómo publicar para divulgar?" Debate moderator with the participation of B. Herradón, M. Maestro, C. Guerrero, Q. Royuela

### V Edition Power our Future.

"Sodium-salt/amide based eutectic electrolytes for sodium ion batteries" Authors: C. Santamaría, J. M. Amarilla, E. Morales, C. del Río, B. Herradón.

"Sodium salt/tetramethylurea eutectic electrolytes: Characterization and cell performance in rechargeable sodium-ion cells" Authors: C. Santamaría, J. M. Amarilla, E. Morales, C. del Río, B. Herradón.

"Electrochemical performance of  $\text{Na}_{0.67}\text{Mn}_{0.67}\text{Ni}_{0.23}\text{Mg}_{0.1}\text{O}_2$  sodium half-cells. Effect of electrolyte and operation voltage" Authors: C. Santamaría, J. M. Amarilla, E. Morales, C. del Río, B. Herradón.

### VI Conference to promote Basic Research for students of Science and Engineering (Universidad Rey Juan Carlos).

"Baterías de ión sodio: historia, impacto en la sociedad y resultados" Authors: C. Santamaría, J. M. Amarilla, E. Morales, B. Herradón.

Best communication and research project award.

### Conference on scientific transfer (Instituto de Química Orgánica General, IQOG-CSIC).

"Baterías de ión sodio: estado del arte, historia y resultados científicos." Author: Cristina Santamaría.

### IV Edition Brainwars "The Future is in our hands".

"Sodium ion batteries: some scientific results and impact on society" Authors: C. Santamaría, E. Morales, B. Herradón, J. M. Amarilla.

### Workshop AMAPOLA "Role of polymers in batteries and capacitors: towards sustainable, safer and more efficient devices"

"P(VDF-co-HFP)/tetramethylurea sodium salt polymer gel electrolytes. Electrical and electrochemical characterization". Authors: C. Santamaría, E. Morales, B. Herradón, J. M. Amarilla, C. del Río.

### XVI Congreso Nacional de Materiales (CNMAT 2020).

"Electrolitos basados en líquidos iónicos derivados de alquilimidazoles y sus aplicaciones en baterías recargables de sodio-ión". Authors: E. Morales, C. del Río, B. Herradón, C. Santamaría, J. M. Amarilla.

"Propiedades electroquímicas de cátodos  $\text{Na}_x\text{Mn}_y\text{Ni}_{1-y}\text{O}_2$  en baterías recargables de sodio con seguridad mejorada por electrolitos basados en líquidos iónicos". Authors: J. M. Amarilla, C. Santamaría, B. Herradón, C. del Río, E. Morales

"Nuevos electrolitos sólidos para baterías de sodio-ión basados en mezclas de poli(óxido de etileno) (PEO) y poli(4-estireno sulfonato de sodio) (PNSS)". Authors: C. del Río, E. Morales, B. Herradón, C. Santamaría, J. M. Amarilla.

### XXII Congreso Internacional de Dirección de Ingeniería de Proyectos

"Nuevos métodos para el control de Biofilms en la industria alimentaria". Authors: R. Múgica, C. Ramírez, I. Muro, C. Santamaría; F. Alba.

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## 1<sup>ST</sup> AUTHOR PUBLICATIONS (not including congress associated publications)

1. **Santamaría, C.,** Morales, E., del Río, C., Herradón, B., Amarilla, J. M., "Studies on sodium-ion batteries: Searching for the proper combination of the cathode material, the electrolyte and the working voltage. The role of magnesium substitution in layered manganese-rich oxides, and pyrrolidinium ionic liquid", *Electrochimica Acta*, 439, 2023.
  2. **Santamaría, C.,** Herradón, B., "Aspectos históricos y sociales de las baterías y los líquidos iónicos" *Revista de Plásticos Modernos*, 767, 2021.
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## TEACHING AND SUPERVISED STUDENTS

### Irene Gómez

Co-direction of the Master's Thesis within the Organic Chemistry Master's program (Universidad Autónoma de Madrid) with the title "Study of aromatic compounds with potential applications in biomedicine and materials science".

### Karen Cristina Contreras

Co-direction of Master's Thesis within the Interuniversity Master's program in Drug Discovery (Universidad Complutense de Madrid, CEU San Pablo and Universidad de Alcalá de Henares) with the title "Synthesis of arenes with potential antiviral activity".

### Alejandra Galán

Co-direction of curricular practices within the Degree program in Experimental Sciences (Universidad Rey Juan Carlos).

Preparatory session in the Organic Chemistry area for the national phase of the 2022 Chemistry Olympiad (4 hours)

### Álvaro Quevedo

Co-direction of extracurricular practices within the Chemical Engineering Degree (Universidad Complutense de Madrid)

Preparatory session in the Organic Chemistry area for the national phase of the Chemistry Olympiad 2021 (4 hours)

### Pedro Martínez

Co-direction of Master's Thesis within the Interuniversity Master's program in Drug Discovery (Universidad Complutense de Madrid, CEU San Pablo and Universidad de Alcalá de Henares) with the title "Synthesis of aromatic esters and amides as potential antiviral agents".

### Irene Gómez

Co-direction of curricular practices within the Chemistry Degree (Universidad Autónoma de Madrid).

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## DISSEMINATION ACTIVITIES

- **Winner of the Youth Chemical Influencer contest organized by the European Chemical Employers Group.**
- **Member of the Organizing Committee of the regional phase of the Chemistry Olympiad in Madrid.** Editions 2019-2023.
- **Member of the Organizing Committee of the VIII Course "Los avances de la química y su impacto en la sociedad: la relación entre la química y otras áreas del conocimiento. ¡Una única cultura!"** directed by Bernardo Herradón.
- **Member of the Organizing Committee and participant "Adivina la palabra: 12 palabras para 12 futuros"** during Science Week 2022 at the Residencia de Estudiantes.
- **Member of the Organizing Committee and participant IV Ed. Trivulgando.** The main objective of these conference is to show the different dissemination formats so that each one can begin to disseminate in an interesting, efficient and useful way. I was also in charge of moderating the session "Scientists vs. Publishers: how to publish to disseminate?"
- **Member of the Organizing Committee and participant "Nadie lo va a hacer por nosotras. Una conversación entre científicas"** I moderated the debate held for the day of Women and Girls in Science at the Residencia de Estudiantes.
- **Member of the Organizing Committee of the "Uno Químico" championship** within the program of activities for the Science and Technology week at the CSIC. Editions 2019-2022.
- **Member of the Organizing Committee of the "Aspirin Synthesis" workshops** during Science Week at the Institute of General Organic Chemistry (IQOG-CSIC).

- **Member of the Organizing Committee and participant "¿Quién es quién?"** during Science Week 2021 at the Residencia de Estudiantes.
  - **Member of the Organizing Committee of the contest "Elige un elemento"**
  - **Member of the Organizing Committee of the VII Course "Los avances de la química y su impacto en la sociedad: alrededor de la tabla periódica y sus elementos"** directed by Bernardo Herradón.
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#### **VOLUNTEERING EXPERIENCE**

**2017**  
**2016**

**Voluntariado Servicio Civil Internacional Association Holderbüsch**  
**Short Term Program Volunteer Concordia Association**

**Dresden, Germany**  
**Marseille, France**