

CURRICULUM VITAE

IMPORTANT – The Curriculum Vitae cannot exceed 4 pages. Instructions to fill this document are available in the website.

Part A. PERSONAL INFORMATION		CV date	12/05/2023
First name	ALBERT		
Family name	SERRÀ RAMOS		
Gender (*)	MALE		
e-mail	a.serra@ub.edu		
Open Researcher and Contributor ID (ORCID) (*)	0000-0003-0147-3400		

(*) Mandatory

A.1. Current position

Position	ASSISTANT PROFESSOR (<i>PROFESOR LECTOR</i>)		
Initial date	08/02/2021		
Institution	UNIVERSITY OF BARCELONA		
Department/Center	DEPARTMENT OF MATERIALS SCIENCE AND PHYSICAL CHEMISTRY	SCHOOL OF CHEMISTRY / UNIVERSITY OF BARCELONA	
Country	SPAIN	Teleph. number	
Key words	ELECTROCHEMISTRY, MATERIALS SCIENCE, HETEROGENEOUS CATALYSIS, NANOTECHNOLOGY.		

A.2. Previous positions (research activity interruptions, see call)

Period	Position/Institution/Country/Interruption cause
SEPTEMBER 2020 - FEBRUARY 2021	ADJUNCT PROFESSOR / UNIVERSITY OF BARCELONA / SPAIN / PROMOTION
JANUARY 2020 - SEPTEMBER 2020	SCIENTIST POSITION/SWISS FEDERAL LABORATORIES OF MATERIALS SCIENCE AND TECHNOLOGY / SWITZERLAND / RESIGNATION
JUNE 2018- DECEMBER 2019	MSCA POSTDOCTORAL FELLOWSHIP + POSTDOCTORAL POSITION / SWISS FEDERAL LABORATORIES OF MATERIALS SCIENCE AND TECHNOLOGY / SWITZERLAND / PROMOTION
NOVEMBER 2016 – JUNE 2017	POSTDOCTORAL POSITION / UNIVERSITY OF BARCELONA / SPAIN / COMPLETION OF THE PROJECT

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
MASTER'S DEGREE IN UNIVERSITY TEACHING FOR NOVEL TEACHERS	UNIVERSITY OF BARCELONA/SPAIN	2023
BACHELOR'S DEGREE IN LAW	OPEN UNIVERSITY OF CATALONIA /SPAIN	2020
DOCTOR OF PHILOSOPHY (PH.D.) IN CHEMISTRY (CUM LAUDE - HONORS DISTINCTION)	UNIVERSITY OF BARCELONA/SPAIN	2016
MSC NANOSCIENCE AND NANOTECHNOLOGY	UNIVERSITY OF BARCELONA/SPAIN	2012
BACHELOR OF SCIENCE (B.S.) IN CHEMISTRY (HONORS DISTINCTION)	UNIVERSITY OF BARCELONA/SPAIN	2011

Part B. CV SUMMARY

I am currently an **assistant professor** in the Physical Chemistry section of the Department of Materials Science and Physical Chemistry at the **University of Barcelona** (February 2021–present).

I have a **doctorate in chemistry** (2016, excellent cum laude and Extraordinary Honors Prize), **master's in nanoscience and nanotechnology** (2012, CX fellowship), and **bachelor's in**



chemistry (2011, **Extraordinary Honors Prize**) from the University of Barcelona, as well as a **graduate degree in law** (2020) and a minor in intercultural education (2017) from the Universitat Oberta de Catalunya. My professional career has been developed primarily at the **University of Barcelona**, the **University of Newcastle**, and the **Swiss Federal Laboratories of Materials Science and Technology**. In recognition of my achievements, I was awarded the *Jóvenes Talentos* award from the electrochemistry group CIC energiGUNE in 2021, given to the best researcher under 35 years of age in the field of electrochemistry. I have published **49 research articles**, **8 review articles**, and **5 book chapters** and presented **58 oral communications or posters in international conferences**. I have also served as an editor of a special issue in *Toxins: "Removal of Cyanobacteria and Cyanotoxins in Waters"*. I have participated in **seven competitive research projects** at the national and/or international levels, including **one as the principal investigator**, **two as a principal co-investigator**, and **four as a member of the research team**. I maintain independently consolidated international collaborations with researchers in Switzerland, Malaysia, the United States, Mexico, Tunisia, Belgium, the United Kingdom, and Germany.

During this period, I have **codirected a doctoral thesis** by Dr. G. Shahnazarova titled *Silica-Supported Multicomponent Materials for Environmental Remediation Biomedical and Energy Applications* (UAB, 2023), and I am **currently codirecting two more theses** by Judit Lloreda (UB) and Laura Huidobro (UB). Additionally, I have (co-)directed **four master's theses**, namely by M. Garcia (2022, UB), R. Artal (2020, UB), G. Vázquez (2017, UB), and N. Gimeno (2016, UB), and I am currently co-directing another by A. Fons at UB. I have also (co-)directed **seven terminal-degree theses** by O. Servat (2022, UB), F. H. García (2022, UB), G. Santamaria (2022, UB), N. BARGUES (2022, UB), A. Ramos (2021, UB), A. Fons (2021, UB), and A. Bembibre (2021, UB) and am currently directing two more by A. Brunat (2023, UB) and M. Ortiz (2023, UB).

My scientific career started with my master's and doctoral theses, which focused on **the development of new electrochemical strategies to synthesize micro- and nanostructured materials for various applications** in fields such as heterogeneous catalysis, electronics, and drug delivery. During my doctoral studies, I received an *Ajut a Personal Investigador en Formació* (APIF) from the University of Barcelona, a *Formació d'Investigadors* (FI) scholarship from the Generalitat de Catalunya, and a *Formación de Profesorado Universitario* (FPU) scholarship from the Ministry of Science, Innovation and Universities. Additionally, I had the opportunity to conduct research stays at the Institute of Advanced Chemistry of Catalonia and the University of Newcastle. After completing my doctoral thesis, I continued my research as a **postdoctoral researcher at the University of Barcelona**, where I **developed magnetic micro- and nanomaterials for applications in water decontamination, hydrogen production, and biomedical engineering**. In 2018, I joined the **Swiss Federal Laboratories of Materials Science and Technology** as a postdoctoral researcher, and in 2019, I was awarded a **Marie Skłodowska-Curie Fellowship** (grant agreement no. 754364) for the project titled "Development of Biomimetic ZnO-Based Photocatalysts for Water Decontamination." In 2020, I won a **position as a scientist** at the Swiss Federal Laboratories of Materials Science and Technology in the electrochemistry group of the Laboratory of Materials Mechanics and Nanostructures. During my stay in Switzerland, I described various **electrochemical strategies to develop heterogeneous biomimetic photocatalysts for water decontamination and energy production processes** as well as nanorobotic platforms for controlled drug delivery. At the end of 2020, I resigned from the position and rejoined the University of Barcelona as a postdoctoral researcher and associate professor. In February 2021, I joined the Department of Materials Science and Physical Chemistry at the University of Barcelona as an **assistant professor** in the Physical Chemistry section. My main focus is improving water quality by developing hybrid photocatalysts that utilize sunlight, specifically doped or modified semiconductors manufactured via electrochemical deposition techniques (i.e., electrodeposition and electroless) and biotemplating strategies. Currently, I am codirecting two PhD students in these areas. The first student, Laura Huidobro, is developing biomimetic visible-light driven photocatalysts for water decontamination. The second student, Judit Lloreda (industrial doctorate- AGAUR), is working on the development of photothermocatalysts for hydrogen production in collaboration with *Consorti per la Gestió dels Residus del Vallès Oriental*. This partnership provides significant technological transfer and feasibility to the project. My future goals are focused on integrating the principles of green chemistry and circular chemistry to produce efficient heterogeneous catalysts for water decontamination and energy production. The goal is to create a holistic, green, and scalable process with zero waste. This process will utilize catalysts that can be easily recycled and will produce biofuels such as bioethanol, biodiesel, or pellets after they have reached the end of their effective life.



Part C. RELEVANT MERITS

C.1. Publications

1. E. Gómez, R. Cestaro, L. Philippe, **A. Serrà**. Electrodeposition of Nanostructured $\text{Bi}_2\text{MoO}_6@ \text{Bi}_2\text{MoO}_{6-x}$ Homojunction Films for the Enhanced Visible-Light-Driven Photocatalytic Degradation of Antibiotics. *Applied Catalysis B: Environmental* 317 (2022) 121703. DOI: <https://doi.org/10.1016/j.apcatb.2022.121703>. IF: 24.319 (2021). Position: 4/4. **Open access. Corresponding author. Citations (13/04/2023): 9.**
2. **A. Serrà**, E. Gómez, J. Michler, L. Philippe. Facile cost-effective fabrication of $\text{Cu}@ \text{Cu}_2\text{O}@ \text{CuO}$ -microalgae photocatalyst with enhanced visible light degradation of tetracycline. *Chemical Engineering Journal* 413 (2021) 127477. DOI: <https://doi.org/10.1016/j.cej.2020.127477>. IF: 16.744. Position: 1/4. **Open access. Corresponding author. Citations (13/04/2023): 66.**
3. **A. Serrà**, P. Pip, E. Gómez, L. Philippe. Efficient Magnetic Hybrid ZnO-Based Photocatalysts for Visible-Light-Driven Removal of Toxic Cyanobacteria Blooms and Cyanotoxins. *Applied Catalysis B: Environmental* 268 (2020) 118745. DOI: <https://doi.org/10.1016/j.apcatb.2020.118745>. IF: 19.503. Position: 1/4. **Open access. Corresponding author. Citations (13/04/2023): 71.**
4. **A. Serrà**, R. Artal, J. García-Amorós, B. Sepúlveda, E. Gómez, J. Nogués, L. Philippe. Hybrid $\text{Ni}@ \text{ZnO}@ \text{ZnS}$ -Microalgae for Circular Economy: A Smart Route to the Efficient Integration of Solar Photocatalytic Water Decontamination and Bioethanol Production. *Advance Science* 7 (3) (2020) 1902447. DOI: <https://doi.org/10.1002/advs.201902447>. IF:16.806. Position: 1/4. **Open access. Corresponding author. Citations (13/04/2023): 53.**
5. **A. Serrà**, Y. Zhang, B. Sepúlveda, E. Gómez, J. Nogués, J. Michler, L. Philippe. Highly Active ZnO-Based Biomimetic Fern-Like Microleaves for Photocatalytic Water Decontamination using Sunlight. *Applied Catalysis B: Environmental* 248 (2019) 129. DOI: <https://doi.org/10.1016/j.apcatb.2019.02.017>. IF: 16.683. Position: 1/6. **Open access. Corresponding author. Citations (13/04/2023): 100.**
6. **A. Serrà**, E. Vallés. Advanced Electrochemical Synthesis of Multicomponent Metallic Nanorods and Nanowires: Fundamentals and Applications. *Applied Materials Today* 12 (2018) 207–234. DOI: <https://doi.org/10.1016/j.apmt.2018.05.006>. IF:8.352. Position: 1/2. **Corresponding author. Citations (13/04/2023): 55.**
7. A. Serrà, S. Grau, C. Gimbert-Suriñach, J. Sort, J. Nogués, E. Vallés. Magnetically-actuated mesoporous nanowires for enhanced heterogeneous catalysis. *Applied Catalysis B: Environmental* 217 (2017) 81–91. DOI: <https://doi.org/10.1016/j.apcatb.2017.05.071>. IF:11.698. Position: 1/6. **Corresponding author. Citations (13/04/2023): 30.**
8. **A. Serrà**, N. Gimeno, E. Gómez, M. Mora, M.L. Sagristá, E. Vallés. Magnetic Mesoporous Nanocarriers for Drug Delivery with Improved Therapeutic Efficacy. *Advanced Functional Materials* 26 (36) (2016) 6601–6611. DOI: <https://doi.org/10.1002/adfm.201601473>. IF: 12.124. Position: 1/6. **Corresponding author. Citations (13/04/2023): 31.**
9. **A. Serrà**, E. Gómez, E. Vallés. Novel Electrodeposition Media to Synthesize CoNi-Pt Core@ Shell Stable Mesoporous Nanorods with Very High Active Surface for Methanol Electro-Oxidation. *Electrochim. Acta* 174 (2015) 630–639. DOI: <https://doi.org/10.1016/j.electacta.2015.06.069>. IF:4.803. Position: 1/3. **Citations (13/04/2023): 34.**
10. **A. Serrà**, E. Gómez, J.F. López-Barbera, J. Nogués, E. Vallés. Green Electrochemical Template Synthesis of CoPt Nanoparticles with Tunable Size, Composition, and Magnetism from Microemulsions Using an Ionic Liquid (bmimPF₆). *ACS Nano* 8 (2014) 4630–4639. DOI: <https://doi.org/10.1021/nn500367q>. IF:12.881. Position: 1/5. **Citations (13/04/2023): 47.**

C.2. Congress

1. Oral presentation: **A. Serrà**, E. Gómez. Electrodeposición de películas nanoestructuradas $\text{Bi}_2\text{MoO}_6@ \text{Bi}_2\text{MoO}_{6-x}$ para la foto-mineralización de tetraciclina. XXV Congreso de la Sociedad Iberoamericana de Electroquímica. Electroquímica en Iberoamérica frente a la descarbonización y la postpandemia, Mexico, 2022.
2. Oral presentation: **A. Serrà**, E. Gómez. Electrodeposición de fotocatalizadores base Aurivillius para la fotomineralización de antibióticos. XLII Reunión del Grupo Especializado de Electroquímica de la RSEQ (42 GERSEQ 2022), Santander, 6-8 July 2022.
3. Invited talk: **A. Serrà**. Electrochemical Deposition of Bioinspired Photocatalysts for Sustainability within the Water Energy Nexus. 73rd Annual Meeting of the International Society of Electrochemistry, Xiamen, China, 23–28 October 2022.



4. **Invited talk:** **A. Serrà**. Electrosynthesis of Biomimetic Photocatalysts for Water Decontamination. Current Trends in Electrochemistry - 41st Meeting of the Electrochemistry Group of the Spanish Royal Society of Chemistry + 1st French-Spanish Atelier/Workshop on Electrochemistry, Paris, France, 6–9 July **2021**.
5. **Oral presentation:** **A. Serrà**, E. Gómez. Bioinspired ZnO-based photocatalysts for visible light-driven water decontamination. 30th Topical International Society of Electrochemistry Meeting, Taiwan, 21–24 November **2021**.
6. **Oral presentation:** **A. Serrà**, E. Gómez. Electrosynthesis of nanostructured $\text{Bi}_2\text{MoO}_6@ \text{Bi}_2\text{MoO}_{6-x}$ for the enhanced visible-light-driven photocatalytic degradation of tetracycline. 30th Topical International Society of Electrochemistry Meeting, Taiwan, 21–24 November **2021**.
7. **Invited talk:** **A. Serrà**. Highly effective ZnO-based biomimetic photo-catalysts with minimal photocorrosion activity. Corrosion Research: Challenges, Opportunities and Applications. Swiss Corrosion Science Day 2020, Thun, **2020**.
8. **Oral presentation:** **A. Serrà**, R. Artal, J. Garcia-Amorós, B. Sepúlveda, E. Gómez, J. Nogués, L. Philippe. Fotocatalizadores híbridos para descontaminación de agua y producción de bioetanol: economía circular. XXIV Congreso de la Sociedad Iberoamericana de Electroquímica SIBAE 2020, Montevideo, **2020**.
9. **Oral presentation:** **A. Serrà**, Y. Zhang, B. Sepúlveda, E. Gómez, J. Nogués, J. Michler, L. Philippe. Electrofabrication of ZnO-based microfern-shaped photocatalysts for efficient visible sunlight water decontamination, 4th Green and Sustainable Chemistry Conference, Dresden, Germany, **2019**.
10. **Oral presentation:** **A. Serrà**, E. Gómez, E. Vallés. Estrategias de síntesis electroquímica de nanohilos core@shell magnéticos con alta actividad catalítica para la electro-oxidación de metanol. XXXVI Reunión del Grupo de Electroquímica i XVII Encontro Ibérico de Electroquímica, Vigo, **2015**.

C.3. Research projects

1. **Project:** *Explorant noves cadenes de valor per al desenvolupament sostenible del món rural: Transformació dels residus forestals en productes d'alt valor afegit (9Z1MB0STT)*. **PI:** **A. Serrà**. **Entity:** University of Barcelona. **Funding:** Agència de Gestió d'Ajuts Universitaris i de Recerca. **Start-end date:** Under evaluation. **Total amount:** 365,800 €.
2. **Project:** *Micro/Nano-reactores foto-termo-catalítics escalables para la síntesis de compuestos químicos verdes con luz solar a través de biomasa lignocelulósica (TED2021-129898B-C22)*. **PI:** E. Gómez/A. Serrà. **Entity:** University of Barcelona. **N. researchers:** 3: **Funding:** Ministerio de Ciencia e Innovación. **Start-end date:** 01/12/2022-30/11/2024. **Total amount:** 170,267.5 €
3. **Project:** Computational Materials Science Laboratory (CMSL) (2021 SGR 00079). **PI:** F. Illas. **Entity:** University of Barcelona. **Funding:** Agència de Gestió d'Ajuts Universitaris i de Recerca. **Call:** SGR-Cat 2021. **Start-end date:** 01/01/2022-31/12/2024. **Total amount:** 60,000 €.
4. **Project:** *Bio-funcionalización de chips en suspensión innovadores para estudios químicos, bioelectrónicos y mecánicos en células vivas (PID2020-115663GB-C32)*. **PI:** M. Ll. Pérez /E. Gómez. **Entity:** University of Barcelona. **N. of researchers:** 4: **Funding:** Ministerio de Ciencia, Innovación y Universidades. **Start-end date:** 01/09/2021 - 31/08/2024. **Total amount:** 208,030 €.
5. **Project:** Development of Biomimetic ZnO-based Photocatalysts for Water Decontamination (754364). **PI:** **A. Serrà**. **Entity:** Swiss Federal Laboratories for Materials Science and Technology (EMPA). **Funding:** European Union Administration. **Start-end date:** 01/02/2019 - 01/10/2020. **Total amount:** 178,000 €.
6. **Project:** Obtenció foto-termocatalítica d'hidrogen verd a partir de biogàs i biometà. Disseny i preparació sostenible dels substrats. **PI:** E. Gómez/A. Serrà. **Entity:** University of Barcelona.: Agència de Gestió d'Ajuts Universitaris i de Recerca. **Call:** Doctorats industrials. **Start-end date:** 26/07/2022-25/07/2025. **Total amount:** 33,960 €.

C.4. Contracts, technological or transfer merits

1. **Industrial contract:** Metallization using ionic liquids on surfaces slightly conductive. Solvay Specialty Polymers Italy S.p.A. **Reference number:** 307955 **Duration:** 2014 to 2015. **PI:** Dr. E. Gómez. **Role:** Predoctoral researcher. **Total amount:** 58682 €.