MINISTERIO DE CIENCIA E INNOVACIÓN

AGENCIA ESTATAL DE INVESTIGACIÓN

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	Juan Víctor		
Family name	Perales Rondón		
Gender (*)	Male	Birth date (dd/mm/yyyy)	29/01/1986
Social Security, Passport, ID number			
e-mail	jvperales@ubu.es	URL Web	
Open Researcher and Contributor ID (ORCID) (*)		0000-0001-7182-6289	

(*) Mandatory

A.1. Current position

Position	Senior Postdoctoral Researcher "Maria Zambrano"		
Initial date	01/02/2022		
Institution	Universidad de Burgos		
Department/Center	Departamento de Química		
Country	Spain	Teleph. number	
Key words	Electrochemistry, electrocatalysis, spectroelectrochemistry, SERS, fuel cells, micro/nanomotors, instrumental analysis		

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

Period	Position/Institution/Country/Interruption cause
01/12/2016-28/02/2019	Postdoctoral Researcher/University of Burgos/Spain
23/08/2018-26/09/2018	Paternity leave
01/03/2019-30/06/2021	Postdoctoral Researcher/University of Alcalá/Spain
05/12/2020-12/02/2021 18/05/2021-31/05/2021	Paternity leave
01/07/2021-31/01/2022	Postdoctoral Researcher/Brno University of Technology/Czech Republic

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD in Electrochemistry. Science and Technology	University of Alicante	2016
Master's degree in Material Science	University of Alicante	2012
Bachelor's degree in Chemistry	University of The Andes-Venezuela	2009

Part B. CV SUMMARY *(max. 5000 characters, including spaces)*

I obtained a Chemistry degree from the Universidad de Los Andes (Mérida-Venezuela) in May 2009. After completing the degree, I was awarded a scholarship to do a Master's degree in Materials Science (2012), University of Alicante (Spain) and, subsequently, the Doctorate in Electrochemistry. Science and Technology (2016) by the same university. Under the supervision of Prof. Juan Feliú, Prof. Enrique Herrero and Dr. Carlos Sánchez-Sánchez, I worked on the electrocatalytic study of the oxidation of formic acid on Pt model electrodes. During this period, I gained experience working with Pt single-crystal electrodes, he used different electrochemical techniques as well as combinations between them and studied fundamental reactions in both single crystal electrodes and nanoparticles with preferential shape. I have also used the scanning electrochemical microscopy (SECM) technique to study electrocatalytic reactions. Finally, I performed two predoctoral research stay. One of them, as a visiting student in China (Xiamen University), studying the interface Pt / ionic liquid using STM. The second

one was developed in Paris (Pierre Marie et Curie University) working on the development of a new way of working for the SECM, called micropipette-substrate collection release (MD-SC) pumped by syringe. My doctoral thesis, entitled "Electrocatalytic studies of formic acid oxidation on Pt model surfaces" obtained the highest mark as outstanding "Cum Laude" with international mention.

Subsequently, I moved to Burgos, where he developed a postdoctoral stay in the Laboratory of Instrumental Analysis at the University of Burgos, under the supervision of Dr. Álvaro Colina and Dr. Aranzazu Heras. In this group, I gained experience in the use of Raman spectroelectrochemistry and UV/Vis absorption with applications in the determination of analytes of pharmaceutical, clinical, agricultural interest, etc. I have also participated in the development of a new commercial instrument for analysis manufactured by Metrohm-DROPSENS, which combines Raman spectroscopy with electrochemical techniques (SPELEC-Raman). I also described and developed a new SERS-like phenomenon called EC-SOERS. This phenomenon was fully studied and described during my period in Burgos.

In 2019, I moved to develop my second postdoctoral stage in the MINYNANOTECH group of the University of Alcalá, under the supervision of Prof. Alberto Escarpa Miguel. In this group, I worked on the development of micromotors with plasmonic layers that can be used for SERS detection purposes. I also was awarded a project where I was the principal investigator. After that, I moved to Brno (Czech Republic) to develop a postdoctoral period for 7 months (July 2021-January 2022) under the supervision of Martin Pumera, working in the development of 3D printed electrodes for ammonia production. I consolidate a research line in that lab, centered in the study of Nitrate to ammonia conversion. Successful collaboration with Pumera´s lab and some researchers based there are still active. Finally, I was awarded a “Maria Zambrano” fellowship to work in the Laboratory of Instrumental Analysis at the University of Burgos to work in spectroelectrochemistry applied to electrocatalytic systems. The main objective is to open a new research line centred in the application of spectroelectrochemisrty to the study of relevant electrocatalytic reactions, such as ammonia synthesis (from Nitrate and N_2) and CO_2 reduction reaction.

As consolidated researcher I have peer reviewed works in my two main areas of expertise, namely, electrocatalysis and spectroelectrochemistry and SERS. I have been reviewer in journals such as *Applied Catalysis B: Environmental, Journal of Electronalaytical Chemistry, RSC Advances, Nanotechnology, Microchimica Acta, Journal of Solid State Electrochemistry, Sensors and Actuators B, MicroChemical Journal, Nature communications*, among others.

I am author of 27 publications in high impact journals such as *Journal of The American Chemial Society, Applied Catalysis B: Enviromental, ACS catalysis, Journal of Material Chemistry A, Electrochimica Acta, Journal of Electroanalytical Chemistry, Analytical Chimica Acta, Applied Surface Science, Applied Materials Today, ACS Sustainable Chemistry & Engineering, Electroanalysis, Nano Research*, among other. Some other works are in preparation and revision in journals such as: *Analytical Chemistry (2), Advanced Materials Technologies (1), ACS Materials and Interfaces (1) and Nature Review Methods Primers (1).*

Finally, I have also contributed to the mentoring students and younger researchers, in performing their final degree´s works. In fact, I am currently co-tutoring one master’s degree’s final work and two doctoral theses in the field of spectroelectrochemistry applied to electrocatalytic reactions and the development of SERS-based analytical applications.

My research focuses on the fundamental study of electrocatalytic reactions using well-defined surfaces and metal nanoparticles, on the use of Raman or SERS spectroelectrochemistry for the study of electrochemical systems and analysis, and finally, on the synthesis and applications of catalytic micromotors to be used in SERS detection.

Part C. RELEVANT MERITS

C.1. Relevant Publications

1. **Juan V. Perales-Rondon**, Daniel Rojas, Wanli Gao, Martin Pumera*****, Copper 3D-printed electrodes for ammonia electrosynthesis via nitrate reduction, *ACS Sustainable Chemistry & Engineering*, **2023**, 11, 18, 6923-6931. DOI: 10.1021/acssuschemeng.2c06851.
Position of author: **1/4**

2. Wanli Gao, **Juan V Perales-Rondon**, Jan Michalička, Martin Pumera*, Ultrathin manganese oxides enhance the electrocatalytic properties of 3D printed carbon catalysts for electrochemical nitrate reduction to ammonia, *Applied Catalysis B: Environmental*, **2023**, 330, 122632. DOI: 10.1016/j.apcatb.2023.122632
Position of author: **2/4**
3. Sheila Hernandez, **Juan V Perales-Rondon***, Aranzazu Heras, Alvaro Colina*, Simultaneous Raman and reflection UV/Vis absorption spectroelectrochemistry, *Nano Research*, **2022**, 15, 5340–5346. DOI: 10.1007/s12274-022-4137-5
Position of author: **2/4 (AC)**
4. Juan V. Perales-Rondon*, Alvaro Colina, María Cristina González, Alberto Escarpa*, Roughened silver microtubes for reproducible and quantitative SERS using a template-assisted electrosynthesis approach, *Applied Materials Today*, **2020**, 20, 100710. DOI: 10.1016/j.apmt.2020.100710
Position of author: **1/4 (AC)**
5. Sheila Hernandez, **Juan V. Perales-Rondon***, Aranzazu Heras, Alvaro Colina*, Electrochemical SERS and SOERS in a single experiment: A new methodology for quantitative análisis, *Electrochimica Acta*, **2020**, 334, 135561. DOI: 10.1016/j.electacta.2019.135561
Position of author: **2/4 (AC)**
6. Juan V. Perales-Rondon, Sheila Hernandez, Daniel Martin-Yerga, Pablo Fanjul-Bolado, Aránzazu Heras, Alvaro Colina*, Electrochemical Surface oxidation enhanced Raman scattering, *Electrochimica Acta*, **2018**, 282, 377-383. DOI: 10.1016/j.electacta.2018.06.079
Position of author: **1/6**
7. Adolfo Ferre-Vilaplana, **Juan V. Perales-Rondón**, Carlos Busó-Rogero, Juan M Feliu, Enrique Herrero*, Formic acid oxidation on platinum electrodes: a detailed mechanism supported by experiments and calculations on well-defined surfaces, *Journal of Materials Chemistry A*, **2017**, 5, 21773-21784. DOI: 10.1039/C7TA07116G
Position of author: **2/5**
8. Juan V. Perales-Rondón*, Jose Solla-Gullón, Enrique Herrero, Carlos M. Sánchez-Sánchez, Enhanced catalytic activity and stability for the electrooxidation of formic acid on lead modified shape controlled platinum nanoparticles, *Applied Catalysis B-Environmental*, **2017**, 201, 48-57. DOI: 10.1016/j.apcatb.2016.08.011
Position of author: **1/4 (AC)**
9. Adolfo Ferre-Vilaplana, **Juan V. Perales-Rondón**, Juan M. Feliu, Enrique Herrero*, Understanding the Effect of the Adatoms in the Formic Acid Oxidation Mechanism on Pt(111) Electrodes, *ACS Catalysis*, **2015**, 5, 645-654. DOI: 10.1021/cs501729j
Position of author: **2/4**
10.Juan V. Perales-Rondón, Adolfo Ferre-Vilaplana, Juan M. Feliu, Enrique Herrero*, Oxidation Mechanism of Formic Acid on the Bismuth Adatom-Modified Pt(111) Surface, *Journal of The American Chemical Society*, **2014**, 136, 13110-13113. DOI: 10.1021/ja505943h
Position of author: **1/4**

C.2. Relevant Congress

1. **XLII Reunión del Grupo Especializado de Electroquímica de la Real Sociedad Española de Química**, Oral communication, Juan Victor Perales-Rondon, Luis Romay, Martin Perez-Estebenez, Aranzazu Heras, Alvaro Colina, **Title:** *Estudio de la conversión electrocatalítica de nitrato en amoníaco usando espectroelectroquímica Raman*, 06/07 to 08/07/2022. Santander, España.
2. **Photo- and Electrocatalysis at the Atomic Scale (PECAS2022)**, Oral communication, Juan Victor Perales-Rondon, Martin Perez-Estebenez, Luis Romay, Aranzazu Heras, Alvaro Colina, **Title:** *Interrogating electrocatalytic processes by UV/Vis spectroelectrochemistry*, 20/06 to 23/06/2022. San Sebastian, Donostia.
3. **71st Annual Meeting of the International Society of Electrochemistry**, Oral communication, Alvaro Colina, Sheila Hernandez, Martin Perez- Estébanez, William Cheuquepan, Juan V. Perales-Rondón, Elvira Gomez, Aranzazu Heras, **Title:** *Enhancement factors in EC-SOERS*, 31/08 to 04/09/2020. Belgrado, Serbia.
4. **25th Topical Meeting of ISE**, Oral communication, Alvaro Colina, Aranzazu Heras, Sheila Hernandez, Lara Lubian-Hernando, Juan V. Perales-Rondon, Martin Perez- Estébanez, Jose Solla-

Gullón, **Title:** *Time resolved spectroelectrochemistry study of Malachite Green*, 12 to 15/05/2019. Toledo, Spain.

5. **XXXVIII Reunión del Grupo de Electroquímica de la Real Sociedad Española de Química y XIX Encontro Ibérico de Electroquímica**, Oral communication, Juan V. Perales-Rondón, David Ibañez, Alejandro Junqueras, Pablo Fanjul, Alvaro Colina, Aranzazu Heras, **Title:** *Development of a compact instrument for time-resolved Raman spectroelectrochemistry*, 05/07/2017. Vitoria-Gasteiz, Basque Country, Spain.
6. **Workshop on Scanning Electrochemical Microscopy**, Oral communication, Carlos Sánchez-Sánchez, Juan V. Perales-Rondón, Jose Solla-Gullón, S. Heurtault, V. Vivier, **Title:** *Electrocatalyst Imaging by Micropipette Based Scanning Electrochemical Microscopy*, 09/10/2015. Xiamen, China.
7. **583. WE-Heraeus Seminar**, Poster, Juan V. Perales-Rondon, Adolfo Ferre-Vilaplana, Enrique Herrero, Juan Feliú, **Title**: Formic acid oxidation mechanism on Pt(111)-Bi modified electrodes 18/01/2015. Bad Honnef, Germany.
8. **E3 Mediterranean Symposium y Reunión del Grupo de Electroquímica de la RSEQ**, Poster, Juan V. Perales-Rondon, Jose Solla-Gullón, Enrique Herrero, Juan Feliú, **Title:** *New insights into the formic acid oxidation mechanism on platinum: pH and anion adsorption effects*, 14/07/2014. Burgos, Castile and León, Spain.
9. **225 th ECS Meeting**, Oral communication, Enrique Herrero, Juan V. Perales-Rondon, Juan M. Feliú, **Title:** *New Insights into the Formic Acid Oxidation Mechanism on Platinum Electrodes*, 11/05/2014. Orlando, FL, United States of America.
10. **Topical Meeting of the International Society of Electrochemistry**, Oral communication, Enrique Herrero, Juan M. Ferliú, Adolfo Ferre-Vilaplana, Juan V. Perales-Rondon; **Title:** *Formic Acid Oxidation Mechanism on Platinum Electrodes*, 27/04/2014. Niagara Falls, Canada.

C.3. Research projects

1. New electrosynthetic routes directed towards the use of bio-compatible fuels in platinum catalytic micromotors (CCG19/CC-071). Universidad de Alcalá. **IP: JUAN VICTOR PERALES RONDON**. (Universidad de Alcalá). 01/2020-01/2021. **3.000 €.**
2. Nanostructured biosensing platform "sample-to-result" for for latest generation applications in clinical and food safety. Comunidad de Madrid (P2018/NMT4349). **IP: JESUS ALBERTO ESCARPA MIGUEL**. (Universidad de Alcalá). 01/01/2019-31/12/2022. **693.450 €.**
3. Development of a comercial Raman Spectroelectrochemistry device (BU033U16). Junta de Castilla y León. **IP: ARANZAZU HERAS VIDAURRE**. (Universidad de Burgos). 01/01/2016-31/12/2018. **120.000 €.**
4. Surface Electrochemistry (VIGROB-044). Universidad de Alicante. **IP: JUAN MIGUEL FELIU MARTINEZ**. (Universidad de Alicante). From 01/01/2016 to 31/12/2016. **5.158 €.**
5. Surface Electrochemistry (VIGROB-044). Universidad de Alicante. **IP: JUAN MIGUEL FELIU MARTINEZ**. (Universidad de Alicante). From 01/01/2015 to 31/12/2015. **4.536 €.**

Other relevant merits

Grants:

1. Postdoctoral Fellowship Maria Zambrano. Ministerio de Universidades and NextGenerationEU. **PERALES RONDON, JUAN VICTOR** (University of Burgos). From 01/02/2022 to 31/12/2024. **146.500,00 €.**
2. Postdoctoral Fellowship Juan de la Cierva-Formación (FJCI-2017-32458). Ministerio de Ciencia, Innovación y Universidades. **PERALES RONDON, JUAN VICTOR** (University of Alcalá). From 01/03/2019 to 28/02/2021. **50.000,00 €.**
3. Santiago Grisolía Scholarship (GRISOLIA/2011/029). Consellería de Educación. **PERALES RONDON, JUAN VICTOR** (University of Alicante). From 01/09/2011 to 15/06/2014. **39.600 €.**