MINISTERIO DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES

**CURRICULUM VITAE (maximum 4 pages)**

AGENCIA ESTATAL DE INVESTIGACIÓN

## Part A. PERSONAL INFORMATION

| CV date | 13/06/2020 |
|---|---|

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|---|---|---|---|
| First and Family name | Miguel María Erenas Rodríguez | | |
| Social Security, Passport, ID number | | Age | |
| Researcher codes | WoS Researcher ID *(*)* | J-2254-2016 | |
| | SCOPUS Author ID*(*)* | 22933946300 | |
| | Open Researcher and Contributor ID (ORCID) ** | 0000-0002-5616-1749 | |

*(*) At least one of these is mandatory*
*(**) Mandatory*

### A.1. Current position

| | | | |
|---|---|---|---|
| Name of University/Institution | University of Granada | | |
| Department | Analytical Chemistry | | |
| Address and Country | Granada, Andalucía, Spain | | |
| Phone number | | E-mail | erenas@ugr.es |
| Current position | Investigador postdoctoral | From | |
| Key words | Smartphone, µTAD, µCAD, sensor, instrumentation, microfluidic | | |

### A.2. Education

| PhD | University | Year |
|---|---|---|
| PhD in Chemistry | University of Granada | 2011 |
| Master of Research | University of Granada | 2006 |
| Graduate in Chemistry | University of Granada | 2004 |

### A.3. JCR articles, h Index, thesis supervised…

| Indicator | Measure |
|---|---|
| Number of citation (Google Scholar) | 791 |
| H-index (Google Scholar) | 10 |
| Average citation per article (Google Scholar) | 33 |
| Total Publications (JCR Q1 and Q2) | 23.0 |
| First-quartile publications (JCR) | 21.0 |
| First-decile publications (JCR) | 11.0 |
| Average citations per year in the last 5 years (Google Scholar) | 121 |
| Bachelor and Master thesis supervised | 13 |
| Book chapters | 2 |

## Part B. CV SUMMARY *(max. 3500 characters, including spaces)*

Graduate (2004) and PhD in Chemistry from the University of Granada (Cum Laude, 2011) in the research group Solid Phase Spectrometry (FQM-118), part of the ECsens group, under the direction of Prof Luis Fermín Capitán Vallvey. In 2006, we obtained an FPU scholarship with which I did my doctoral thesis on optical sensors for single use in the agri-food field, where I focused my interest on the use of cameras, scanners and mobile phones as analytical devices and colour functions for analysis. I also produced my first publication on the use of smartphones in analysis, which was highly cited. During the preparation of the thesis, I did a 4-month research stay at the University of Portland (Oregon, USA), under the supervision of Prof Cantrell, an expert in colourimetry. My training was completed in various analytical techniques, such as UV-Vis spectroscopy, luminescence (fluorescence/ phosphorescence, both in intensity and lifetimes, electrochemiluminescence), atomic absorption and various types of chromatography (HPLC-MS, GC-MS).

After defending my doctoral thesis, I joined the Quality Control Department of the Research and Production Center of Rovi Pharmaceutical Laboratories, where I worked on R&D activities and projects.

In September 2014, I once again joined the ECsens group at the University of Granada, where I direct research on sensors in the intelligent environment, printed analytical devices with RFID technology and capillary microfluidic devices based on thread and cloth.
Collaboration with multidisciplinary groups from around the world with electronic engineers, organic chemists, theoretical chemists and microbiologist from the University of Granada, University of Portland, Universitat Rovira i Virgili, Institute of Chemical Research of Catalonia and Dublin City Universityi is demonstrated by all the high impact results obtained in the last years.

**Part C. RELEVANT MERITS**

**C.1. Publications**

1. Chitosan-modified cotton thread for the preconcentration and colorimetric trace determination of Co(II). Willian Toito Suarez, Mathews O.K. Franco, Luis Fermin Capitán-Vallvey and **MM Erenas***. 2020, *Microchemical Journal* 158, 105137
2. Bioactive microfluidic paper device for pesticide determination in waters. MD Fernández-Ramos; et al. 2020.*Talanta,* 218, 121108
3. Smartphone based meat freshness detection. IM Pérez de Vargas, **MM Erenas**; et al. 2020. *Talanta* 216, 120985.
4. Thread based microfluidic platform for urinary creatinine analysis. Manuel J. Arroyo, **MM Erenas*,**et al. 2020 *Sensors & Actuators: B. Chemical,* 305, 12740.
5. Smartphone-Based Diagnosis of Parasitic Infections With Colorimetric Assays in Centrifuge Tubes**.** P Escobedo, **MM Erenas;** et al. 2019. *IEEE Access* 7, 185677
6. Real time monitoring using a smartphone of glucose in whole blood. **MM Erenas***; et al. 2019. *Biosensors and Bioelectronics* 136, pp. 47–52
7. Ionophore-based optical sensor for urine creatinine determination**. MM Erenas***; et al. 2019. *ACS Sensors* 4, pp. 421−426.
8. General-purpose passive wireless point–of–care platform based on smartphone. **MM Erenas;** et al. 2019. *Biosensors and Bioelectronics* 141, pp.111360
9. Flexible passive near field communication tag for multigas sensing. P Escobedo, **MM Erenas**; et al. 2017. *Analytical Chemistry* 89-3, pp.1697-1703.
10. Water based-ionic liquid carbon dioxide sensor for applications in the food industry. IM Perez de Vargas, **MM Erenas**; et al. 2017. *Sensors & Actuators: B. Chemical*. 253, pp. 302-309.
11. Surface modified thread-based microfluidic analytical device for selective potassium analysis. **MM Erenas**; et al. 2016. *Analytical Chemistry*. 88-10, pp.5331-5337.
12. Recent developments in computer vision-based analytical chemistry: A tutorial review. LF Capitán-Vallvey; et al. 2015. *Analytica Chimica Acta* 899, pp. 23-56.
13. Smartphone-based simultaneous pH and nitrite colorimetric determination for paper microfluidic devices. N López-Ruiz; et al. 2014. *Analytical Chemistry* 86, pp. 9554-9562.
14. Use of digital reflection devices for measurement using hue-based optical sensors. **MM Erenas**; et al. 2012. Sensors and Actuators B: Chemical 174, pp. 10-17.
15. Mobile phone platform as portable chemical analyser. A García, **MM Erenas**; et al. 2011. *Sensors and Actuators B: Chemical* 156-1, pp.350-359.
16. Use of the hue parameter of the hue, saturation, value color space as a quantitative analytical parameter for bitonal optical sensors. K Cantrell, **MM Erenas**; et al. 2010. *Analytical Chemistry* 82, pp. 531-542.

**C.2. Book chapters**

1. Luminescence. Solid Phase. *Encyclopedia of Analytical Science. 3rd Edition.* L F Capitán Vallvey; et al. 2019. Elsevier. ISBN 9780081019832.
2. Carbon Dioxide Sensors for Food Packaging. *Reference Module in Food Sciences*. IM Pérez de Vargas, **MM Erenas**; et al. 2019. Elsevier. ISBN 9780081005965.

**C.3. Research projects**

1. *Plataformas analíticas y microrreactores para seguridad agroalimentaria y sostenibilidad medioambiental*. CTQ2016-78754-C2-1-R. MINECO. PI: LF Capitán Vallvey and AJ Palma-López (UGR). 01/01/2017 to 31/12/2019.
2. *Open Researchers H2020-MSCA-NIGHT2016*. (UGR)722930. Since 14/05/2016.
3. *Desarrollo de instrumentación portátil para lenguas electrónicas de tipo óptico para detección de explosivos*. CÓDIGO 17. Proyectos de Investigación del Centro Mixto UGR-MADOC 2014. PI: A Martinez Olmos (UGR). Since 01/11/2014.
4. *Dispositivos analíticos impresos sobre sustrato flexible*. CTQ2013-44545-R. MINECO. Programa Estatal de Investigación, Desarrollo e Innovación Orientada a los Retos de la Sociedad PI: LF Capitán Vallvey and AJ Palma López (UGR). Since 01/01/2014.
5. *Dispositivos sensores Químicos y Físicos para envasado Inteligente,* FQM-5974*.* Junta de Andalucía. PI: LF Capitán Vallvey (UGR). Since 06/07/2011
6. *Diseño y desarrollo de matrices de sensores no selectivos de un solo uso*. CTQ2009-14428-C02-01, Misterio de Ciencia y Tecnología. PI: LF Capitán Vallvey (UGR). Since 01/01/2010.
7. *Sistemas portátiles de análisis químico con sensores quimioluminiscentes y electroquimioluminiscentes de un solo uso*. FQM-03535. Junta de Andalucía. LF Capitán Vallvey (UGR). Since 13/01/2009.

**C.4. Research contracts and technology transfer.**

1. "Spin-Tube App". Development and transferring to DestiNA Genomica S.L. the Sin-Tube App, application for colorimetric analysis. 2019.
2. "Development of microfluidic devices based on thread and fabric for the development of biosensors" PI: LF Capitán Vallvey (UGR). 01/07/2017 to 31/12/2017.
3. "Development of analytical devices printed on a flexible substrate". PI: LF Capitán Vallvey (UGR). 01/02/2017 to 31/05/2017.
4. "Fast analytical method for the determination of total polycyclic aromatic hydrocarbons in carbon black". Columbia Carbon Spain S.L. PI: LF Capitán Vallvey (UGR). 01/02/2016 to 01/05/2016.
5. "Study of new materials for the development of microfluidic devices". PI: LF Capitán Vallvey, (UGR). 18/11/2015 to 17/02/2016.
6. "Technical advice for the printing and cutting of nylon membranes". DestiNA Genomics S.L PI: LF Capitán Vallvey (UGR). 01/02/2015 to 31/08/2015.

**C.6. Scientific dissemination**

1. Press release. Científicos de la UGR diseñan dispositivos para calcular la concentración de potasio en agua, de creatinina en orina o de glucosa en sangre usando un 'smartphone' 2020 resulting on articles published in different mass media an interview in Canal Sur Radio.
2. Invited lecturer. "Análisis al alcance de tu móvil" in Desgranando Ciencia 6 in Granada 20-23/11/2019.
3. Scientific dissemination session. Europeans Researchers' Night in **2019, 2018, 2017 and 2016 editions**, organizing informative activities and lectures.
4. Scientific dissemination session. Lecture at Atlántida CIDEP Centre for VET studies in Granada, **years 2019 and 2018**.
5. Scientific dissemination session. Lecture at La Presentación School of Granada, **years 2019, 2018 and 2017**.
6. Press release. Científicos de la Universidad de Granada diseñan un nuevo sistema para realizar análisis químicos con un 'smartphone' 2019 resulting on articles published in different mass media as La Vanguardia, Ideal and an interview in Aragón Radio.
7. Press release. "Investigadores de la UGR diseñan un sensor que permite detectar problemas de riñón al analizar la orina". 2019, resulting on 141 articles published in different mass media as 20minutos, Europa Press or Cadena SER.

8. Article. LF Capitán Vallvey; I de Orbe Payá; **MM Erenas**. 2018. Plataformas microfluídicas capilares y smartphone. Una buena combinación. Actualidad Analítica. 63, pp.48-51.
9. Scientific dissemination project. Participation in the PIIISA Project (Initiation Project for Research and Innovation in Secondary Schools in Andalusia), **academic years 2019/2020, 2018/2019, 2017/2018 and 2016/2017**.
10. Scientific dissemination conference. Participation in Desgranando Ciencia in **2018, 2017 and 2016**, in the poster dissemination contest.

### C7. Teaching

1. 22 hours lecturing a theoretical subject from Pharmacy Degree and 248 hours teaching in the laboratory to the students in Chemistry, Pharmacy and Environmental Degree in the University of Granada.

### C.8. Accreditations

1. Positive evaluation of teaching and research activity as **Assistant Professor, Contract professor and Private University Professor** (recognition or teaching and research accreditation). Ministry of Education, Culture and Sports (General Secretariat of Universities), 23/09/2015.

### C.9. Groups / teams of research, development or innovation

1. Member of the Excellence Unit, "Chemistry applied to Biomedicine and the Environment" of the University of Granada since its establishment in 2017.

### C.10. Presentations at conferences

1. Lecture. “Biosensor point-of-care para la determinación de creatinina en orina” at V Congreso de Investigación Biosanitaria, held in Granada (Spain), 13/03/2019 to 16/03/2019.
2. Lecture. “µTAD para la determinación de creatinina en orina” at GRASEQA 2018. XVI Reunión del Grupo Regional Andaluz de la Sociedad Española de Química Analítica, held in Granada (Spain), 04/10/2018 to 05/10/2018
3. Lecture. “Hilo como nuevo soporte para dispositivos microfluídico” at 1er Congreso Sobre Materiales Multifuncionales para Jóvenes, held in Granada (Spain), 03/09/2018 to 04/09/2018
4. Invited lecture. “Multisensor system for $CO_2$ and $NH_3$” at the 2$^{nd}$ International Caparica Conference on Pollutant Toxic Ions & Molecules held in Caparica (Portugal), 06/11/2017 to 09/11/2017, organized by Universidade NOVA de Lisboa.
5. Invited lecture. “A revolutionary quality indicator platform for $CO_2$, $NH_3$ and $H_2S$” at 16th World Congress on Nutrition and Food Chemistry held in Zurich (Switzerland), 18/09/2017 to 20/09/2017, organized by Conferenceseries LLC.
6. Lecture: “Real time colourimetric glucose determination in whole blood combining µTAD and Smartphone” at XXI Reunión de la Sociedad Española de Química Analítica celebrated in Valencia (Spain), 05/09/2017 to 07/09/2017, organized by the Universitat de València.
7. Lecture. “HF RFID label for simultaneous oxygen, ammonia, carbon dioxide and humidity determination” at IX Iberian Spectroscopy Conference (IX CIE), held in Alicante (Spain), 20/07/2016 to 22/07/2016, organized by Universidad de Alicante.

### C.11. Other

1. Reviewer of scientific journals: Biosensors and Bioelectronics, Lab on a Chip, Sensors and Actuators B: Chemical, Analytical Methods, Scientific Reports, Sensors, Micromachines, Fishes, Processes, Analytica Chimica Acta, Food Chemistry, Scientific Reports and Water SA.