



Ana Fernández-la-Villa, PhD

Curriculum Vitae



DRA. ANA FERNÁNDEZ-LA-VILLA

Personal Details

Name: Ana
Surname: Fernández-la-Villa
Gender: Female
Date of birth: 27th May, 1982
Nationality: Spanish

Professional Position

Company: MicruX Technologies
Address: Severo Ochoa Building
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Julián Clavería s/n
Postal Code: 33006
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EDUCATION

Octubre 2013 **PhD. Degree** entitled: “New generation of portable and automatic electrophoresis microfluidic systems with electrochemical detection for agrofood and clinical analysis”. University of Oviedo.

September 2009 **M.Sc. degree** entitled: “Antioxidants compounds determination in capillary electrophoresis microchips”. University of Oviedo.

June 2008 **Graduate thesis** entitled: “CNT modified gold wires: Application to capillary electrophoresis microchips”. University of Oviedo.

February 2007 **B.Sc. degree in Chemistry**, focus in Analytical Chemistry. University of Oviedo.

PROFESSIONAL EXPERIENCE

January 2009 – Present R&D Manager. MicruX Fluidic, S.L.

March 2007 – December 2008 Research Chemist at **Immuno-electroanalysis group** of the Physical and Analytical Chemistry Department at the University of Oviedo.

AWARDS AND FELLOWSHIPS

July 2009 – July 2012 Awarded with a Torres Quevedo grant of the Spanish Ministry of Science & Innovation (MICINN, PTQ-09-01-00263).

PROJECTS

Feb. 2014 – June 2017	<i>"Optimization of low-cost Lab-on-a-Chip platforms for the development of biomedical applications - BIOLOC" (MINECO -RETOS-COLABORACION - RTC-2014-1746-1))</i>
Oct. 2012 – Jan. 2016	<i>"Smart production of Microsystems based on laminated polymer films - SMARTLAM" (EU FP7 Grant # 314580)</i>
June 2014 – Dic. 2015	<i>"New researches in integrated electronic circuits for the measurement of nano- and pico-currents" (FICYT - IE14-003)</i>
June 2014 – May 2015	<i>"Study of new multifunctional platforms for electrochemical devices" (IDE/2014/000089)</i>
Sept. 2013 – Sept. 2015	<i>"New materials for electrochemical sensors in microfluidic platforms: Application to molecular recognition - MATSENS" (M-ERA.NET, IDEPA IDE/2013/000028)</i>
Sept. 2013 – Dec. 2014	<i>"Basic modifications in electrochemical sensors based on thin-film technologies for integration in microfluidic platforms" (FICYT - IE13-027)</i>
Sept. 2013 – March 2014	<i>"Thin-film technologies study for the manufacture of microsensors based on carbon materials" (IDEPA IDE/2013/000119)</i>
Nov. 2012 – Nov. 2013	<i>"Design and development of new analytical tools for electrochemical sensors" (IDEPA IDE/2012/000055).</i>
Sept. 2011 – Sept. 2013	<i>"Manufacturing technologies for the development of Lab-on-a-Chip devices" (ERA-NET MANUNET, IDEPA IDE/2011/000493)</i>
Oct. 2012 – Oct. 2014	<i>"Programa ICEX-NEXT " (ICEX)</i>
2012	<i>"Promoción Internacional de Sistemas de Análisis Miniaturizados 2012." Programa Promoción internacional de las empresas y centros de innovación y tecnología de la Comunidad Autónoma del Principado de Asturias (IDEPA – IDE/2012/000116).</i>
Marh. 2011 – Dec. 2012	<i>"New universal detection systems for microfluidic devices. Application to environmental analysis" (FICYT - IE09-281).</i>
Oct. 2009 – Oct. 2011	<i>"Programa de desarrollo integral de la capacidad exportadora de las Pymes Asturianas DICEX " (Asturex - IDI-20091097).</i>
2009 –2010	<i>"Creation of technology based company" (EIBT08-08)</i>

PUBLICATIONS

1. D.F. Pozo Ayuso, M. Castaño-Álvarez, A. Fernández-la-Villa, M. García Granda, M.T. Fernández-Abedul, J. Rodríguez García, A. Costa-García, “Fabrication and evaluation of single- and dual-channel (II-design) microchip electrophoresis with electrochemical detection”. *Journal of Chromatography A*, 2008, 1180, 193 – 202.
2. M. Castaño-Álvarez, A. Fernández-la-Villa, M.T. Fernández-Abedul, A. Costa-García, “MCE-electrochemical detection for following interactions of ssDNA and dsDNA with methylene blue”. *Electrophoresis*, 2009, 30(11), 1943 – 1948.
3. M. Castaño-Álvarez, A. Fernández-la-Villa, D.F. Pozo-Ayuso, M.T. Fernández-Abedul, A. Costa-García, “Multiple-point electrochemical detection for a dual-channel hybrid poly(dimethylsiloxane)-glass microchip electrophoresis device”. *Electrophoresis*, 2009, 30(19), 3372 – 3380.
4. Ana Fernández-la-Villa, Diego F. Pozo-Ayuso, Mario Castaño-Álvarez “New analytical portable instrument for microchip electrophoresis with electrochemical detection” *Electrophoresis*, 2010, 31, (2641-2649).
5. A. Fernández-la-Villa, D. Sánchez-Barragán, D.F. Pozo-Ayuso, M. Castaño-Álvarez, “Smart portable electrophoresis instrument based on multipurpose microfluidic chips with electrochemical detection”. *Electrophoresis*, 2012, 33, 2733 - 2742.
6. A. Fernández-la-Villa, V. Bertrand-Serrador, D.F. Pozo-Ayuso, M. Castaño-Álvarez, “Fast and reliable urine analysis using a portable platform based on microfluidic electrophoresis chips with electrochemical detection”. *Anal. Methods*, 2013, 5, 1494 - 1501.
7. R. García-González; A. Fernández-la-Villa; A. Costa-García; M. T. Fernández-Abedul, “Functionalised carbon nanotubes; carboxylated, aminated or thiolated carbon nanotubes; carbon nanotubes dispersion; screen-printed electrodes (SPEs); electrochemical analysis”, *Sensors and Actuators B*, 2013, 181, 353– 360.
8. E.O. Barnes, A. Fernández-la-Villa, D.F. Pozo-Ayuso, M. Castaño-Alvarez, G.E.M. Lewis, S.E.C. Dale, F. Marken, R.G. Compton, “Interdigitated ring electrodes: Theory and experiment”. *J. Electroanal. Chem.*, 2013, 709, 57 – 64.
9. A. Fernández la Villa, D.F. Pozo Ayuso, M. Castaño Álvarez. “Integrated portable microfluidic electrophoresis system with electrochemical detection for fast analysis of alimentary oils”. The 18th International Conference on Miniaturized Systems for Chemistry and Life Sciences. *μTAS Proceedings 2014*, 2408 – 2410. October 26-30. 2014. San Antonio (TX) USA.
10. Edward O. Barnes, Ana Fernández-la-Villa, Diego F. Pozo-Ayuso, Mario Castaño-Alvarez, Richard G. Compton “Validating the geometry of interdigitated band electrodes: A variable scan rate study” *J. Electroanal. Chem.*, 2015, 748, 82 – 90.

CONGRESS CONTRIBUTIONS

1. **I Workshop on Analytical Nanotechnology.** Córdoba, Spain. July 2007. Poster presentation: *"Carbon nanotubes on microchips capillary electrophoresis with electrochemical detection"*. A. Fernández la Villa, M. Castaño Álvarez, M.T. Fernández Abedul, A. Costa García, D.F. Pozo Ayuso, J. Rodríguez García.
2. **VII Scientific Meeting of the Spanish Society of Chromatography and Related Techniques (SECyTA).** Granada, Spain. October 2007. Poster presentation: *"Fabrication and evaluation of single- and dual-channel glass-microchip electrophoresis with electrochemical detection"*. M. Castaño Álvarez, A. Fernández la Villa, M.T. Fernández Abedul, A. Costa García, D.F. Pozo Ayuso, M. García Granda, J. Rodríguez García.
3. **12th International Conference on Electroanalysis (ESEAC 2008).** Prague, Czech Republic. June 2008. Poster presentation: *"Integrating electrochemical detection on microchip electrophoresis"*. M. Castaño Álvarez, A. Fernández la Villa, M.T. Fernández Abedul, A. Costa García
4. **I Workshop on Analytical Miniaturization ("lab-on-a-chip").** Madrid, Spain. July 2008. Communication: *"Carbon microelectrodes (ink and fibers) as transducers on microchip electrophoresis"*. M. Castaño Álvarez, D.F. Pozo Ayuso, A. Fernández la Villa, M.T. Fernández Abedul, A. Costa García.
5. **I Workshop on Analytical Miniaturization ("lab-on-a-chip").** Madrid, Spain. July 2008. Communication: *"Comparison of different materials for microchip electrophoresis with electrochemical detection"*. A. Fernández la Villa, M. Castaño Álvarez, D.F. Pozo Ayuso, M.T. Fernández Abedul, A. Costa García.
6. **I Workshop on Analytical Miniaturization ("lab-on-a-chip").** Madrid, Spain. July 2008. Communication: *"Mechanical micromilling for microdevices manufacturing"*. D.F. Pozo Ayuso, D. González, P. Queipo, J.A. Rodríguez Cortés, M. Castaño Álvarez, A. Fernández la Villa, M.T. Fernández Abedul, A. Costa García, J. Rodríguez García.
7. **59th Annual Meeting of the International Society of Electrochemistry.** Seville, Spain. September 2008. Poster presentation: *"Single- and dual-channel PDMS microchip performance with electrochemical detection"*. M. Castaño Álvarez, A. Fernández la Villa, D.F. Pozo Ayuso, M.T. Fernández Abedul, A. Costa García.
8. **59th Annual Meeting of the International Society of Electrochemistry.** Seville, Spain. September 2008. Poster presentation: *"CNT-modified gold wire electrode to enhance the sensitivity on microchip electrophoresis"*. A. Fernández la Villa, M. Castaño Álvarez, D.F. Pozo Ayuso, M.T. Fernández Abedul, A. Costa García.
9. **3rd Lab-on-a-Chip European Congress.** Stockholm, Swedish. May 2009. Poster presentation: *"New trends for versatile microfabrication of capillary electrophoresis microchips and electrochemical detection integration"*. M. Castaño-Álvarez, A. Fernández-la-Villa, D.F. Pozo-Ayuso, D. González, P. Queipo, J. A. Cortés.

10. **3rd Lab-on-a-Chip European Congress.** Stockholm, Swedish. May 2009. Poster presentation: *"Polyphenolic compounds analysis on capillary electrophoresis microchips coupled with electrochemical detectors"*. A. Fernández la Villa, M. Castaño Álvarez, D.F. Pozo Ayuso, M.T. Fernández Abedul, A. Costa García.
11. **XXXII Congreso de la Sociedad Española de Bioquímica y Biología Molecular – Foro del Emprendedor.** Oviedo, Spain. September 2009. Invited communication: *"La importancia de desarrollar un buen plan de empresa"*. M. Castaño-Álvarez, A. Fernández-la-Villa, D.F. Pozo-Ayuso.
12. **15th Latin American Symposium on Biotechnology, Biomedical, Biopharmaceutical and Industrial Applications of Capillary Electrophoresis and Microchip Technology (LACE 2009).** Seville, Spain. October 2009. Poster presentation: *"Novel miniaturized instrumentation for easy handle of microchip electrophoresis"*. A. Fernández-la-Villa, D.F. Pozo-Ayuso, M. Castaño-Álvarez.
13. **IX Scientific Meeting of the Spanish Society of Chromatography and Related Techniques** San Sebastián, Spain. October 2009. Poster presentation: *"New challenges in the development of miniaturized and portable instrumentation"*. M. Castaño-Álvarez, A. Fernández-la-Villa, D.F. Pozo-Ayuso.
14. **IX Scientific Meeting of the Spanish Society of Chromatography and Related Techniques** San Sebastián, Spain. October 2009. Poster presentation: *"Food analysis on microchips electrophoresis with amperometric detection"*. A. Fernández la Villa, M. Castaño Álvarez, D.F. Pozo Ayuso, M.T. Fernández Abedul, A. Costa García.
15. **I Jornada Intramural de Translación de Resultados en la Investigación Biomédica.** Madrid, Spain. December 2009. Invited communication: *"Creación de una spin-off desde un centro público de investigación"*. M. Castaño-Álvarez, A. Fernández-la-Villa, D.F. Pozo-Ayuso.
16. **II International Workshop on Analytical Miniaturization ("lab-on-a-chip").** Oviedo, June 2010, Spain, Poster/ Flash presentation: *"Compact lab-on-a-chip instrument: a first stage towards the future"*. M. Castaño-Álvarez, A. Fernández-la-Villa, D.F. Pozo-Ayuso
17. **II International Workshop on Analytical Miniaturization ("lab-on-a-chip").** Oviedo, June 2010, Spain. Oral and poster presentation : *"Microfluidic Platforms: From Research to the market"* M. Castaño-Álvarez, A. Fernández-la-Villa, D.F. Pozo-Ayuso
18. **13th International conference on electroanalysis ESEAC.** June 2010. Gijón, Spain, Spain. Oral presentation : *"Microfluidic Platforms: From Research to the market"* M. Castaño-Álvarez, A. Fernández-la-Villa, D.F. Pozo-Ayuso
19. **Lauching the "Nanofutures" European initiative.** June 2010. Gijón, Spain. Oral presentation : *"Microfluidic Platforms: From Research to the market"* M. Castaño-Álvarez, A. Fernández-la-Villa, D.F. Pozo-Ayuso

20. **Lauching the “Nanofutures” European initiative**, June 2010. Gijón, Spain. Poster presentation: *“Compact lab-on-a-chip instrument: a first stage towards the future”*. M. Castaño-Álvarez, A. Fernández-la-Villa, D.F. Pozo-Ayuso
21. **ESEAC (13th International conference on electroanalysis) Open Forum Satellite Meeting**. Gijón, Spain. June 2010. Oral presentation: *“Spin-off: novel market avenues (MicruX Technologies)”*. M. Castaño-Álvarez, A. Fernández-la-Villa, D.F. Pozo-Ayuso.
22. **28th International Symposium on Chromatography** September 2010, Valencia, Spain, Oral presentation *“New trends on portable instrumentation for microchip capillary electrophoresis”* Pozo-Ayuso D.F., Fernández-la-Villa. A. and Castaño-Álvarez M.
23. **V Workshop Nanociencia y Nanotecnología Analíticas** September 2011, Toledo, Spain, Poster presentation *“Novel miniaturized high voltage power supply useful for multiple analytical applications”* Pozo-Ayuso D.F., Fernández-la-Villa. A. and Castaño-Álvarez M.
24. **V Workshop Nanociencia y Nanotecnología Analíticas** September 2011, Toledo, Spain, Poster presentation *“Fast and reliable urine analysis using portable platforms based on Lab-on-a-Chip technologies”* Castaño-Álvarez M., Fernández-la-Villa. A. and Pozo-Ayuso D.F.
25. **14th International conference on electroanalysis (ESEAC 2012)**. Portorož, Slovenia. June 2012. Oral presentation: *“Compact and portable microfluidic electrophoresis-electrochemical platform for in-situ applications”*. D.F. Pozo-Ayuso. A. Fernández-la-Villa, D. Sánchez-Barragán, M. Castaño-Álvarez.
26. **III International Workshop on Analytical Miniaturization and NANOTEchnologies (WAM-NANO 2012)**. Barcelona, Spain. June 2012. Poster presentation: *“High-Performance smart small-size microfluidic electrophoresis chips with integrated electrodes”*. M. Castaño-Álvarez, A. Fernández-la-Villa, D. F. Pozo-Ayuso.
27. **III International Workshop on Analytical Miniaturization and NANOTEchnologies (WAM-NANO 2012)**. Barcelona, Spain. June 2012. Poster presentation: *“Fast and reliable pharmacological analysis using a portable microfluidic platform”*. A. Fernández-la-Villa, V. Bertrand Serrador, D. F. Pozo-Ayuso, M. Castaño-Álvarez
28. **III International Workshop on Analytical Miniaturization and NANOTEchnologies (WAM-NANO 2012)**. Barcelona, Spain. June 2012. Poster presentation: *“Hand-held automated instrument for microchip electrophoresis with amperometric detection”*. D.F. Pozo-Ayuso, A. Fernández-la-Villa, D. Sánchez-Barragán, M. Castaño-Álvarez
29. **18th Meeting of the Portuguese Electrochemical Society (18 SPE)**. Porto, Portugal. March 2013. Oral presentation: *“Novel thin-film (micro) electrodes approaches: fabrication and performance”*. A. Fernández-la-Villa, D. F. Pozo-Ayuso, M. Castaño-Álvarez.
30. **10th International Interdisciplinary Meeting On Bioanalysis (CECE)**, Pécs, Abril 2013, Hungría. Oral Presentation: *“Fast and reliable urine analysis using a portable platform based on*

- microfluidic electrophoresis chips with electrochemical detection*. A. Fernández-la-Villa, D. F. Pozo-Ayuso, M. Castaño-Álvarez.
31. **VI Workshop on Analytical Nanoscience and Nanotechnology (VINyNA 2013)**, Alcalá de Henares, Spain. July 2013. Oral/Poster Presentation: *"Smart thin-film (micro)electrode approaches as suitable electroanalytical tool"*. M. Castaño-Álvarez, A. Fernández-la-Villa, D. F. Pozo-Ayuso.
 32. **Advances in Microfluidics and Nanofluidics 2014 (AMN2014)**. Taipei, Taiwan. May 2014. Poster presentation: *"Next generation of microfluidic platforms based on microchips electrophoresis with integrated electrochemical sensors"*. M. Castaño-Álvarez, A. Fernández-la-Villa, D.F. Pozo-Ayuso.
 33. **15th International conference on electroanalysis (ESEAC 2014)**. Malmö, Sweden. June 2014. Oral presentation: *"Interdigitated ring electrodes: Theory and Experiment"*. E.O. Barnes, A. Fernández-la-Villa, D.F. Pozo-Ayuso, M. Castaño-Alvarezb, G.E. M. Lewis, S.E. C. Dale, F. Markenc and R.G. Compton.
 34. **IV International Workshop on Analytical Miniaturization and NANotechnologies (WAM-NANO 2014)**. Copenhagen, Denmark. June 2014. Poster presentation: *"Alimentary oil fast analysis on portable system based on microfluidic electrophoresis chips with electrochemical detection"*. A. Fernández-la-Villa, D. F. Pozo-Ayuso, M. Castaño-Álvarez.
 35. **XXXV Meeting of the Electrochemistry Group of the Spanish Royal Society of Chemistry**. Burgos, Spain. July 2014. Oral presentation: *"Innovative Electrochemical Platforms for Using a New Generation of Low-Cost Thin -Film (micro)Electrodes"*. A. Fernández-la-Villa, D.F. Pozo-Ayuso, M. Castaño-Álvarez.
 36. **65th Annual Meeting of the International Society of Electrochemistry (ISE 2014)**. Lausanne, Switzerland. August-September 2014. Poster presentation: *"Development of Innovative Platforms for improving the use of a New Generation of Low-cost Thin-film Electrochemical Sensors"*. A. Fernández la Villa, D.F. Pozo Ayuso, M. Castaño Álvarez.
 37. **The 18th International Conference on Miniaturized Systems for Chemistry and Life Sciences (MicroTAS 2014)**. San Antonio, USA. October 2014. Poster presentation: *"Integrated portable microfluidic electrophoresis system with electrochemical detection for fast analysis of alimentary oils"*. A. Fernández la Villa, D.F. Pozo Ayuso, M. Castaño Álvarez.
 38. **The 18th International Conference on Miniaturized Systems for Chemistry and Life Sciences (MicroTAS 2014)**. San Antonio, USA. October 2014. Commercial Poster: *"Hand-held automated instrument for microchip electrophoresis with amperometric detection"*. A. Fernández la Villa, D.F. Pozo Ayuso, M. Castaño Álvarez.
 39. **Lab-on-a-Chip & Microfluidics Conferences (LOAC 2015)**. Berlin, Germany, March 2015. Commercial Poster: *"Hand-held automated instrument for microchip electrophoresis with amperometric detection"*. A. Fernández la Villa, D.F. Pozo Ayuso, M. Castaño Álvarez.

40. I **Advances in microfluidics & Lab-on-a-chip technologies (AML 2015)**. On-line event. June 2015. Poster: *smart Downsize microfluidic chips with integrated electrochemical sensing approach*. M. Castaño Álvarez, A. Fernández la Villa, D.F. Pozo Ayuso.
41. **VII Workshop on Analytical Nanoscience and Nanotechnology (VII NyNA 2015)**, Salamanca, Spain. July 2015. Poster Presentation: *“Development of novel electroanalytical methods based on smart thin-film [micro]electrode in static and dynamic conditions”*. O. Amor Gutiérrez, M.Cuellas Díaz, M. T. Fernández Abedul, A. Fernández-la-Villa, D.F. Pozo- Ayuso, M. Castaño-Álvarez.

PATENTS

A. Costa-García, M.T. Fernández-Abedul, M. Castaño-Álvarez, A. Fernández-la-Villa, D.F. Pozo-Ayuso. **“Microchips capillary electrophoresis of resin EPON SU-8 with integrated electrochemical detection”**, application number: P200802006, publication number: ES 2 320 619 [A1], priority data: 30/06/08, applicant: University of Oviedo.

LANGUAGES SKILLS

Spanish: Mother tongue.

English: Oxford College exam (PET), Trinity College exam, level 7.

COMPUTER SKILLS

Windows 95/98/XP/Vista, Office 2003/2007 (Word, Excel, PowerPoint), Internet (IE Explorer, Outlook Express, Mozilla Firefox).

COURSES

2007 – 2008 **Post-graduate courses**. Programme entitled: *“Advanced chemist, biochemist and structure analysis”*. University of Oviedo (200 h).

Other courses:

May 2015- July 2015 *“Gestión de Proyectos de innovación” Federación Asturiana de Empresarios (FADE) (59h)*

January 2012 *“Marketing internacional”, Federación Asturiana de Empresarios (FADE)(20h)*

Dec. 2010- Feb. 2011 *“Sistema de Gestión de Seguridad de la información (ISO 27001, ISO 27002) y Esquema Nacional de Seguridad” Federación Asturiana de*

August 2010	<i>Empresarios (FADE) (180h)</i> "Protocolo social y empresarial ",Federación Asturiana de Empresarios (FADE) (18h)
July 2010	"Ingles expresarial. Bussines English," Federación Asturiana de Empresarios (FADE) (36h)
May 2009	"Training course: Microfabrication Technologies for Microfluidic Devices". Lab-on-a-Chip European Congress, Microfluidic-ChipShop, GmbH. (4 h.)
January 2008 – July 2008	IV Bioances. Fundación Genoma España y ANCES.

OTHERS

- Member of Sociedad Española de Cromatografía y Técnicas Afines (SECYTA) and Colegio Oficial de Químicos de Asturias y León.
- Co-founder of the *spin-off* "MicruX Fluidic, S.L." (Awarded with BioAnces Prize 2008, XV SODECO Prize, 9th CEEI Prize, ANCES National Prize Accesit, VIII San Alberto Magno Prize, Bancaja Prize 2011), created on December 2008 (www.micruxfluidic.comMember of the Colegio Oficial de Químicos de Asturias y León and Sociedad Española de Cromatografía y Técnicas Afines (SECYTA).