CV Date	15/07/2022

Part A. PERSONAL INFORMATION

First Name	Ana Maria		
Family Name	Vila Arbones		
Sex	Female	Date of Birth	17/07/1966
ID number Social Security, Passport	41095056J		
URL Web	https://webgrec.ub.edu/webpages/000004/cas/anna.vila.ub.edu.html		
Email Address	anna.vila@ub.edu		
Open Researcher and Contributor ID (ORCID)	0000-0003-3088-0590		

A.1. Current position

Job Title	Associate professor		
Starting date	2001		
Institution	Universitat de Barcelona		
Department / Centre	Department of Electronic and Biomedical Engineering / Faculty of Physics		
Country	Spain	Phone Number	
Keywords			

A.3. Education

Degree/Master/PhD	University / Country	Year
Física	Universitat de Barcelona	1995
Física	Universitat de Barcelona	1989

Part B. CV SUMMARY

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During her doctorate (Barcelona 1995), the researcher characterized heterojunctions and devices of silicon with III/V semiconductors, proposing models for the most frequent defects. Later, she diversified her activity towards II/VI semiconductors, with a view to its application in chemical sensors. She contributed to the synthesis, modification, deposition and characterization of metal-oxide nanoparticles as SnO2, TiO2, ZnO ... and to their application into devices.

She also moved from microelectronic standard techniques to nanotechnologies, with special dedication to the manufacture and characterization by focused ion beams (FIB) and inkjet printing (IJP). This diversification has led her to concentrate her efforts on various metal oxides, their synthesis by sol-gel techniques, their deposition in thin layers and their use in devices such as thin-layer transistors and sensors. At the moment, she is working on new techniques for the green synthesis of inks for printed electronics.

In parallel to this technological evolution, the activity of the researcher has maintained its most fundamental aspect, going from the initial study of heteroepitaxies and high-speed transistors (HEMTs) to integrated waveguides and optical devices based on silicon oxide, such as waveguide type Slot. Her main activity focused then on silicon avalanche photodetectors (APDs), and in particular single-photon avalanche detectors (SPADs) obtained with CMOS standard processing, their design, simulation, characterization, optimization and readout electronics for particles detection and biomedical applications.

The conjunction of these two distinc aspects, one eminently practical focused on green thin films and the other one more fundamental based on SPADs has led to the creation of a spin-off and some inventions that are in progress.

Part C. RELEVANT ACCOMPLISHMENTS

C.1. Most important publications in national or international peer-reviewed journals, books and conferences

AC: corresponding author. (nº x / nº y): position / total authors. If applicable, indicate the number of citations

1 **Scientific paper**. Vilà, A. (AC); Moreno, S.; Canals, J.; Diéguez, A.(1/4). 2021. A Compact raster lensless microscope based on a microdisplay 913044 - Sensors. MDPI. 21-17. ISSN 1424-8220. https://doi.org/10.3390/s21175941

2 **Scientific paper**. Franch, N.; Canals, J.; Moro, V.; et al; Dieguez, A.(0/13). 2020. Nano-Illumination Microscopy: a technique based on scanning with an array of individually addressable nanoLEDs 910738 - Optics Express. Optical Society of America. 28-13, pp.19044-19057. ISSN 1094-4087. https://doi.org/10.1364/OE.391497

3 **Scientific paper**. Dieguez, A.; Canals, J.; Franch, N.; Dieguez, J.; Alonso, O.; Vila, A.(6/6). 2019. A Compact Analog-Histogramming SPAD-based CMOS Chip for Time-Resolved Fluorescence 914746 - IEEE Transactions on Biomedical Circuits and Systems. Institute of Electrical and Electronics Engineers (IEEE). 13-2, pp.343-351. ISSN 1932-4545. https://doi.org/10.1109/TBCAS.2019.2892825

4 **Scientific paper**. Gómez-Núñez, A.; Alonso-Gil, S.; López, C.; Roura-Grabulosa, P.; Vilà, A.(5/5). 2019. From ethanolamine precursor towards ZnO - How N is released from the experimental and theoretical points of view 918068 - Nanomaterials. MDPI. 9-10. ISSN 2079-4991. https://doi.org/10.3390/nano9101415

5 **Scientific paper**. Gutiérrez-Fernández, E.; Gabaldón-Saucedo, I.A.; García-Gutiérrez, M.C.; et al; Cirera, A.(0/9). 2019. Quantitative assessment by local probe methods of the mechanical and electrical properties of inkjet-printed PEDOT:PSS thin films over Indium Tin Oxide substrates 913012 - Organic Electronics. Elsevier. 70, pp.258-263. ISSN 1566-1199.

6 **Scientific paper**. Gómez-Nuñez, A.; Alonso-Gil, S.; López, C.; Roura, P.; Vilà, A.(0/5). 2017. Role of Ethanolamine on the Stability of a Sol-Gel ZnO ink 914198 - Journal of Physical Chemistry C. American Chemical Society. 121-42, pp.23839-23846. ISSN 1932-7447. https://doi.org/10.1021/acs.jpcc.7b09935

7 **Scientific paper**. Gómez-Núñez, A.; Alonso-Gil, S.; López, C.; Vilà, A.(4/4). 2016. Electronic and dynamic DFT studies on the substituent effects of aminoalcohol stabilizers in sol-gel ZnO precursor 903340 - physica status solidi (a). Wiley-VCH. 213-9, pp.2329-2335. ISSN 1862-6300. https://doi.org/10.1002/pssa.201532885

8 **Scientific paper**. Gómez-Núñez, A.; Roura, P.; López, C.; Vilà, A.(4/4). 2016. Comparison of the thermal decomposition processes of several aminoalcohol-based ZnO inks with one containing ethanolamine 903326 - Applied Surface Science. Elsevier B.V.. 381, pp.48-53. ISSN 0169-4332. https://doi.org/10.1016/j.apsusc.2016.03.138

C.2. Conferences and meetings

1 Moreno, S.; Canals, J.; Vilà, A.; Dieguez, A.. A chip-sized lensless microscope based on microdisplays with a resolution of 1µm. 7th International Conference on Bio-Sensing Technology. 15388 - Elsevier B.V.. 2022. Spain. Participatory - oral communication. Conference.

2 Vilà, A.; Moreno, S.; Dieguez, A.. Can Light Microscopes Be Really Chip-Sized?. 59th International Society for Information Display Technical Symposium. 26131 - Society for Information Display. 2022. United States of America. Participatory - oral communication. Conference.

3 Vilà, A.; Moreno, S.; Canals, J.; Moro, V.; Franch, N.; Wartenberg, P.; Dieguez, A.. Ultra-compact and large field-of-view nano-illumination light microscope based on an array of organic light-emitting diodes. SPIE. 14613 - SPIE: The International Society for Optics and Photonics. 2021. United States of America. Participatory - oral communication. Conference.

4 Moreno, S.; Canals, J.; Moro, V.; Franch, N.; Vilà, A.; Romano, A.; Prades, J.D.; Bezshlyakh, D.D.; Waag, A.; Krieger, S.; Geleff, S.; Dieguez, A.. A nano-illumination microscope with 7 mm2 extended field-of-view and resolution below 1µm. SPIE. 14613 - SPIE: The International Society for Optics and Photonics. 2021. United States of America. Participatory - oral communication. Conference.

5 Canals, J.; Franch, N,: Moro, V.; Moreno, S.; Alonso, O.; Vilà, A.; Prades, J.D.; Dieguez, A.; Gülink, J.; Bezshlyakh, D.D.; Waag, A.. A shadow image microscope based on an array of nanoLEDs. SPIE Photonics Europe. 2020. France. Participatory - oral communication. Conference.

6 Canals, J.; Moreno, S.; Moro, V.; Franch, N.; Vilà, A.; Romano, A.; Prades, J.D.; Kluczyk-Korc, K.; Auf der Maur. M.; Di Carlo, A.; Gülink, J.; Bezshlyakh, D.D.; Waag, A.; Diéguez, A.. Instrumentation for Nano-Illumination Microscopy Based on InGaN/GaN NanoLED Arrays. OSA Optical Sensors and Sensing / Imaging and Applied Optics Congresses 2020, OSA 2020. 2020. Canada. Participatory - oral communication. Conference.

7 Moreno, S.; Canals, J.; Moro, V.; Franch, N.; Vilà, A.; Romano, A.; Prades, J.D.; Bezshlyakh, D.D.; Waag, A.; Diéguez, A.. Nano-Illumination Microscopy as a fast low-cost chip-sized technique to face pandemics. Biosensors for pandemics. 2020. Canada. 'Participatory - poster. Conference.

8 Vilà, A.; Gómez-Núñez, A.; Alonso-Gil, S.; Roura, P.; Lopez, C.. Analysis of a sol-gel precursor and its evolution towards ZnO. 10th World Congress of Chemistry & Biology 2019. 2019. Spain. Participatory - invited/keynote talk. Conference.

9 Franch, N.; Canals, J.; Moro, V.; Alonso, O.; Moreno, S.; Vilà, A.; Prades, J.D.; Gülink, J.; Wasisto, H.; Waag, A.; Diéguez, A.. Towards a super-resolution structured illumination microscope based on an array of nanoLEDs. SPIE Optics + Photonics: SPIE Optical Engineering + Applications 2019. 2019. United States of America. Participatory - oral communication. Conference.

10 Diéguez, A.; Franch, N.; Canals, J.; Moro, V.; Vilà, A.; Prades, D.; Gülink, J.; Wasisto, H.S.; Waag, A.. Towards a compact lensless superresolution microscope based on nanoarrayed LEDs. 6th International conference on biosensing technology. 2019. Malaysia. Participatory - oral communication. Conference.

11 Moro, V.; Canals, J.; Franch, N.; Moreno, S.; Romano-Rodríguez, A.; Vilà, A.; Gülink, J.; Bezshlyakh, D.; Waag, A.; Prades, J.D.; Diéguez, A.. A New high-resolution microscopy technique. 3rd Global Summit on Nanotechnology, Nanomedicine & Material science. 2019. Spain. Participatory - invited/keynote talk. Conference.

12 Gutierrez-Fernandez, E.; Gabaldon-Saucedo, I.A.; Garcia-Gutierrez, M.C.; Varea, A.; Nogales, A.; Rebollar, E.; Vilà, A.; Cirera, A.; Ezquerra, T.. Quantitative mechanical and electrical assessment by local probe methods of inkjet-printed PEDOT:PSS thin films. American Physical Society March Meeting 2019. 2019. United States of America. Participatory - oral communication. Conference.

13 Gutiérrez, E.; Gabaldón, I.; García-Gutiérrez, M.C.; Nogales, A.; Rodríguez-Rodríguez, A.; Cirera, A.; Varea, A.; Vilà, A.; Ezquerra, T.A.; Rebollar, E.. Laser nanostructuring of PEDOT:PSS and its influence on the electrical properties. E-MRS Spring Meeting 2019. 2019. France. Participatory - oral communication. Conference.

14 Gabaldón-Saucedo, I.A.; Gutiérrez, E.; Rodríguez-Rodríguez, A.; García-Guitérrez, M.C.; Nogales, A.; Rebollar, E.; Vilà, A.; Ezquerra, T.A.; Cirera, A.. Electric field-assisted alignment of PEDOT:PSS. European Materials Research Society, E-MRS fall meeting 2018. 2018. Poland. Participatory - oral communication. Conference.

15 Gabaldón-Saucedo, I.A.; Gutiérrez, E.; Rodríguez-Rodríguez, A.; García-Guitérrez, M.C.; Nogales, A.; Rebollar, E.; Vilà, A.; Ezquerra, T.A.; Cirera, A.. Induced arrangement of P3HT by inkjet printing technology. European Materials Research Society, E-MRS fall meeting 2018. 2018. Poland. 'Participatory - poster. Conference.

16 Gabaldón-Saucedo, I.A.; Gutiérrez, E.; Rodríguez-Rodríguez, A.; García-Guitérrez, M.C.; Nogales, A.; Vilà, A.; Rebollar, E.; Ezquerra, T.A.; Cirera, A.. Nanostructuring of PEDOT:PSS films by laser treatment. European Materials Research Society, E-MRS fall meeting 2018. 2018. Poland. 'Participatory - poster. Conference.

17 Gutiérrez, E.; Gabaldón, I.; García-Gutiérrez, M.C.; Nogales, A.; Rodríguez-Rodríguez, A.; Cirera, A.; Varea, A.; Vilà, A.; Ezquerra, T.A.; Rebollar, E.. Nanostructuring of PEDOT:PSS thin films by laser and its influence on its electrical properties. 10th ECNP International Conference on Nanostructured Polymers and Nanocomposites. 2018. Spain. Participatory - oral communication. Conference.

18 Diéguez, A.; Canals, J.; Franch, N.; Diéguez, J.; Moro, V.; Alonso, O.; Vilà, A.. A miniaturized and low-cost sub-nanosecond fluorescence lifetime detector based on and array of CMOS SPAD detectors. 28th Anniversary World Congress on Biosensors. 2018. United States of America. Participatory - oral communication. Conference.

19 Vilà, A.; Gómez-Núñez, A.; Alonso-Gil, S.; López, C.. Experimental and theoretical studies of ZnO precursors: towards green chemistry. 7th Annual World Congress of Nano Science and Technology-2017 (Nano S&T-2017). 2017. Japan. Participatory - oral communication. Conference.

20 Gabaldón-Saucedo, I.A.; Varea, A.; Gutiérrez, E.; García-Gutiérrez, M.C.; Rodríguez-Rodríguez, A.; Nogales, A.; Rebollar, E.; Ezquerra, T; Cirera, A.; Vilà, A.. Induced arrangement of P3HT:PCBM layer for pinted electronics. 7th Annual World Congress of Nano Science and Technology-2017 (Nano S&T-2017). 2017. Japan. Participatory - oral communication. Conference.

C.3. Research projects and contracts

1 **Project**. 951774, Fully Oxide-based Zero-Emission and Portable Energy Supply (FOXES). Unió Europea. Juan Daniel Prades Garcia. (Universitat de Barcelona). 01/10/2020-30/09/2024. 796.125 €.

2 **Project**. PID2019-105714RB-I00, Cámara CMOS basada en SPADs con histogramas analógicos integrados para medidas de resolución temporal en técnicas de microscopía emergentes de superresolución. Ministerio de Ciencia, Innovación y Universidades. Angel Dieguez Barrientos; Juan Daniel Prades Garcia. (Universitat de Barcelona). 01/06/2020-31/05/2023. 221.430 €.

3 **Project**. Microscopi multi-hologràfic digital en la mida d'un xip. F2I-PdC_2021-006. Universitat de Barcelona. Ana Maria Vila Arbones; Angel Dieguez Barrientos. (Universitat de Barcelona). 10/01/2022-10/01/2023. 25.000 €.

4 **Project**. 952135, Scalable Structured Micro Illumination Light Engines (SMILE). Unió Europea. Juan Daniel Prades Garcia; Angel Dieguez Barrientos. (Universitat de Barcelona). 16/12/2020-15/12/2022. 774.500 €.

5 **Project**. Disseny d'acceleradors basats en la tecnologia RISC-V per a la propera generació de computadors (DRAC). Departament d'Empresa i Coneixement. Generalitat de Catalunya. Angel Dieguez Barrientos. (Universitat de Barcelona). 01/06/2019-31/05/2022. 326.317,93 €.

6 **Project**. 737089, Overcoming the Limits of Diffraction with Superresolution Lighting on a Chip (ChipScope). Unió Europea. Angel Dieguez Barrientos. (Universitat de Barcelona). 01/01/2017-31/12/2020. 944.573 €.

7 **Project**. INNOTECRD18-1-0016, Superant els límits de la difracció amb super-resolució en un xip (SuperLite). Agència per a la Competitivitat de l'Empresa (ACCIÓ). Angel Diéguez Barrientos. (Universitat de Barcelona). 06/08/2018-06/08/2020. 58.380 €.

8 **Project**. MAT2015-66443-C2-2-R, Investigación de superficies poliméricas, inorgánicas e híbridas nano y microestructuradas y de sus interacciones: de las bases físico-químicas a sus aplicaciones.. Ministerio de Economia y Competitividad. Albert Cirera Hernandez. (Universitat de Barcelona). 01/01/2016-31/12/2018. 121.000 €.

C.4. Activities of technology / knowledge transfer and results exploitation

1 **Patent of invention**. Diéguez Barrientos, Angel; Vila Arbones, Anna. Method for obtaining a microscopic digital image and corresponding device Unknown. 06/07/2021. Universitat de Barcelona.

2 **Patent of invention**. Diéguez Barrientos, Angel; Vila Arbones, Anna. Method and device for obtaining microscopic digital images Unknown. 06/07/2021. Universitat de Barcelona.

3 **Patent of invention**. Dieguez, A.; Alonso, O.; Vilà, A.EndoASIC Technologies S.L. Cofundador Spain. 2013. DOAS - Endoasic Technologies, S.L..