

**Part A. PERSONAL INFORMATION**

Part A. PERSONAL INFORMATION			CV date		02/12/2021
First and Family name	Daniel Araujo Gay				
Social Security, Passport, ID number	75789293S		Age	58	
Researcher numbers		Researcher ID	V-3315-2019		
		Author ID	7005138382		
		ORCID code	<a href="https://orcid.org/0000-0001-7448-1474">https://orcid.org/0000-0001-7448-1474</a>		

**A.1. Current position**

Name of University/Institution	Universidad de Cádiz		
Department	Dpto. Ciencia de los Materiales e Ingeniería Metalúrgica y Química Inorgánica / Facultad de Ciencias		
Address and Country	Campus Universitario Río San Pedro s/n 11510 Puerto Real (Cádiz)		
Phone number	956 016 427	E-mail	<a href="mailto:daniel.araujo@uca.es">daniel.araujo@uca.es</a>
Current position	Catedrático de Universidad	From	26/01/2010
UNESCO code	2203.04, 2209.21, 2211.09, 2211.10, 2211.11, 2211.16, 2211.25, 2211.26, 3307, 3312		
Key words	Microscopía electrónica de transmisión (TEM y STEM), Microscopía electrónica de barrido (SEM) y catodoluminiscencia-EBIC, Diamante (MPCVD HPHT), Nanoestructuras (QD, DW), Semiconductores		

**A.2. Education**

Degree/PhD	University	Year
"Diplôme de Physicien"	Université de Lausanne (Switzerland)	1988
Convalidación al Título de Licenciado en Ciencias Físicas	Ministerio de Educación y Ciencia	1995
Docteur ès Sciences	Ecole Polytechnique Fédérale de Lausanne (EPFL, (Switzerland)	1992
Convalidación al Título de Doctor en Ciencias Físicas	Ministerio de Educación y Ciencia	1995
"Qualification à Professeur des Universités", (French validation to Catedrático de Universidad)	Ministère de l'Éducation et de la Recherche (France)	2004

**A.3. JCR articles, h Index, thesis supervised**

Number of six-years term of research: **5 (2018)**; Number of thesis supervised during the last ten years: **6**, total number of thesis supervised: **9**; Total citation: **1077**; citation/year (last 5): **66,2**; Total publication Q1: **45**; h-index: **21**. (Source: Web of Science de Thomson Reuters)

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

Daniel Araujo has a degree in Physical Sciences from the "Université de Lausanne" in Switzerland (1987). After a year in "NESTEC RESAERCH CENTER" (Lausanne) dedicated to interferometric holography for the design of milk cans, he made a doctoral thesis in the "Ecole Polytechnique Fédérale de Lausanne (EPFL)" on the study by catodoluminiscencia and TEM of quantum wells of semiconductor alloys III-V (1988-92). In 1992, he made his first postdoctoral stay at IBM Research laboratory in Rüschlikon (Zürich) with Drs. Heinrich Röhrer (Nobel Prize, 1986) and Santos Alvarado on semiconductor luminescence III-V (GaAs / AlGaAs heterostructures) by STM. In 1993, he joined the University of Cádiz (postdoc, European project BLES), where he obtained the title of Associate Professor (Profesor titular de Universidad) in 1999. In 2003, the CNRS invited him to a research stay in Grenoble and, in 2004, got the Full Professor positions at INSA-Lyon (Superior Engineering School). With this position, he became responsible for the Lyon CLYM Electronic Microscopy Center (includes the CNRS-Ecole Centrale de Lyon-Ecole Normale Supérieure de Lyon-Claude Bernard-INSA-Lyon University) and also the MULTI-D characterization platform that includes all the facilities of the Rhône-Alpes region. In 2007, he rejoined the University of Cádiz and obtained the category of Full Professor

in 2009. He is author of more than 150 international publications, 5 patents and more than 10 invited conferences in international congresses. He is an expert in electron microscopy and, in particular, in the different modes of transmission electron microscopy and cathodoluminescence applied to the characterization of semiconductor materials, SiC and diamond. Since 2000 he has been dedicated to the study of SiC and, later on, of the diamond as semiconductor materials for the development of electronic devices. During this time, he has led several projects with public funding as well as contracts with various companies (EADS-CASA, AIRBUS, FEI, URANOS, ISOFOTÓN, ...) in both, France and Spain. He is currently the local responsible of the H2020 GreenDiamond project (Energy LCE) and two national projects (DiamMOS, Hi-Volt). He has been supervisor of 9 PhD dissertations, member of 16 PhD dissertation committees/juries and is in the scientific committee and organization of various scientific events (EXMATEC, BIAMS, E-MRS diamond symposiums, ...).

## Part C. RELEVANT MERITS

### C.1. Publications (including books, only some related with project)

1. D. Araujo, M. Suzuki, F. Lloret, G. Alba, and M. P. Villar, *Diamond for Electronics: Materials, Processing and Devices*, Materials **14**, 7081 (2021)
2. D. Araujo, F. Lloret, G. Alba, M. P. Alegre, and M. P. Villar, *Dislocation generation mechanisms in heavily boron-doped diamond epilayers*, Appl. Phys. Lett. **118**, 52108 (2021)
3. F. Lloret, D. Eon, E. Bustarret, F. Donatini, and D. Araujo, *Selectively boron doped homoepitaxial diamond growth for power device applications*, Appl. Phys. Lett. **118**, 23504 (2021)
4. G. Alba, D. Leinen, M. P. Villar, R. Alcántara, J. C. Piñero, A. Fiori, T. Teraji and **D. Araújo**, “Comprehensive nanoscopic analysis of tungsten carbide/oxygenated-diamond contacts for Schottky barrier diodes”, App. Surf. Sci. **537**, 147874 (2021)
5. G. Alba, M. P. Villar, R. Alcántara, J. Navas and **D. Araújo**, “Surface States of (100) O Terminated Diamond: Towards Other  $1 \times 1$ :O Reconstruction Models”, Nanomaterials **10**, 1193 (2020)
6. R. Rouzbahani, S. S. Nicley, D. E. P. Vanpoucke, F. Lloret, P. Pobedinskas, **D. Araújo**, K. Haenen, “Impact of methane concentration on surface morphology and boron incorporation of heavily boron-doped single crystal diamond layers”, Carbon **172**, 463 (2021)
7. J. Cañas, G. Alba, D. Leinen, F. Lloret, M. Gutierrez, D. Eon, J. Pernot, E. Gheeraert, **D. Araújo**, “Diamond/ $\gamma$ -alumina band offset determination by XPS”, Appl. Surf. Sci. **535**, 146301 (2021)
8. F. Lloret, D. Eon, E. Bustarret, A. Fiori and **D. Araújo**, “Boron-Doping Proximity Effects on Dislocation Generation during Non-Planar MPCVD Homoepitaxial Diamond Growth”, Nanomaterials **8**, 480 (2018)
9. J.C. Piñero, F. Lloret, M. P. Alegre, M. P. Villar, A. Fiori, E. Bustarret, **D. Araújo** “High resolution boron content profilometry at  $\delta$ -doping epitaxial diamond interfaces by CTEM”, Appl. Surf. Sci. **461**, 221 (2018)
10. F. Lloret, A. Fiori, **D. Araújo**, D. Eon, M. P. Villar, and E. Bustarret, “Stratigraphy of a diamond epitaxial three-dimensional overgrowth using doping superlattices”, Appl. Phys. Lett. **108**, 181901 (2016)
11. M.P. Alegre, **D. Araújo**, A. Fiori, J. C. Piñero, F. Lloret, M. P. Villar, P. Achatz, G. Chicot, E. Bustarret y F. Jomard. “Critical boron-doping levels for generation of dislocations in synthetic diamond”. Appl. Phys. Lett. **105**, 173103 (2014)
12. **D. Araújo**, M. P. Alegre, J. C. Piñero, A. Fiori, E. Bustarret, F. Jomard. “Boron concentration profiling by high angle annular dark field-scanning transmission electron microscopy in homoepitaxial delta-doped diamond layers”. Appl. Phys. Lett. **103**, 42104 (2013)

### C.2. Research projects and grants (only last 10 years)

1. **Reference:** PID2020-117201RB-C21 **Title:** “New gate and opto-activated diamond channel MISFETs (Opto-FET)”; **Financial entity:**; **Leading researcher:** Daniel Araújo Gay, Universidad de Cádiz; **Starting and ending dates:** 01/01/2021 - 30/12/2023; **Total financing:** 228.932€; **Participation type:** Leading Researcher; **State of the project:** Granted

2. **Reference:** n°640947, call H2020-LCE-2014-1; **Title:** “Green Electronics with Diamond Power Devices (GreenDiamond)”; **Financial entity:** H2020, Unión Europea; **Leading researcher:** Daniel Araújo Gay, Universidad de Cádiz; **Starting and ending dates:** 01/05/2015 - 30/11/2020; **Total financing:** 220.000€; **Participation type:** Leading Researcher; **State of the project:** Granted
3. **Reference:** TEC2017-86347-C2-1-R ; **Title:** “Arquitectura 3D de MOSFET elaboradas in-situ por MPCVD para electronica de potencia (DiamMOS)”; **Financial entity:** MINECO 2017; **Leading researcher:** Daniel Araújo Gay, Universidad de Cádiz; **Starting and ending dates:** 01/01/2018 - 31/12/2020; **Total financing:** 156.090€; **Participation type:** Leading Researcher; **State of the project:** Granted
4. **Reference:** EQC2019-005784-P; **Title:** “Equipo de deposición/crecimiento de diamante mediante MPCVD”; **Financial entity:** MICINN 2019; **Leading researcher:** Daniel Araújo Gay, Universidad de Cádiz; **Starting and ending dates:** 01/01/2020 - 31/12/2021; **Total financing:** 701.881,92€; **Participation type:** Leading Researcher; **State of the project:** Granted
5. **Reference:** ID5764; **Title:** “Sistema de focalización de haces de iones (FIB) integrado en microscopio SEM-FEG con rutinas de preparación de muestras TEM, tomografía, estereografía, catodoluminiscencia, medidas in-situ y reconstrucción/tomografía y prototipado 3d febid ”; **Financial entity:** Junta de Andalucía 2017; **Leading researcher:** Daniel Araújo Gay, Universidad de Cádiz; **Starting and ending dates:** 01/01/2019 - 31/12/2020; **Total financing:** 683.423,58 €; **Participation type:** Leading Researcher; **State of the project:** Granted
6. **Reference:** UNCA15-CE-3613; **Title:** “Sistema de evaporación térmica, por electron beam y RF/DC sputtering”; **Financial entity:** MINECO 2015; **Leading researcher:** Daniel Araújo Gay, Universidad de Cádiz; **Starting and ending dates:** 01/01/2016 - 31/12/2017; **Total financing:** 216.529,50€; **Participation type:** Leading Researcher; **State of the project:** Granted
7. **Reference:** TEC2014-54357-C2-2-R; **Title:** “Dispositivos de alto voltaje para una electrónica de potencia verde: Relación nanoestructura-función (HiVolt-Nano)”; **Financial entity:** MINECO 2014; **Leading researcher:** Daniel Araújo Gay, Universidad de Cádiz; **Starting and ending dates:** 01/01/2015 - 31/12/2018 (extended); **Total financing:** 150.645€; **Participation type:** Leading Researcher; **State of the project:** Granted
8. **Reference:** TEC2009-11399; **Title:** “Diamante para dispositivos de potencia (POWERDIAM)”; **Financial entity:** MICINN, 2009; **Leading researcher:** Daniel Araújo Gay, Universidad de Cádiz; **Starting and ending dates:** 01/01/2010 - 31/12/2012; **Total financing:** 180.000€; **Participation type:** Leading Researcher; **State of the project:** Granted
- Reference:** P07-TEP-02732; **Title:** “Mejora de la tenacidad de materiales aeronáuticos: Introducción de nanopartículas en resinas epoxi de polímeros reforzados (CFRP)”; **Financial entity:** Junta de Andalucía, 2007; **Leading researcher:** Daniel Araújo Gay, Universidad de Cádiz; **Starting and ending dates:** 19/12/2007 - 20/12/2011; **Total financing:** 307.668€; **Participation type:** Leading Researcher; **State of the project:** Granted

### C.3. Contracts (some of them)

1. **Title:** “Polímeros aeronáuticos con propiedades mecánicas mejoradas mediante nanoestructuración”; **Company:** Airbus Military; **Leading Researcher and affiliation:** María del Pilar Villar Castro, Universidad de Cádiz; **Starting and ending dates:** 01/01/2012 - 31/12/2014; **Total financing:** 100.000€
2. **Title:** “Caracterización de materiales, daño e impactos mediante ensayos físicos, químicos y de microscopía para investigaciones en materiales y protecciones estructurales frente a impacto”; **Company:** Airbus Military; **Leading Researcher and affiliation:** María del Pilar Villar Castro, Universidad de Cádiz; **Starting and ending dates:** 01/06/2010 - 31/12/2012; **Total financing:** 60.000€
3. **Title:** “Automatización y optimización de procesos de corte y taladrado de materiales compuestos por laser”; **Company:** Grupo TAM; **Leading Researcher and affiliation:** Daniel Araújo Gay, Universidad de Cádiz; **Starting and ending dates:** 01/04/2010 - 01/04/2012; **Total financing:** 120.000€

#### C.4. Patents

1. **Authors:** F. Lloret, **D. Araújo**, P. Godignon, D. Eon, J. Pernot and E. Bustarret; **Reference:** P201831162; **Title:** Field Effect Transistor (MOSFET) and its manufacturing procedure; **Priority country:** España; **Date:** 29/11/2018; **Titular entity:** Universidad de Cádiz
2. **Authors:** **D. Araújo**, A.J. García y D. Méndez; **Reference:** P200402715; **Title:** “Sistema de Catodoluminiscencia para Microscopio Electrónico de Barrido”; **Priority country:** España; **Date:** 11/11/2004; **Titular entity:** Universidad de Cádiz
3. **Authors:** **D. Araújo**, D. Torres; **Reference:** P201500364; **Title:** “Molde para la fabricación de probetas rectangulares de ancho variable de resinas epoxi RTM”; **Priority country:** España; **Date:** 18/05/2015; **Titular entity:** Universidad de Cádiz
4. **Authors:** **D. Araújo**, M.P. Villar, D. Torres, R. Estévez; **Reference:** P201500279; **Title:** “Procedimiento para determinar la tenacidad intrínseca de polímeros”; **Priority country:** España; **Date:** 21/04/2015; **Titular entity:** Universidad de Cádiz

#### C.5. Doctoral theses supervision

1. **Candidate:** C. E. Pastore; **Title:** Células fotovoltaicas de concentración: Relación estructura versus propiedades electrónicas **Date:** 19/02/2014; **University:** Universidad de Cádiz; **International or european diploma:** Yes
2. **Candidate:** M. P. Alegre; **Title:** Calidad cristalina e incorporación de boro en homoepitaxias de diamante; **Date:** 10/02/2015; **University:** Universidad de Cádiz; **International or european diploma:** Yes
3. **Candidate:** J. C. Piñero; **Title:** Role of interface configuration in diamond-related power devices; **Date:** 27/06/2016; **University:** Universidad de Cádiz; **International or european diploma:** Yes
4. **Candidate:** F. Lloret; **Title:** Croissance latérale MPCVD de diamant en homoépitaxie pour dispositifs électroniques de puissance; **Date:** 15/06/2017; **University:** Université Grenoble-Alpes; **International or european diploma:** Yes

#### C.6. Memberships of international committees

**Committee:** EXMATEC international Steering Committee

**Entity:** Expert Evaluation & Control of Compound Semiconductor Materials and Technologies

**Topic:** Biannual international congress organization, Defects in Semiconducting materials

**Date:** 2006-Currently

**Committee:** BIAMS international Steering Committee

**Entity:** BIAMS: Beam Injection Assessment of Microstructures in Semiconductors conferences.

**Topic:** Biannual international congress organization, Beam semiconductor characterization

**Date:** 2016-Currently

**Committee:** E-MRS international Steering Committee

**Entity:** European - Materials Research Society

**Topic:** Annual international congress organization, Diamond related symposium

**Date:** 2017-Currently

#### C.7. Memberships of scientific societies

**Activity:** Steering Committee of MACODEV (regional researcher cluster, Rhone-Alpes, Lyon, France)

**Aim:** Regional research coordination of the “Materials Science and Engineering” related topics.

**Date:** 2004-2007

**Activity:** Director of CLYM steering committee (Consortium Lyonnais des Microcopies), Lyon (France)

**Aim:** Coordination of the electronic microscopy facilities and its related research.

**Date:** 2004-2007