CV date	5/01/2023

Part A. PERSONAL INFORMATION

First name	Elisa		
Family name	Palacios Lidón		
Gender (*)	Female	Birth date	21/10/1977
ID number	50848922Q		
e-mail	elisapl@um.es	URL Web	
Open Researcher and Contributor ID (ORCID) (*)		0000-0002-0785-8566	

(*) Mandatory

A.1. Current position

Position	Profesora Titular de Universidad		
Initial date	1/11/2020		
Institution	Universidad de Murcia		
Department/Center	Departamento de Física		
Country	Spain	Teleph. number	+34868888551
Key words	Scanning Force Microscopy, Kelvin probe force microscopy, electro-optical properties, low-dimensional materials, semiconducting polymers, graphene-related materials, perovkites		

A.2. Previous positions (research activity interuptions, indicate total months)

Period	Position/Institution/Country/Interruption cause
2016 - 2020	Contratado Doctor Permanente / Universidad de Murcia
2016 - 2016	Contratado Doctor Interino / Universidad de Murcia
2011 - 2016	Contratado Ramón y Cajal / Universidad de Murcia
2013 - 2014	Baja por embarazo de riesgo y maternidad
2009 - 2010	Contratado posdoctoral / Universidad de Murcia / Spain
2007 - 2009	Contratado posdoctoral / CINaM-CNRS
2005 - 2007	Contratado Juan de la Cierva / Universidad de Murcia
2001 - 2005	Becario predoctoral (FPI CAM) / ICMM-CSIC

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Doctora Ciencias Físicas	Universidad Autónoma de Madrid / Spain	2004
Licenciado Ciencias Físicas	Universidad Autónoma de Madrid / Spain	2000

(Include all the necessary rows)

Part B. CV SUMMARY

I complete my PhD at the Instituto de Ciencia de Materiales de Madrid (ICMM-CSIC) on the characterization of photonic crystals based in opals. Then I moved to the Universidad de Murcia for about two years. There, I worked on the development and optimization of a electrostatic force microscopy (ESFM) and Kelvin probe microscopy (KPFM) for the characterization of electronic properties at the nanoscale. In parallel, these techniques were applied to the study of different semiconductors materials, such as conductive polymers, cadmiun tellure (CdTe) and zinc oxide (ZnO) thin films grown along non-polar directions with optoelectronic applications. Also, a novel technique based on conductive force spectroscopy (c-SFM) was developed to understand the mechanism of formation and rupture of Schottky nanocontacts on wide band gap semiconductor oxides. Then, I joined the group of Prof. Claude Henry in the CINaM –CNRS Marseille (France) for a two years post-doc. I focused my work on the “in-situ” study of nanoscale physical-chemical processes involved in the CO oxidation by metal nanoclusters supported either on highly oriented pyrolitic graphite (HOPG) or on insulating surfaces. To do so, I used SFM and KPFM techniques in controlled operating

conditions of ultra high vacuum (UHV) that allowed to monitor the chemical transformations occurring in real time on the involved reactant and on the individual metal nanoclusters.

Since 2009, when I returned to the Universidad de Murcia, I started a research line focused on the nanocharacterization of optoelectronic properties of phototoactive materials combining SFM and optical techniques. Recently, I have opened a new research line to study disordered 2D materials and in particular graphene-related materials such as GO and rGO. Together with the experimental work. I have also developed several data analysis procedures and theoretical models, becoming a world reference in the field of KPFM applied in low conducting materials (19 publications as corresponding author in this period and 2 thesis).

Throughout my scientific career I have stablished collaborations with different national and international groups such es Dr. Jesús Zuñiga-Pérez and Dr. Philipe Venneges (CRHEA-CNRS), Dra. Celia Rogero (DIPC) Dr. Ramón Tena Zaera (CIDITEC), Dr. Thiery Grenet and Dr. (Int. Neel-CNRS) among others.

To sum up, I have shown great versatility, accepting innovative projects and new challenges with great success, as reflected in the publications in high-impact journals such as Nanoletters, Advanced Materials, ACS Catalysis, Small or Physical Review Letters, among others.

Main Research Lines: Scanning Force Microscopy, characterization of electro-optical properties at the nanoscale, low-dimensional materials, semiconducting polymers, graphene-related materials, organometallic perovkites.

General quality indicators of scientific production

- Nº de sexenios: 3; last: 2018
- Scientific papers: 54 (34 as first author or corresponding author) (Q1: >80 %) Cites> 1300 h-idex: 18; i10-index:27
- Works submitted to national or international conferences: More than 30 oral talks and 4 invited.
- Participation in Research Projects: 16 (3 as IP)
- Supervision Activity: 3 PhD thesis (2 finished, 1 in progress) and 7 master/diploma theses.
- Research Contracts through competitive calls: Juan de la Cierva & Ramón y Cajal.
- Scientific Management: I have organized a symposium, and I have been in the Scientific Advisory Committee of three other conferences.
- Accreditations: Certificación I3 de la ANEP

Part C. RELEVANT MERITS *(sorted by typology)*

C.1. Publications

1. Navarro-Rodriguez M.; **Palacios-Lidón, E.**[*]; Somoza, A. M.[*] (2023) "The surface charge decay: A theoretical and experimental analysis" *Applied Surface Science* **610** pp. 155437. IF: 7.392

2. **Palacios-Lidón, E.**[*]; Colchero, J.; Ortuno, M.; Colom, E.; Benito, A. M.; Maser, W. K.; Somoza, A. M. (2021) "Nanoscale Charge Density and Dynamics in Graphene Oxide" *ACS Materials Letters* **3**, pp.1826-183. IF: 11.17 **cites:** 1

3. Somoza A. M.; **Palacios-Lidón, E.**[*] (2020) "Localized charges in thin films by Kelvin probe force microscopy: From single to multiple charges" *Physical Review B* **101**, pp. 075432. IF: 4.0 **cites:** 7

4. **Palacios-Lidón, E.**[*]; Istif, E.; Benito, A. M.; Maser, W. K[*].; Colchero, J.[*] (2019) "Nanoscale J-aggregates of poly(3-hexylthiophene): key to electronic interface interactions with graphene oxide as revealed by KPFM" *Nanoscale* **11**, pp.11202-11208. IF: 6.8 **cites:** 7

5. Pascual, J.; Kosta, I.; **Palacios-Lidon, E**.; Tena-Zaera[+] (3/10) (2018) "Co-solvent effect in the processing of the perovskite: fullerene blend films for electron transport layer-free solar cells" *The Journal of Physical Chemistry C*, **122**, pp. 2512-2520. IF: 4.3 **cites:** 16

6. Gonzalez, J. F.; Somoza, A. M.; **Palacios-Lidón, E**[*] (2017) "Charge Distribution from SKPM Images" *Phys. Chem. Chem. Phys.* **19** , pp.27299–27304. IF: 3.9 **cites:** 12

7. Rogero C[*].; Pickup, D. F.; Colchero, J.; Azaceta, E.; Tena-Zaera, R.; **Palacios-Lidón, E**[*] (2016) "Nanophotoactivity of Porphyrin Functionalized Polycrystalline ZnO Films" *ACS Applied Materials & Interfaces*. **8**, pp.16783-16790. IF: 8.1 **cites:** 7

8. **Palacios-Lidón, E**, Henry, C. R.; Barth, C.[*] (2014) "Kelvin Probe Force Microscopy in Surface Chemistry: Reactivity of Pd Nanoparticles on Highly Oriented Pirolytic Graphite" *ACS Catalysis* **4**, pp.1838-1844. IF: 9.31 **cites:** 29

9. **Palacios-Lidón, E**[+], Perez-Garcia, B.; Colchero J. (2009) "Enhancing dynamic scanning force microscopy in air: as close as possible" *Nanotechnology* **20** pp.085707. IF: 3.45. **cites:** 42

10. Perez-Garcia, B.; Zuniga-Perez, J.; Munoz-Sanjose, V.; Colchero, J.; **Palacios-Lidón, E** [*] (2007) "Formation and rupture of Schottky nanocontacts on ZnO nanocolumns" *Nano Letters*. **7**, pp.1505-1511. IF: 9.6 **cites:** 67

C.2. Congress, indicating the modality of their participation (invited conference, oral presentation, poster)

1. *"KPFM on low conducting 2D materials"* Invited talk. 6th International Workshop on Advanced Atomic Force Microscopy Techniques. Posdman (Germany) 2023.

2. *"Charge distribution and dynamics of graphene oxide characterized with Kelvin Probe Force Microscopy"* Oral communication.. HeteroNanoCarb2023, Benasque 2023.

3. *"Characterization of Graphene Oxide charge dynamics with Kelvin Probe Force Microscopy"* Oral communication. NC-AFM 2022. Nijmegen (Netherlands) 2022

4. *"Nanoscale Charge Dynamics in Graphene Oxide and other Low Dimensional Materials Studied By Electrostatic Force Micoscopy"* Oral communication. NANOTEC19 Conference. Zaragoza 2019

5. *"Nanoscale photogenerated charge-transfer study of P3HT Nanoparticles /graphene oxide complexes"* Oral communication NANOGE FALL MEETING2018. Oral communication Torremolinos (Spain) 2018.

6. *"Conducting polymers as electron glasses: surface charge domains and slow relaxation"* Oral communication. Transport in Interacting Disordered Systems 16. Granada 2016.

7. *"Quantitative localized charge imaging with SKPM"* Oral communication. Nanotechnology Conference - Fuerzas Y Tunel 2016, Gerona (Spain) 2016

C.3. Research projects, indicating your personal contribution. In the case of young researchers, indicate lines of research for which they have been responsible.

1. *"Spanish network in scanning probes microscopies SPMnet (RED2022-134410-T)"* Ministerio de Ciencia e innovación. Duration: 2 years Budget: 55.000€ (en evaluación) PI: Manuela Garnica (coordinadora nodo UMU: Elisa Palacios Lidón)

2. *“Nano y meso escalas: Modelización, Estructura y caracterización”.* Ministerio de Ciencia e Innovación (PID2019-104272RB-C52), Duration: 1/06/2020- 31/05/2023. budget: 167.000€ + FPI contract. PI: Jaime Colchero y Andrés Somoza.

3. *“Caracterización de la estructura electrónica nanométrica del óxido de grafeno mediante SKPM: distribución y dinámica de carga de un material 2D desordenado (Project. 20860/PI/18).”* Fundación Séneca Agencia de Ciencia y Tecnología de la Región de Murcia. Duración: 01/04/2019-31/09/2022. Budget: 49.000 €. PI: Elisa Palacios Lidón

4. *“ Ayudas para incentivar la Incorporación estable de Doctores (IEDI-2017-00840)”* Ministerio de Ciencia Innovación y Universidades. Date: 2017. Budget: 100.000€. P.I. Elisa Palacios Lidón

5. *“Auto estructuración y characterización a la nanoescala”. Ministerio de Economía y Competitividad (ENE2016-79282-C5-4-R)”* Proyecto coordinado U Murcia, UPCT, ICB-CSIC (Zaragoza, centro coordinador), CIN2-CSIC y U Valencia Duration: 30/12/2016 - 29/12/2019. Budget: 180.000€. PI: Jaime Colchero Paetz.

6. *“Celulas Solares Nanoestructuradas fabricadas a partir de disoluciones: hacia una mejora de la eficiencia, estabilidad y escala del dispositivo”.* Ministerio de Economia y Competitividad (ENE2013-48816-C5-1-R. Duration:01/01/2015 - 31/12/2017 Budget: 113.000€. PI: Jaime Colchero

7. “*Estudio de los procesos fotofísicos y fotoquímicos en la nanoescala: KPFM y luz (15324/PI/10)”.* Fundación Séneca Agencia de Ciencia y Tecnología de la Región de Murcia. Duración: 01/01/2011- 31/12/2015. Budget: 49.500 €. PI: Elisa Palacios Lidón

8. “Propiedades Nanométricas de Células Solares Orgánicas”. Ministerio de Ciencia y Tecnología (MAT2010-21267-C02-01). Proyecto coordinado U Murcia y UPTC.Universidad de Murcia y la Universidad Politécnica de Cartagena.. 01/01/2011 - 31/12/2013. Budget: 120.000€. PI: Jaime Colchero.

9. “Study of Photo-Induced Phenomena at Nanoscale in Optoelectronic Devices by Combining SFM and Optics Techniques (RYC-2010-05900)”. Ministerio de Ciencia y Tecnología. Duration: 01/01/2011-31/12/2012. Budged: 15.000 € PI: Elisa Palacios Lidón

10. “Catalyse et Nano-Femto-Physique CANA (ANR-06-NANO-031” :Agence Nationale pour la Recherche (ANR). Duration: 3 años - 11 meses (inicio 2006). IP: Bernard Bourguignon