MINISTERIO DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES

CURRICULUM VITAE (maximum 4 pages)

CV date	February2020

Part A. PERSONAL INFORMATION.

First and Family name	María Pilar López Sancho		
Social Security, Passport, ID number	50280496N	Age	66
Researcher numbers	Researcher ID	K-4466-2014	
	Orcid code	0000-0002-7603-5811	

A.1. Current position

Name of University/Institution	Consejo Superior de Investigaciones Científicas-CSIC		
Department	Instituto de Ciencia de Materiales de Madrid-CSIC		
Address and Country	C/ Sor Juana Inés de la Cruz nº 3 , 28043-Madrid, Spain		
Phone number	+34913349053	E-mail	pilar@icmm.csic.es
Current position	Profesora de Investigación	From	28-04-2006
Espec. cód. UNESCO	221100, 221110		
Palabras clave	Electronic properties, low dimensional materials, topological matter		

A.2. Education

PhD	University	Year
BA in Physics	Complutense de Madrid	1975
PhD in Physics	Complutense de Madrid	1979

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

Six research "sexenios" last (2007-2012) reconized in 2013; one PhD thesis. Total scientific publications 90, of which 68 in Q1. Sum of the times cited 2,994. Average citations per item 32.2 and 236 average citations per year from 2015 to 2019.

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

My main interest is the understanding of unconventional properties of materials. These properties, without explanation in conventional theories, demand the development of new ideas and formalisms. Currently I am working on the study of bidimensional materials and how the defects vary their properties. I also study the effects of disorder on topological insulators. I have studied electronic properties of materials of great interest and technological potential as metals, metal-semiconductor interfaces, magnetic superlattices, strongly correlated systems, high-Tc superconductors, diluted magnetic semiconductors, carbon nanotubes (CNTs) or graphene. I have investigated the role of defects in graphene with special emphasis on the appearance of magnetic models [1]. We have explored the properties of transition metals dicalcogenides. Regarding CNTs, we showed that it is possible to obtain a quantum dot with a single nanotube introducing topological defects [2]. By including the spin orbit coupling, we found out that spin degeneracy is broken only in chiral tubes, explaining the dispersion of experimental data [3]. My PhD education was in the field of experimental Surface Physics, gas-metal interaction. Soon after I changed to theory and we developed a rapid convergence method that accelerates the calculation of Green's functions an order of magnitude with respect to other methods, facilitating the calculation of electronic properties of metals. The method has reached a great diffusion and continues being used more than 30 years after its publication [4]. Since 2002 I have being involved in social responsibility tasks as scientific dissemination and management.

[1] " Local defects and ferromagnetism in grapheme layers", M.A.H. Vozmediano, M. P. López-Sancho**,** T. Stauber and F. Guinea. Physical Review B **72**(2005) 155121.

[2]" Carbon nanotube-based quantum-dot", L.Chico, M.P. López-Sancho y M.C. Muñoz. Physical Review Letters **81** (1998) 1278-1281

[3] "Spin-splitting induced by spin-orbit interaction in chiral nanotubes", L.Chico, M.P. López Sancho and M.C. Muñoz .Physical Review Letters. **93**, (2004) 176402

[4] "Highly-Convergent schemes for the calculation of bulk and surface Green's functions", M.P.

López Sancho, J.M. López Sancho y J. Rubio, Journal of Physics F Metal Physics **15** (1985) 851-858

Part C. RELEVANT MERITS

C.1. Publications (including books)

- E. V. Castro, R. de Gail, M.P. López- Sancho**,** and M.A.H. Vozmediano
  "Robust band of critical states in T broken fermionic systems with selective disorder"
  Physical Review **1,** 033129 (2019) DOI: 10.1103/PhysRevResearch.1.033129
- M.P. López-Sancho and L. Brey
  "Charged Topological Solitons in Zigzag Graphene Ribbons"
  2D Materials **5**, 015026 (2018) DOI: 10.1088/2053-1583
- M.P. López-Sancho and L. Brey
  "Magnetic Phases in Periodically Rippled Graphene"
  Physical Review B **94,** 165430 (2016) DOI: 10.1103/PhysRevB.94.165430
- E. V. Castro, R. de Gail, M.P. López- Sancho**,** and M.A.H. Vozmediano
  "Abscence of localization in a class of topological systems."
  Physical Review B **93,** 245414 (2016) DOI: 10.1103/PhysRevB.93.245414
- E. V. Castro, M.P. López-Sancho**,** and M.A.H. Vozmediano
  "Anderson localization and topological transition in Chern insulators."
  Physical Review B **92,** 085210 (2015) DOI:10.1103/PhysRevB.92.085410-1-6;
- R. Roldán, M.P. López-Sancho, F. Guinea, E. Cappelluti, J.A. Silva-Guillén and P. Ordejón
  "Momentum dependence of spin-orbit interaction effects in single-layer and multi-layer transition metal dichalcogenides."
  2D Materials **1**, 034003-1-21 (2014) DOI:10.1088/2053-1583/1/3/034003
- R. Roldán, J.A. Silva-Guillén, M.P. López-Sancho, F. Guinea, E. Cappelluti and P. Ordejón.
  "Electronic properties of single-layer and multilayer transition-metal dichalcogenides MX_2 (M= Mo, W, X=S, Se).
  Annalen der Physik **526**, 347-357 (2014) Ann. Phys. (Berlin), 1–11 (2014) / DOI 10.1002/andp.201400128
- M. P. López-Sancho and M. C. Muñoz;
  "Intrinsic spin-orbit interactions in flat and curved graphene ribbons.
  Physical Review B **83,** (2011) 075406-1-9 DOI:10.1103/PhysRevB.83.075406
- E. V. Castro, M. P. López-Sancho, and M.A.H. Vozmediano;
  "A new type of vacancy-induced localized status in multilayer graphene"
  Physical Review Letters **104**, (2010) 036802-1-4. DOI: 10.1103/PhysRevLett.104.036802
- L. Chico, M. P. López-Sancho, and M.C. Muñoz;
  "Curvature-induced anisotropic spin-orbit splitting in carbon nanotubes ."
  Physical Review B **79** (2009) 235423-1-6. DOI: 10.1103/PhysRevB.79.235423
- M.P. López-Sancho**,** F. de Juan, and M.A.H. Vozmediano;
  "Magnetic moments in the presence of topological defects in graphene"
  Physical Review B **79** (2009) 075413 -1-5 DOI: 10.1103/PhysRevB.79.075413
- R. Roldán, M. P. López-Sancho, and F. Guinea;
  "Effect of electron-electron interaction on the Fermi surface topology of doped graphene"
  Physical Review B **77** (2008) 115410-1-9 DOI: 10.1103/PhysRevB.77.115410

C.2. Research projects and grants

- "Aspectos de la teoría de campos en nuevos sistemas de la materia condensada"
  CSIC 2018-2021. Financiado por la CICYT. PGC2018-099199-B-I00 Investigadora principal: B. Valenzuela y M. A. H. Vozmediano. Presupuesto: 30.000 euros.

- ”NUEVOSMATERIALESBIDIMENSIONALES:CARACTERIZACIÓN,PROPIEDADES Y APLICACIONES” CSIC 2018-2021. P2018/NMT4511. **Funded by:** Comunidad Autónoma de Madrid. Coordinador: Francisco Guinea López. **Budget**: 783.525 euros. C

- “Propiedades fundamentales y aplicaciones del grafeno y otros materiales bidimensionales”. MAD2D . **Funded by:** Dirección General de Universidades e Investigación. Conserjería de Educación, Juventud y Deporte, Comunidad de Madrid. Cofinanciado por los Fondos Estructurales de la Unión Europea. **MAD2D-CM,S2013/MIT-3007**
  Project leader-Coordinator: M.P. López Sancho (desde 02/2016) 1/10/2014-30/09/2018; **Budget:** 872.200 euros (224.881 euros for ICMM)

- “ Modelos para nuevos materiales” . **Funded by** : Dirección General de Investigación, Plan Nacional de Física. (Ministerio de Ciencia e Innovación) **FIS2014-57432-P**
  Project leaders: M. Ángeles Hernández Vozmediano- Francisco Guinea López
  1/01/2015-30/12/2017; **Budget:** 121.000 euros

- “Propiedades electrónicas y estructurales de grafeno y materiales relacionados”.
  Funded by: Dirección General de Investigación, Plan Nacional de Física. (Ministerio de Ciencia e Innovación) **FIS2011-00124**
  Project leader: Francisco Guinea López
  1/01/2012-30/12/2014 **;** **Budget:** 299.959 euros

- Efectos de la correlación electrónica en materiales y en sistemas mesoscópicos.
  Funded by: Dirección General de Investigación, Plan Nacional de Física. (Ministerio de Educación y Ciencia) **FIS2005-05478-C02-01**
  Project Leader-Coordinator: M. P. López Sancho
  31/1/05-30/12/08; **Budget**: 171.360 euros

C.3. PhD

DEA: Correlacciones de la autoenergía a la superficie de Fermi en el modelo de Hubbard. February 2006 (Universidad Autónoma de Madrid)

PhD: “Electronic Correlation Effects in two-dimensional Layered systems” **Date:** 6 de septiembre de 2007 (Universidad Autónoma de Madrid) **Calificación:** Sobresaliente CUM LAUDE (Doctorado con Mención Europea) **Tutor**: Guillermo Gómez Santos, Facultad de Ciencias UAM.

Doctor: Rafael Roldán Toro. Currently he has a contract of the program Program Ramón y Cajal at the Instituto de Ciencia de Materiales.

C.4. Institutional responsabilities

Advisor and reviewer of the Dirección de Evaluación y Acreditación (DEVA) de la Agencia Andaluza del Conocimiento. Collaborator of Comisión de Física del Área de Evaluación I+D+i from 1/11/2016.
Project evaluator of ANEP and regional funding agencies, CONACYT, The Leverhulme Trust, and Fundación L’Orèal-UNESCO For Women in Science -
Member of the Jury of Bolsas de Investigación L’Orèal-UNESCO (Research Grants for Young Women) in Materials Science and Physical Sciences (Calls 2008, 2011, 2014, 2017) Member of the Advisory Committee of Scientific Policy (Comisión Asesora de Política Científica) (CAP) MINECO 22/04/2014-1/12/2016 -Member of the Jury of the RSEF-FBBVE Awards (2007, 2008, 2009, 2011)

-Designations by the Presidency of CSIC: Member of the Comission to elaborate the new Estatute of CSIC in 2006; Member of the Women and Science Committee 1/05/2007-31/05/2008; Delegate President, of the Women and Science Committee from 1/06/2008 to 28/02/2020. Member of the Equality Committee from 1/10/2011. CSIC Representative in the "Working Group on Gender and Diversity" de Science Europe, 10/02/2014 -1/03/2017.
-Representative of the scientific staff of 'Area de Ciencia y Tecnología de Materiales" in the Scientific Advisory Committe of CSIC 1/ 06/2002-1/02/2009. Member of the Materials Science Area Committee 1/06/2002-1/02/2009.
-Member of the Comisión del Eje Temático del Plan Nacional I+D+I 2008-2010, abril-junio 2007
-Member of the Selection Committee in 2007 of the Ramón y Cajal y Juan de la Cierva Programs in Basic Sciences.

C.5, Collaboration with scientific publications

Referee of Physical Review B, Physical Review Letters, Journal of Physics C, Physics Reports, European Physics Letters, Nature Physics, New Journal of Physics, Solid State Communications.
Member of the Advisory Council of the Editorial Committee of the " Colección Informes" del CSIC (2015-2018)
Member of the Comisión de Publicaciones del CSIC 2006-2009
Member of the Editorial Board (Consejo Editorial) of the Revista Española de Física edited by RSEF (2003-2006)

C.6, Outreach

Conferences of scientific dissemination at secondary education institutes (Institutos de Enseñanza Secundaria) at activities organized by town halls, activities of the celebration of the Week of Science and at Meettings and Conferences of "El CSIC en la Escuela", at summer courses of the UIMP. I have published articles in Revista Española de Física (RSEF) and for 100cias@uned.
I have published 28 articles related to "Women and Science". I have organized several public events and I have given conferences about gender perspective in science at universities and research centers.
Member of the Scientific Advisory Committee of the Program "El CSIC en la Escuela" from January 2012. I am part of the Thematic Network of CSIC of Scientific Training and Dissemination.

C.7, Scientific Societies

Co-founder of the "Women in Physics" Group of the Spanish Physical Society (RSEF) and President of the group from 2002-2018.
Co-founder of the Association of Scientific and Technological Women (AMIT) in 2001 and President from 2010-2013.
Member of the Executive Board of the RSEF from 2005 to 2007.
Member of the Executive Board of the Solid State Group (GEFES) of RSEF from 2006-2012; Vice-president from 2009 to 2012.