

**CURRICULUM VITAE ABREVIADO (CVA)**

**IMPORTANT – The Curriculum Vitae cannot exceed 4 pages. Instructions to fill this document are available in the website.**

<b>CV date</b>	January 2023
----------------	--------------

**Part A. PERSONAL INFORMATION**

First name	Mario		
Family name	Amado Montero		
Gender (*)	MALE	Birth date (dd/mm/yyyy)	03/01/1982
ID number	14307293M		
e-mail	mario.amado@usal.es	URL Web: <a href="https://ibt.usal.es/">https://ibt.usal.es/</a>	
Open Researcher and Contributor ID (ORCID) (*)	0000-0002-3296-5064		
Researcher ID (WOS)	<a href="#">A-4478-2010</a>		
Author ID (SCOPUS)	<a href="#">9240582700</a>		

**A.1. Current position**

Name of University/Institution	UNIVERSIDAD DE SALAMANCA		
Department	FISICA FUNDAMENTAL / FACULTAD DE CIENCIAS		
Address and Country	PLAZA DE LA MERCED S/N 37008 SALAMANCA		
Phone number	+34 923 29 45 00 - 1317	E-mail	<a href="mailto:mario.amado@usal.es">mario.amado@usal.es</a>
Current position	Profesor Contratado Doctor I3	From	28/11/2020
Key words	Graphene and other two dimensional materials; 2D systems; quantum point contacts; low-temperatures; quantum nanophysics, high-magnetic fields; topological insulators: Quantum hall effect; Electronic structure; Superconductors		

**A.2. Previous positions (Research Career breaks included)**

Period	Job Title / Name of Employer / Country
2017-2022	Research Fellow / Clare Hall College University of Cambridge
2018-2020	Profesor ayudante doctor / Assistant Professor , USAL
2014-2018	Marie Curie Fellow and PDRA Department of Materials Science and Metallurgy / University of Cambridge
2011-2014	Postdoctoral Research Associate at Laboratorio NEST – CNR and Scuola Normale Superiore , Pisa, Italy
2007-2011	Predoc / Universidad Complutense de Madrid
2006-2006	Predoc / Universidad Complutense de Madrid hired by a research grant

**A.3. Education**

Degree/PhD	University	Year
M. A.	University of Cambridge	2022
Ph.D. Physics	University Complutense of Madrid	2011
MsSc. and BSc. Physics	University Complutense of Madrid	2005

**A.4. General quality indicators of scientific production**

Source : Total Citations / h-index / i10 index

Google Scholar: 1058 / 18 / 24

Scopus: 794 /17 /

## Part B. CV SUMMARY

My research has been broad and interdisciplinary, both theoretical and experimental and has involved several different groups and collaborations during my different pre- and postdoctoral stays and visits in international prestigious centres of research. I pursued my degree and Ph.D. at the Universidad Complutense of Madrid where I completed a theoretical and experimental doctoral degree which was

awarded *summa cum laude* with honors and Premio Extraordinario de Doctorado 2011. I have completed 8 years of postdoctoral research associateship first at the Laboratorio NEST-SNS in Pisa and at the University of Cambridge first as Marie Curie Research Fellow followed by Research Fellowship in Clare Hall College. I am currently Research Profesor at the University of Salamanca, Departamento de Física Fundamental, where I am establishing a new line of research on thermoelectricity on 2D materials and topological insulators. I have 36 peer-reviewed works published in high-ranked international journals with more than 1000 citations and an h-index of 18. I have published in international recognized journals such as Physical Review Letters, Nature Communications or NanoLetters. Not only devoted to pure research, but I have also supervised 4 master students (in Italy and UK), 2 Ph.D. students at the University of Cambridge as well as being committed with teaching with more than 750 hours of teaching thorough my career.

I gained an IEF Marie Curie Fellowship and a 2.5 million pounds in a EPSRC grant in the UK with Prof. Blamire, Dr. Robinson, and other coworkers as well as on "Proyecto del plan nacional": Estudio experimental de la degeneración sintonizable de espín y de valle en nanosistemas con rotura de simetría" BROSYNANO PID2019-106820RB-C22.

My research has attracted a great deal attention in international established groups because it addresses timely scientific problems in the emerging field of quantum phase transitions and high spin orbit coupling materials. I have been invited as a contributed oral in seven international conferences, presented 15+ times as contributed author and poster in international and given numerous invited seminars in prestigious universities and research institutions such as CEA- Saclay, C2N, LPS in France, UCM, UPM and IMDEA Nanoscience in Spain, Columbia and Yale in the USA and Nanjing and Shanghai Universities in China.

### B.1. Brief summary of the Undergraduate Thesis (or equivalent) and score obtained

I have been awarded the Premio Extraordinario de Doctorado 2011 at the Universidad Complutense de Madrid for the best PhD in Physics that academic year.

## Part C. RELEVANT MERITS

### C.1. Publications

#### Books:

V. Clericó, M. Amado and E. Diez. Electron Beam Lithography and its use on 2D materials. (Chapter 3 in book: Nanofabrication: Nanolithography techniques and their applications. Edited by J.M. de Teresa. IOP Publishing, Bristol, UK 2020. ISBN: 978-0-7503-2606-3). <https://iopscience.iop.org/book/978-0-7503-2608-7>

#### Selected Papers

Baba, Yuriko; Amado, Mario; Diez, Enrique; Domínguez-Adame, Francisco; Molina, Rafael A. 2022. Effect of external fields in high Chern number quantum anomalous Hall insulators Phys. Rev. B. American Physical Society. 106, pp.245305-245305.

Li Y.; Amado M.; Hyart T.; Mazur G. P.; Robinson J. W. A. 2020. Topological valley currents via ballistic edge modes in graphene superlattices near the primary Dirac point Communications physics. Nature Publishing Ltd.. 3-224, pp.1-7. <https://doi.org/10.1038/s42005-020-00495-y>

Yang Li; Mario Amado; Timo Hyart; et al.; 2020. Transition between canted antiferromagnetic and spin-polarized ferromagnetic quantum Hall states in graphene on a ferrimagnetic insulator *Physical Review B*. 101-241405(R). <https://doi.org/10.1103/PhysRevB.101.241405>

V. Clericò; J. A. Notario-Delgado; M. Saiz-Bretín; et al.; 2019. Quantum nanoconstrictions fabricated by cryo-etching in encapsulated graphene *Scientific Reports*. 9, pp.13572. <https://doi.org/10.1038/s41598-019-50098-z>

Jonna Tiira; Elia Strambini; Mario Amado Montero; et al.; 2017. Magnetically-driven colossal supercurrent enhancement in InAs nanowire Josephson junctions *Nature Communications*. *Nature*. 8, pp.14984. <https://doi.org/10.1038/ncomms14984>

Angelo DiBernardo; O. Millo; M. Barbone; et al.; 2017. p-wave triggered superconductivity in single-layer graphene on an electron-doped oxide superconductor. *Nature Communications*. *Nature*. 8, pp.14024. <https://doi.org/10.1038/ncomms14024>

Mario Amado Montero; Antonio Fornieri; Giorgio Biasiol; Lucia Sorba; Francesco Giazotto. 2014. A ballistic two-dimensional-electron-gas Andreev interferometer *Applied Physics Letters*. 104, pp.242604. <https://doi.org/10.1063/1.4884952>

Fornieri, A.; Amado, M.; Carillo, F.; Dolcini, F.; Biasiol, G.; Sorba, L.; Pellegrini, V.; Giazotto, F. 2013. A ballistic quantum ring Josephson interferometer *Nanotechnology*. 24, pp.245201. ISSN 0957-4484. <https://doi.org/10.1088/0957-4484/24/24/245201>

Amado, M.; Fornieri, A.; Carillo, F.; Biasiol, G.; Sorba, L.; Pellegrini, V.; Giazotto, F. 2013. Electrostatic tailoring of magnetic interference in quantum point contact ballistic Josephson junctions *Physical Review B*. American Physical Society. 87, pp.134506. ISSN 1098-0121. <https://doi.org/10.1103/PhysRevB.87.134506>

Faugeras, C.; Amado, M.; Kossacki, P.; Orlita, M.; Kuehne, M.; Nicolet, A. A. L.; Latyshev, Yu I.; Potemski, M. 2011. Magneto-Raman Scattering of Graphene on Graphite: Electronic and Phonon Excitations *Physical Review Letters*. 107, pp.036807. ISSN 0031-9007. <https://doi.org/10.1103/PhysRevLett.107.036807>

Faugeras, C.; Amado, M.; Kossacki, P.; Orlita, M.; Sprinkle, M.; Berger, C.; de Heer, W. A.; Potemski, M. 2009. Tuning the Electron-Phonon Coupling in Multilayer Graphene with Magnetic Fields *Physical Review Letters*. 103, pp.186803. ISSN 0031-9007. <https://doi.org/10.1103/PhysRevLett.103.186803>

## C.2. Congress (Organizational and Advisory roles at Conferences and Boards only)

- Co-Chair of the GEFES2023 (Salamanca, 1-3 February 2023) - <https://gefes2023.es/>
- Co-chair of the Nanolito Summer School: Basics and applications of Nanolithography (Salamanca 29-30 June, 2021) - <https://ibt.usal.es/nanolito-2021/>
- Symmetry and non-linearity in low-dimensional systems. Minicolloquium CMD24-GEFES2020 (35 participants)
- OSS Spice Workshop in Topological Superconductivity in Quantum Materials 2020 (80 participants)

## C.3. Research projects and grants . Only as principal investigator or co-principal investigator

1. Title: Experimental study of tunable spin and valley degeneracy in broken-symmetry nanosystems.  
Funding Agency: Ministerio de Ciencia, innovación y Universidades  
Ref: PID2019-108820RB-C22. 01/06/2020 to 31/12/2023. 156.090 €.

2. Superspintronics: Principal investigador Mark Blamire. (University of Cambridge).  
Funding Agency: Engineering and Physical Sciences Research Council (EPSRC)  
(2016- 2021) 3.171.696 €.
3. H2020-MSCA-IF-2014\_ST Standard EF 65648 - SPIN3 Spin triplet pairings in ferromagnet Josephson junctions  
Funding Agency: Horizon 2020 - Research and Innovation Framework Programme (2014-2016) 195,455 €.

#### C.4. Contracts, technological or transfer merits (Only last three years)

1. **Laser proton-boron fusión** (*Contract Art.83*)  
HB11, Sydney (Australia)-  
01/07/2022 to 31/12/2025 **330.000 €**
2. **Adaptación de patrón de tensión Josephson a criostato de ciclo cerrado**  
Centro Español de Metrología (CEM) - (*Contract Art.83*)  
01/07/2017 to 31/12/2019 - **22.000 €**

**C5. Mentoring and Thesis supervised** I have mentored 2 postdoctoral researchers as well as one master and 12 undergraduate students (4 in the United Kingdom and 3 in Italy). I am supervising 4 PhD Thesis.

- 1) *Nanodispositivos basados en bicapas rotadas de materiales 2D.*  
**Juan Salvador.** 6 JCR papers <https://ibt.usal.es/staff-member/juan-salvador-sanchez-2/>  
Actual Position: Contrato predoctoral JCYL, University of Salamanca
- 2) *Laser driven X-ray source microscopy through nanostructured optics by e-beam lithography.*  
**Maha Labani.** Algerian Residential training abroad contract. Since Nov 2021
- 3) *Hidrodinamic flow in graphene-based heterostructures*  
**Carlos Sánchez Sánchez.** INVESTIGO Contract Universidad de Salamanca. Since Oct 2022
- 4) *Materiales bidimensionales para mejorar la eficiencia en el transporte de carga y calor*  
**Marta García Olmos.** Contrato predoctoral JCYL Universidad de Salamanca. Since Jan 2023

#### C.6. Teaching

750 hours of teaching throughout my career including 70 at the University of Cambridge and >120 hours of teaching at the Master de Física y Matemáticas at the University of Salamanca.

I've been awarded the habilitation to *Profesor Titular de Universidad* on July 2022.

#### C.7. Reviewing activities

- Served as reviewer for Nature, Nature Physics, Nature Communications, Physical Review Letters, Physical Review B, NanoLetters and Applied Physics Letters.
- Member of the EPSRC College.