

CURRICULUM VITAE OF BRUNO AMORIM

Personal Information

Full Name	Bruno António Campos Amorim
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h-index	7 (according to Web of Science as of 26/07/2018)
Total Citations	203 (according to Web of Science as of 26/07/2018)

Current position

October 2016 – present	Postdoc researcher, Marie Skłodowska-Curie Individual Fellowship Centre of Physics and Engineering of Advanced Materials (CeFEMA), Instituto Superior Técnico, Portugal Supervisor: Eduardo V. Castro
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Past positions

July 2016 – September 2016	Assistant researcher Centre of Physics of the University of Minho, Portugal Supervisor: Nuno Miguel Reis Peres
January 2016 – June 2016	Assistant researcher Theory of Quantum Nanostructures group, International Iberian Nanotechnology Laboratory – INL, Portugal Supervisor: Joaquín Fernández-Rossier

Education

October 2011 – November 2016	PhD in Condensed Matter Physics and Nanotechnology (<i>cum laude</i>) Department of Condensed Matter Physics, Universidad Autónoma de Madrid, Spain Thesis: <i>Phonons and Electrons in 2D Materials and Layered Structures</i> Supervisors: • Francisco Guinea from IMDEA Nanociencia, Spain • N. M. R. Peres from Center of Physics of University of Minho, Portugal
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August 2010 – June 2011	Perimeter Scholars International Master's program Perimeter Institute for Theoretical Physics / University of Waterloo, Canada Final grade: Pass (Pass or Fail)
September 2009 – January 2011	Master's Degree in Physics – Specialization in Theoretical Physics Faculty of Sciences of the University of Porto, Portugal Final Grade: 19 (out of 20) European Grade Scaling: A
September 2006 – July 2009	First Degree in Physics (bachelor's degree) Faculty of Sciences of the University of Porto, Portugal Final Grade: 19 (out of 20) European Grade Scaling: A

Publications

Submitted

- (S1) *Electronic spectral properties of incommensurate twisted trilayer graphene*
B. Amorim, Eduardo V. Castro
[ArXiv e-prints: arXiv:1807.11909](#)
- (S2) *All optical ultrafast probe of a topological phase transition*
R. E. F. Silva, Á. Jiménez-Galán, **B. Amorim**, O. Smirnova, M. Ivanov
[ArXiv e-prints: arXiv:1806.11232](#)

Journal articles

- (J1) *Valley polarized magnetic state in hole-doped mono layers of transition metal dichalcogenides*
João E. H. Braz, B. Amorim, Eduardo V. Castro
Phys. Rev. B Rapid Commun. (accepted), [ArXiv e-prints: arXiv:1712.07157](#)
- (J2) *General theoretical description of angle-resolved photoemission spectroscopy of van der Waals structures*
B. Amorim
[Phys. Rev. B 97, 165414 \(2018\)](#), DOI:10.1103/PhysRevB.97.165414 (IF=3.836, Times cited: 0)
- (J3) *Scattering of graphene plasmons at abrupt interfaces: An analytic and numeric study*
A. J. Chaves, **B. Amorim**, Yu. V. Bludov, P. A. D. Gonçalves and N. M. R. Peres
[Phys. Rev. B 97, 035434 \(2018\)](#), DOI:10.1103/PhysRevB.97.035434 (IF=3.836; Times cited: 0)
- (J4) *Impact of Graphene on the Polarizability of a Neighbour Nanoparticle: A Dyadic Green's Function Study*
B. Amorim, P. A. D. Gonçalves, M. I. Vasilevskiy and N. M. R. Peres
[Appl. Sci., 7\(11\), 1158 \(2017\)](#), DOI:10.3390/app7111158 (IF=1.679; Times cited: 3)
- (J5) *Multiple negative differential conductance regions and inelastic phonon assisted tunneling in graphene/h-BN/graphene structures*
B. Amorim, R. M. Ribeiro and N. M. R. Peres
[Phys. Rev. B 93, 235403 \(2016\)](#), DOI:10.1103/PhysRevB.93.235403 (IF=3.836; Times cited: 7)
- (J6) *Novel effects of strains in graphene and other two dimensional materials*

B. Amorim, A. Cortijo, F. de Juan, A. G. Grushin, F. Guinea, A. Gutiérrez-Rubio, H. Ochoa, V. Parente, R. Roldán, P. San-José, J. Schiefele, M. Sturla and M. A. H. Vozmediano
[Physics Reports 617, 1-54 \(2016\)](#), DOI:10.1016/j.physrep.2015.12.006 (IF=17.425; Times cited: 88)

(J7) *Active magneto-optical control of spontaneous emission in graphene*
 W. J. M. Kort-Kamp, **B. Amorim**, G. Bastos, F. A. Pinheiro, F. S. S. Rosa, N. M. R. Peres and C. Farina
[Phys. Rev. B 92, 205415 \(2015\)](#), DOI:10.1103/PhysRevB.92.205415 (IF=3.836; Times cited: 18)

(J8) *Reply to “Comment on ‘Thermodynamics of quantum crystalline membranes’”*
B. Amorim, R. Roldán, E. Cappelluti, F. Guinea, A. Fasolino and M. I. Katsnelson
[Phys. Rev. B 90, 176302 \(2014\)](#), DOI:10.1103/PhysRevB.90.176302 (IF=3.836; Times cited: 2)

(J9) *Thermodynamics of quantum crystalline membranes*
B. Amorim, R. Roldán, E. Cappelluti, A. Fasolino, F. Guinea and M. I. Katsnelson
[Phys. Rev. B 89, 224307 \(2014\)](#), DOI:10.1103/PhysRevB.89.224307 (IF=3.836; Times cited: 27)

(J10) *Flexural mode of graphene on a substrate*
Bruno Amorim and Francisco Guinea
[Phys. Rev. B 88, 115418 \(2013\)](#), DOI:10.1103/PhysRevB.88.115418 (IF=3.836; Times cited: 31)

(J11) *Coulomb drag in graphene – boron nitride heterostructures: Effect of virtual phonon exchange*
Bruno Amorim, Jürgen Schiefele, Fernando Sols and Francisco Guinea
[Phys. Rev. B 86, 125448 \(2012\)](#), DOI:10.1103/PhysRevB.86.125448 (IF=3.836; Times cited: 9)

(J12) *On Coulomb drag in double layer systems*
Bruno Amorim and N. M. R. Peres
[J. Phys.: Condens. Matter 24, 335602 \(2012\)](#), DOI:10.1088/0953-8984/24/33/335602 (IF=2.649; Times cited: 18)

Conference proceedings

(P1) *Thermodynamic properties and stability of crystalline membranes in the quantum regime*
B. Amorim, R. Roldán, E. Cappelluti, A. Fasolino, F. Guinea and M. I. Katsnelson
[MRS Proceedings 1727, mrsf14-1727-k03-03 \(2015\)](#), DOI:10.1557/opl.2015.67

Book chapters

- (B1) *Twisted bilayer graphene: Low-energy physics, electronic and optical properties*
 Gonçalo Catarina, **Bruno Amorim**, Eduardo V. Castro, João M. V. P. Lopes, Nuno Peres
 Book chapter to appear in *Graphene-like 2D materials*, WILEY-Scrivener (forthcoming)
- (B2) *Appendix D: Derivation of the Expression Relating the Longitudinal Conductivity with the Polarizability (written with Bruno Amorim)*
 P. A. D. Gonçalves, N. M. R. Peres and **Bruno Amorim**
 In P. A. D. Gonçalves and N. M. R. Peres, *An Introduction to Graphene Plasmonics* (pp. 323-325), World Scientific, Singapore (2016), DOI:10.1142/9789814749992_0012
- (B3) *Appendix O: Green's Functions of a Rope with Two Different Mass Densities Subject to a Point-Like Excitation (written with Bruno Amorim)*
 P. A. D. Gonçalves, N. M. R. Peres and **Bruno Amorim**
 In P. A. D. Gonçalves and N. M. R. Peres, *An Introduction to Graphene Plasmonics* (pp. 375-381),

World Scientific, Singapore (2016), DOI:10.1142/9789814749992_0012

(B4) *Appendix P: Derivation of the Transition Rate of a Quantum Emitter Near an Interface* (written with Bruno Amorim)

P. A. D. Gonçalves, N. M. R. Peres and **Bruno Amorim**

In P. A. D. Gonçalves and N. M. R. Peres, *An Introduction to Graphene Plasmonics* (pp. 383-401), World Scientific, Singapore (2016), DOI:10.1142/9789814749992_0012

Conferences, Workshops and Seminars

Invited Conference Talks

(IT1) Quantum Transport Workshop: First-Principles Modelling and Quantum Transport Simulations of 2D Materials

June 2018, York, United Kingdom

Invited Talk: *Theoretical modelling of angle-resolved photoemission spectroscopy of lattice mismatched van der Waals structures*

(IT2) Workshop on Field Theory and Condensed Matter Physics

April 2018, Braga, Portugal

Invited talk: *Theoretical modelling of ARPES in van der Waals structures*

(IT3) NanoPT2017 International conference

February 2017, Porto, Portugal

Invited talk: *Waveguide QED quantum computing with graphene nanoribbon plasmons*

(IT4) 1st CeFEMA Workshop on graphene and other 2D materials

December 2016, Lisbon, Portugal

Invited talk: *Transport in Layered Structures*

(IT5) 2014 MRS Fall Meeting & Exhibition

November/December 2014, Boston, USA

Invited talk: *Thermodynamical properties and stability of crystalline membranes in the quantum regime*

Seminars

(S1) Peter Grünberg Institut

May 2018, Peter Grünberg Institut (PGI-3), Forschungszentrum Jülich, Jülich, Germany

Seminar: *Theoretical modelling of angle-resolved photoemission spectroscopy of lattice mismatched van der Waals structures*

(S2) Condensed Matter Theory Seminar @ MIT

March 2017, Massachusetts Institute of Technology, Boston, USA

Seminar: *Vertical transport in graphene/h-BN/graphene structures*

(S3) ICMM Alternative Seminar

5th March 2015, Instituto de Ciencia de Materiales de Madrid, Madrid, Spain

Seminar: *Graphene as a quantum membrane*

Contributed Conference Talks

(CT1) DPG Spring Meeting 2018

March 2018, Berlin, Germany

Contributed talk: *Theoretical description of photoemission spectroscopy of van der Waals structures*

(CT2) NanoPT2018 International conference

February 2018, Lisbon, Portugal

Contributed Talk: *General theoretical description of photoemission spectroscopy of van der Waals heterostructures*

(CT3) APS March Meeting 2017

March 2017, New Orleans, USA

Contributed talk: *Vertical transport in graphene/h-BN/graphene structures: multiple negative differential conductance regions and phonon assisted tunneling*

(CT4) NanoPT2016 International conference

February 2016, Braga, Portugal

Contributed talk: *Vertical current in graphene – insulator/semiconductor – graphene structures*

(CT5) 2016 One-day Physics Meeting of Center of Physics of University of Minho

20th November 2015, Braga, Portugal

Talk: *Vertical tunnelling current in graphene-semiconductor-graphene structures*

(CT6) Workshop on Correlations, criticality and coherence in quantum systems

October 2014, Évora, Portugal

Contributed talk: *Thermodynamics of quantum crystalline membranes*

(CT7) NanoCTM Meeting and Workshop on quantum technology

May 2013, North Uist, UK

Contributed talk: *The fate of flexural modes of graphene on a substrate*

Conference Posters

(P1) New Trends in 2D Materials International workshop

February 2016, Madrid, Spain

Poster: *Vertical tunnelling current in graphene-hBN-graphene structures*

(P2) CECAM Workshop on Graphene's strain engineering

July 2014, Zurich, Switzerland

Poster: *Thermodynamics of quantum crystalline membranes*

(P3) CECAM Workshop on Novel 2D materials: Tuning the electronic properties on the atomic scale

June 2013, Bremen, Germany

Poster: *The fate of flexural modes of graphene coupled to a substrate*

(P4) The 6th Windsor Summer School

August 2012, Windsor, UK

Poster: *Coulomb drag in graphene – boron nitride heterostructures: effect of virtual phonon exchange*

Fellowships and Awards

October 2016 – September 2018 2 year Marie Skłodowska-Curie Individual Fellowship, Research Executive Agency, European Commission

January 2011 – December 2015 4 year PhD grant, Portuguese Foundation for Science and Technology

August 2010 – May 2011 10 month Master's grant, Perimeter Scholars International, Canada

October 2010 “Professor Moreira de Araújo” prize for exceptional performance in the conclusion of the First Degree in Physics in the year of 2008/2009, Faculty of Sciences of the University of Porto, Portugal

May 2010	Merit scholarship for exceptional performance in the academic year of 2008/2009, University of Porto, Portugal
October 2008 – September 2009	12 month grant, Research Introduction Grant (BII), Portuguese Foundation for Science and Technology Project: Motion of non-relativistic classical ropes in a gravitational field Supervisor: J. Lopes dos Santos, CFP, Porto, Portugal

Participation in funded projects

- “Vertical Transport and Photoresponse in van der Waals hybrid structures”, Reference: European Union’s Horizon 2020, No. 706538
- “Graphene-Driven Revolutions in ICT and Beyond”; Reference: European Commission, No. 696656
- “Models for graphene”, PI: Francisco Guinea; Reference: Spanish Ministry of Education, FIS2011-23713.

Other academic activity

MSc and PhD examination committees

- External Opponent; MSc thesis “Non-Linear Optical response with the Kernel Polynomial Method” by Simão Meneses, Faculty of Sciences of the University of Porto, Portugal, September 2017

Journal Referee

- Referee for the journals: *Physical Review B* (APS), *Journal of Physics: Condensed Matter* (IOP Publishing), *2D Materials* (IOP Publishing), *Physical Review Applied* (APS), *European Physical Journal B* (EPJ), *Physics Letters A* (Elsevier), *Superlattices and Microstructures* (Elsevier), *Journal of Applied Physics* (AIP Publishing), *Condensed Matter* (MDPI)
- Publons profile: <https://publons.com/a/1387059>

Workshop and Conference organization

- Member of the organization committee of the One-day Physics Meeting, under the theme "Developing Science and Shaping Technology: Young Researchers at CFUM", November 20th, 2015, at the Center of Physics of the University of Minho (Braga, Portugal)
- Co-organizer of Mini-Workshop on Theoretical Condensed Matter Physics, February 17th 2017, CeFEMA (Lisbon, Portugal)

Outreach

- Participation in the 7th, 8th, 9th and 10th editions (years 2011 to 2014) of the [Physics Summer School](#) in the Faculty of Sciences of the University of Porto. Lectured a 4 hours course on the topic of “Quantum Mechanics and Technology” aimed at high school students.

Languages

- Portuguese: Native speaker
- English: Proficient (Cambridge Certificate of Proficiency in English, Level C2 Council of Europe, 2006)
- Spanish: Fluent, Spoken and Written

Computer Skills

- Programming languages: Julia, Python, C and Fortran
- Computer algebra systems: Mathematica and Maple
- Diagrammatic programming: LabView

References

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