

Curriculum Vitæ of **Dario Bercioux**

—WORK—

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Research-Id: [A-1767-2009](https://orcid.org/A-1767-2009)
Ikerbasque webpage: www.ikerbasque.net/dario-bercioux
Date of birth: 14.03.1978
Citizenship: Italian
Status: Married with two children
Languages: Italian native, English fluent, German fluent, Spanish fluent.
Passport YA5582847
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MAIN SCIENTIFIC INTERESTS

Spintronics, Graphene & Carbon Nanotubes, Topological Matter, Pseudo-Spin-One Systems, Excitonic Insulators, Mesoscopic superconductivity, Quantum simulators based on electron and photon

SHORT RÉSUMÉ

- **Ikerbasque Research Associate** (Tenured Position)
- Member of the International Advisory Board of PIAS (Hanoi — Vietnam)
- Member of the Editorial Board of *Communication Physics*
- 46 Publications in international journals and refereed volumes including
 - 10 Letters (including PRL, APL, EPL, PRB-R, PRR-R)
 - 1 Invited Review Article in Report on Progress in Physics
 - 2 Invited *News & Views* in Nature Physics
 - 1 Nature Materials
- Editor of a proceeding book for Springer
- 946 citations in total, average citations per article 22.00¹, *h*-index of 18¹
- Tutor or co-tutor for 5 PhD Thesis and 10 Master/Diploma/Bachelor Thesis
- Grants from DFG, IGA (Germany), CRC (China), Mineco, Basque Government, MICINN (Spain) for a total amount of > **650.000 Euro** since 2010
- Main- or co-organiser of 4 international workshops & 16 international schools of physics
- 54 invited talks: 20 at conferences, 33 at universities and other scientific institutions, 2 lecture set in an international school of physics
- Referees for numerous international journals, including Science, Nature, Nature Physics and Physical Review Letters.
- Guest editor for a special issue of "[New Journal of Physics](#)"

¹Source: Web of Science (November 2019)

RESEARCH POSITIONS

- Since **10.2019** **Ikerbasque Research Associate** at the Donostia International Physics Center (Spain) — *Tenured Position*
- 10.2014 - 09.2019** **Ikerbasque Research Fellow** at the Donostia International Physics Center (Spain) in the group of Dr. Sebastian Bergeret — *Tenure Track Position*
- 07.2013 - 06.2014** **Postdoctoral Research Position** at the Dahlem Center for Complex Quantum Systems (Germany) in the group of Prof. Dr. Piet Brouwer
- 09.2010 - 07.2013** **Senior Postdoctoral Research Position** at the Freiburg Institute for Advanced Studies, School of Soft Matter Research (Germany) in the group of Prof. Dr. Hermann Grabert
- 09.2008 - 08.2010** **Postdoctoral Research Position** at the Freiburg Institute for Advanced Studies, School of Soft Matter Research (Germany) in the group of Prof. Dr. Michael Thorwart
- 01.2007 - 08.2008** **Postdoctoral Research Position** at the Physikalisches Institut of the University of Freiburg (Germany) in the group of Prof. Dr. Hermann Grabert
- 11.2004 - 12.2006** **Postdoctoral Research Position** at the Institut für Theoretische Physik of the University of Regensburg (Germany) in the group of Prof. Dr. Klaus Richter

EDUCATION

- 04.2017** **Abilitazione Scientifica Nazionale (ASN) as associate professor**
Italian Ministry of Education
- 05.2012** **Privatdozent (equiv. associate professor)**
Physics Institute of the University of Freiburg
- 01.2005** **Dottorato (equiv. Ph.D.)** in Physics at the “Federico II” University of Naples (Italy).
Supervisors: Profs. V. Cataudella and V. M. Ramaglia
Title of the thesis: “Spin dependent transport in nanostructures”
- 10.2001** **Laurea (equiv. M.Sc. resp. Scientiæ Magister)** in Physics at the “Federico II” University of Naples (Italy) with degrees 110/110 Summa cum Laude. Supervisor: Prof. Vittorio Cataudella
Title of the thesis: “Studio della formazione di bipolaroni su un reticolo bidimensionale” [Study of the formation of bipolarons in a two-dimensional lattice]
- 07.1996** **Maturità Tecnica (equiv. High Schol Certificate)** at the ITIS “A.Righi” in Naples with final mark 60/60

FURTHER RESEARCH ACTIVITIES

- Since **09.2019** Member of the Editorial Board of *Communication Physics* (Springer-Nature)
- 10.2016** Guest member of the Centre de Physique Théorique of the Université d’Aix-Marseille in the group of Thierry Martin
- 04.2016** Member of the Theoretical Chemistry and Physics at the Quantum Scale “[QuantumChemPhys](#)”, a Transborder Joint Laboratory (LTC - Laboratoire Transfrontelien Conjoint) between DIPC and University of Bordeaux
- 10.2012** Guest member of the “Geballe Laboratory for Advanced Materials - Stanford University” in the group of Prof. Hari Manoharan
- 2007 - 2008** Frequent guest in the “Quantum Transport and Information” Group by Prof. Rosario Fazio, Scuola Normale Superiore, Pisa (Italy)
- 10.2003 - 03.2004** Guest member in the “Quantum Transport and Information” Group by Prof. Rosario Fazio, Scuola Normale Superiore, Pisa (Italy)

FUNDED GRANTS (>650.000 EURO SINCE 2010)

2018 - 2020	Ministerio de Ciencia, Innovación y Universidades, “Electronic transport in hybrid structures, low-dimensional materials, superconductors, magnets semiconductors and normal metals”, co-PI together with Sebastian Bergeret, Project: FIS2017-82804-P . Support for travel costs and consumables for a grand total of 60.500 Euro .
2016 - 2019	Departamento de educación, política lingüística, y cultura de Gobierno Vasco, “Spin-Orbit Photonics and Quantum Applications (SOPhoQua)” Project: PI2016-41 together with Aitzol García-Etxarri, Geza Giedke, Juan José Sáenz. Ph.D. Position for 3 years and 10.500 Euro in travel costs and consumable.
2016-2019	Euskampus PhD position from DIPC/University of Bordeaux. PhD grant for 3 years extendable to 4.
2016-2019	Euskampus PhD position from DIPC. PhD grant for 3 years extendable to 4.
2014 - 2018	Ministerio de Economía y Competividad, “Spin transport in hybrid structures: Metals, Superconductors, Graphene and Topological Insulators”, Project FIS2014-55987-P Ph.D. Position for 3 years and 72.600 Euro in travel costs and consumables
2014 - 2019	Ikerbasque Research Fellows Awarded 2014, Tenure Track position by the Ikerbasque Foundations: 180.500 Euro .
2011	International Graduate Academy (IGA) and Hermann Paul School of Language Sciences (HPSL) financial support for the organization of international workshop on “Topological States of Matter”. Support: 10.000 Euro .
2011 - 2015	CSC (China Scholarship Council) Research Grant File No. 201164010 , “Study of Structural Defects in Carbon-Based Nanostructures”. Support: Ph.D. position for 4 years .
2010 - 2013	DFG Research Grant BE 4564/1-1 , “Spin-Effects in Carbon Nanotubes: Investigation of Two- and Three-Terminal Setups”. Support: 3/4 E 13 (circa 55.000 Euro/annually) position for 3 years and 36.000 Euro in consumables.

AWARDS

2016	Research fellowship of the University of Aix-Marseille via excellence initiative
2014 - 2019	Ikerbasque Research Fellow, Ikerbasque foundation of science
1997 - 2001	University of Naples, Italy — EDISU NAPOLI 1 — Student scholarship

RESEARCH-RELATED ACTIVITIES

Referee for:

•Physical Review Letters	•Nano Letters	•Journal of Physics: Condensed Matter
•Physical Review A	•EPL	•Journal of Physics A: Mathematical and Theoretical
•Physical Review B	•Physica B	•European Physical Journal B
•Physical Review E	•Physica E	•Superlattices and Microstructures
•Physical Review X	•Physica Scripta	•Advances in condensed matter physics
•New Journal of Physics	•Nature Physics	•Nanotechnology
•Science	•Science Advances	•Nature
•Computer Physics Communications		

- Reviewer for the “Nederlandse Organisatie voor Wetenschappelijk Onderzoek” (NWO), (2017-).
- Reviewer for the “Spanish National Research Agency”, (2018-).
- Member of the “ESF College of Expert Reviewers” panel (2016-2019).

- Member of the referee panel of the National Research Council of Romania (2012-2013).
- Member of the referee panel of the EMPAPOSTDOCS, EMPA, Switzerland (2013).
- Member of the referee panel of the European Science Foundation (2009-2010).
- Member of Deutsche Physikalische Gesellschaft.
- Member of the International Advisory Board of the "[Phenikaa Institute for Advanced Study](#)" (PIAS) in Hanoi (Vietnam).
- Guest Editor for the Special Issue of New Journal of Physics on "[Nonequilibrium Fluctuation Relations: From Classical to Quantum](#)" (2013) in collaboration with R. Egger, P. Hänggi and M. Torwart.

CONFERENCE ORGANISATION

2020 Organizer of "[International Conference on Superlattices, Nanostructures and Nanodevices 2020](#)", #ICSNN2020 (Quy Nhon, Vietnam) **Chair**

2020 Organizer of the "[16th Capri Spring School on transport in nanostructures with special focus on Moiré and van der Waals heterostructures](#)" #CSS19 (Anacapri Italy)

2019 Organizer of the International Workshop on "[Designing artificial quantum matter](#)", #DAQM (Donostia-San Sebastián Spain)

2019 Organizer of the "[15th Capri Spring School on transport in nanostructures with special focus on New directions in topological condensed matter physics](#)" #CSS19 (Anacapri Italy)

2018 Organizer of the "[Topological Matter School: Basic to Advanced](#)" #TMS18 (Donostia-San Sebastián Spain)

2018 Organizer of the "[14th Capri Spring School on transport in nanostructures with special focus on New directions in superconducting quantum devices](#)" #CSS18 (Anacapri Italy)

2017 Organizer of the "[Topological Matter School: Basic to Advanced](#)" #TMS17 (Donostia-San Sebastián Spain)

2017 Organizer of the "[13th Capri Spring School on transport in nanostructures with special focus on Solid-state quantum information processing](#)" #CSS17 (Anacapri Italy)

2016 Organizer of the "[Topological Matter School](#)" #TMS16 (Donostia-San Sebastián Spain)

2016 Organizer of the "[12th Capri Spring School on transport in nanostructures with special focus on Driven quantum nanosystems](#)" (Anacapri Italy)

2015 Organizer of the "[11th Capri Spring School on transport in nanostructures with special focus on topological superconductivity](#)" (Anacapri Italy)

2013 Organizer of the "[9th Capri Spring School on transport in nanostructures with special focus on spin transport in low-dimensional systems](#)" (Anacapri Italy)

2012 Organizer of the International Capri Fall Workshop on "[Non-equilibrium processes and fluctuation-dissipation theorems](#)" (Anacapri Italy)

2012 Organizer of the International Workshop on "[Topological States of Matter](#)", (Freiburg Germany)

2012 Organizer of the "[8th Capri spring school on transport in nanostructures with special focus on superconducting hybrid nanostructures](#)" (Anacapri Italy)

2011 Organizer of the "[7th Capri spring school on transport in nanostructures with special focus on topological insulators](#)" (Anacapri Italy)

2010 Organizer of the "[6th Capri spring school on transport in nanostructures with special focus on quantum entanglement in nanostructures](#)" (Anacapri Italy)

- 2009 Co-organizer of the [“5th Capri spring school on transport in nanostructures with special focus on non-equilibrium phenomena”](#) (Anacapri Italy)
- 2008 Co-organizer of the [“4th Capri spring school on transport in nanostructures with special focus on graphene and electronic correlations in 1D and 2D materials”](#) (Anacapri Italy)
- 2007 Co-organizer of the [“3rd Capri spring school on transport in nanostructures with special focus on quantum features of nano-devices”](#) (Anacapri Italy)

TEACHING ACTIVITY

- Fall term 2013:** Tutor in the exercise group for [“Advanced quantum mechanics”](#) at the Freie Universität Berlin (Germany).
- Fall term 2011:** Lecture with exercise (6 hours weekly) [“Introduction to Nanoelectronics”](#) at the University of Freiburg (Germany).
- Summer term 2011:** Student seminar “Dirac Fermions in Nanostructures and Topological Quantum Computation” at the University of Freiburg (Germany).
- Fall term 2010:** Lecture with exercise (5 hours weekly) [“Nanoelectronics: theoretical concepts and computational methods”](#) at the University of Freiburg (Germany).
- Summer term 2010:** Student seminar [“Quantendynamik in mesoskopischen Systemen: Auf dem Weg zur Nanoelektronik”](#) at the University of Freiburg (Germany).
- Fall term 2008:** Main tutor in the exercise group for “Theoretical Physics II - Electrodynamics” at the University of Freiburg (Germany).
- Summer term 2008:** Tutor in the exercise group for “Einführung in die Theorie der Nanostrukturen” at the University of Freiburg (Germany).
- Fall term 2007:** Tutor in the exercise group for “Theoretical Physics I - Introduction to Mechanics” at the University of Freiburg (Germany).
- Fall term 2006:** Tutor in the exercise group for “Theoretical Physics IV - Quantum Mechanics II” at the University of Regensburg (Germany).
- Summer term 2006:** Tutor in the exercise group for “Theoretical Physics III - Quantum Mechanics” at the University of Regensburg (Germany).
- Fall term 2005:** Tutor in the exercise group for “Theoretical Physics IV - Waves and Quanta” at the University of Regensburg (Germany).
- Summer term 2005:** Tutor in the exercise group for “Theoretical Physics I - Mechanics” at the University of Regensburg (Germany).
- Fall term 2004:** Tutor in the exercise group for “Theoretical Physics II - Electrodynamics” at the University of Regensburg (Germany).
- Fall term 2003:** Main tutor in the exercise group for “Electrodynamics” at the University of Naples (Italy).
- Fall term 2002:** Main tutor in the exercise group for “Electrodynamics” at the University of Naples (Italy).

CO-TUTOR FOR GRADUATE & UNDERGRADUATE STUDENTS

Co-Tutor for undergraduate thesis

- Dipl. Phys. Andreas Pfund (Diploma 2005), University of Regensburg
- Dipl. Phys. Matthias Scheid (Diploma 2006), University of Regensburg
- Dipl. Phys. Manuel Strehl (Diploma 2007), University of Regensburg
- Dipl. Phys. Michael Schulze (Diploma 2012), University of Freiburg
- Dipl. Phys. Linnéa Schätzle, (Diploma 2013), University of Freiburg
- M. Sc. Andreas Inhofer, (Master 2013), University of Freiburg

- M. Sc. Ehud Amitai (Master 2014), Freie Universität Berlin
- M. Sc. Miguel Ángel Jiménez Herrera (Master 2018), University of Basque Country
- Alberto Hijano (Bachelor 2019), University of Basque Country
- Albert Pool (Master 2019), co-tutoring with Cristiane De Morais Smith (Utrecht University)

Co-tutor for graduate thesis

- Dr. Sergey Smirnov (graduate 2009), University of Regensburg
- Dr. Matthias Scheid (graduate 2010), University of Regensburg
- Dr. Lucia Lenz (graduate 2013), University of Freiburg
- M.Sc. Bogusz Bujnowski (running graduate thesis), University of Basque Country & University of Bordeaux
- M.Sc. Maria Blanco de Paz (running graduate thesis), University of Basque Country

LIST OF INVITED TALKS AT UNIVERSITIES, RESEARCH CENTRES & CONFERENCES

Date

07.2019	"The 25th Vietnam School of Physics (VSOP25): Quy Nhon, 2019 : Nanophysics ", ICISE – Quy Nhon (Vietnam) — invited lecturer. "Introduction to SPT phases of matter"
06.2019	"International conference on thermoelectric materials", Donostia-San Sebastián (Spain). "Quasiparticle cooling using a Topological insulator-Superconductor hybrid junction"
01.2019	Instituto de Ciencia de Materiales del CSIC, Madrid (Spain). "Transport properties of excitonic insulator/superconductor hybrid junction"
12.2018	University of Utrecht, Faculty of Science (The Netherland). "Solitons in a quasi-one dimensional chain with a flat band".
11.2018	University of Napoli, Physics Department (Italy). "Transport properties of excitonic insulator/superconductor hybrid junction"
09.2018	EMPA, Zurich (Switzerland). "Solitons in a quasi-one dimensional chain with Flat band".
09.2018	"Excitonic insulator: New perspectives in long-range interacting systems", CECAM—Lausanne (Switzerland). "Transport properties of excitonic insulator/superconductor hybrid junction"
01.2018	"X edition of GEFES meeting", Valencia (Spain). "Transport properties of electron-hole bilayer/superconductor hybrid junction"
12.2017	"XIIIth Rencontres du Vietnam Vietnam school of Physics 2017: Nanophysics ", ICISE – Quy Nhon (Vietnam) — invited lecturer. "Introduction to the physics of graphene and other 2D materials"
08.2017	"Nanophysics, from fundamental to applications: reloaded", Quy Nhon (Vietnam). "Transport properties of an excitonic condensate-superconductor hybrid junction".
04.2017	University of Napoli, Physics Department (Italy). "Solitons in a quasi-one dimensional chain with a flat band".
03.2017	University of Basque Country, Physics Department (Spain). "Solitons in a quasi-one dimensional chain with spin one".
03.2017	Imperial College London (United Kingdom) — invited talk for a Lecturer position. "Integer pseudo-spin lattices".
02.2017	City, University of London (United Kingdom). "Solitons in a quasi-one dimensional chain with spin one".

03.2016	"NanoSpain 2016", Logroño (Spain). "Mode splitting in zigzag carbon nanotubes".
08.2015	"Workshop MANA - DIPC. "Nanostructures and Complex Functional Materials", Donostia-San Sebastián (Spain). "Scattering Properties of Defected Carbon-Nanotubes"
07.2015	New Trends in Topological Insulators 2015, Donostia-San Sebastián (Spain). "Spin Particle Source (SpPS)"
05.2015	University of Würzburg (Germany). "Driven Topological Insulator Quantum Dot: quantized spin-source"
02.2015	University of Braunschweig (Germany). "Driven Topological Insulator Quantum Dot: quantized spin-source"
10.2014	Nanotechnology International Conference (TNT2014), Barcelona (Spain). "Pseudo-spin-dependent scattering in carbon nanotubes"
06.2014	Universität Hamburg (Germany). "Driven Topological Insulator Quantum Dot: quantised spin-source"
01.2014	Fraunhofer-IWM, Freiburg (Germany). "Spintronics: a personal overview"
01.2014	Donostia International Physics Center (DIPC). Donostia-San Sebastián (Spain). "Quantum transport in defected carbon-nanotubes"
09.2013	"European Material Research Society (eMRS2013) Fall Meeting", Warsaw University of Technology (Poland). "Spin-Resolved Transport Properties of Inhomogeneous Graphene Nanostructures"
04.2013	"Federico II" University of Naples (Italy). "Flat bands in quasi-one-dimensional and two-dimensional lattices"
03.2013	International workshop on "Flat Bands: Design, Topology and Correlations (Flat2013)", MPI -PKS Dresden (Germany). "Flat bands in quasi-one-dimensional and two-dimensional lattices"
02.2013	University of Freiburg (Germany) — inaugural lecture "Tight-Binding Models: An Inspiring Journey"
04.2012	"Graphene Conference 2012", Brussels (Belgium). "Spin-Resolved Transport Properties of Inhomogeneous Graphene Nanostructures"
03.2012	7th Annual IEEE International Conference on "Nano/Micro Engineered and Molecular Systems", Kyoto (Japan). "Quantum transport in defected carbon-nanotubes"
01.2012	University of Aachen (Germany). "Transport Properties of Dirac-Weyl Electron in Inhomogeneous Spin-Orbit Structure in Graphene"
10.2011	International workshop on "Carbon-based Spintronics", Dresden (Germany). "Pseudo-spin-dependent scattering in carbon nanotubes"
08.2011	University of Freiburg (Germany). "Quantum transport in defected carbon-nanotubes"
04.2011	University of Salerno (Italy). "Quantum transport in carbon-based materials"
10.2010	International workshop on "Quantum coherence and correlations in condensed-matter and cold-atom systems", Evorà (Portugal). "Topology-induced phase transitions in quantum spin-Hall lattices"

10.2010	International workshop on “Emerging Trends in Advanced Correlated Materials”, Capri (Italy). “Topology-induced phase transitions in quantum spin-Hall lattices”
05.2010	University of Basel (Switzerland). “Electron tunneling into a quantum wire in the Fabry-Pérot regime”
02.2010	University of Freiburg (Germany). “Massless electrons in a T_3 lattice”
01.2010	University of Augsburg (Germany). “Spin dependent phenomena in graphene”
12.2009	University of Heidelberg (Germany). “Spin dependent phenomena in graphene”
12.2009	ICFO Barcelona (Spain). “Massless electrons in a T_3 lattice”
09.2009	“Federico II” University of Naples (Italy). “Electron scattering in intra-tube quantum-dots”
06.2009	Max-Planck Institute for Solid State Physics, Stuttgart (Germany). “Electron scattering in intra-tube quantum-dots”
05.2009	University of Regensburg (Germany). “Electron tunneling into a quantum wire in the Fabry-Pérot regime”
04.2009	University of Düsseldorf (Germany). “Massless electrons in a T_3 lattice”
04.2009	“5th Capri Spring School on Transport in Nanostructures with special focus on non-equilibrium phenomena”, Anacapri (Italy). “Electron tunneling into a quantum wire in the Fabry-Pérot regime”
08.2007	EMPA, Thun (Switzerland). “Electron tunneling into a quantum wire in the Fabry-Pérot regime”
04.2007	“Federico II” University of Naples (Italy). “Spin current in mesoscopic conductors”
09.2006	Workshop of “Graduiertenkolleg 638 - Research School Nonlinearity and Non-equilibrium in Condensed Matter”, Windberg (Germany). “Spin current in mesoscopic conductors”
07.2006	University of Freiburg (Germany). “Spin-quantum rectifier”
04.2006	“Federico II” University of Naples (Italy). “Spin-quantum rectifier”
03.2006	“2nd Capri Spring School on Transport in Nanostructures with special focus on quantum noise”, Anacapri (Italy). “Spin-quantum rectifier”
06.2004	Scuola Normale Superiore di Pisa (Italy). “Rashba effect in quantum networks”
09.2004	Conference on “New Concepts and Materials for Molecular Electronics and Nanotechnology”, Poznan (Poland). “Rashba effect in quantum networks”
06.2004	University of Regensburg (Germany). “Rashba effect in quantum networks”
04.2004	INFM School, April 2004, Fai della Paganella (Italy). “Rashba effect in quantum networks”

CONFERENCES & WORKSHOPS

Date	
06.2019	"International conference on thermoelectric materials", Donostia-San Sebastián (Spain).
09.2018	"Excitonic insulator: New perspectives in long-range interacting systems", Lausanne (Swiss).
08.2018	"Topological Matter School", Donostia-San Sebastián (Spain)
08.2018	International Workshop on Frontier Materials and Technology, the 1st International Advisory Committee meetings (Hanoi Vietnam)
07.2018	"International Conference on Superlattices, Nanostructures and Nanodevices", Madrid (Spain)
07.2018	"Quantum Designer Physics (QDP2018)", Donostia-San Sebastián (Spain)
03.2018	Spring Meeting of the "Condensed Matter Division of the DPG", Berlin (Germany)
01.2018	"X edition of GEFES meeting", Valencia (Spain).
12.2017	"XIIIth Rencontres du Vietnam Vietnam school of Physics 2017: Nanophysics ", ICISE – Quy Nhon (Vietnam).
08.2017	"Topological Matter School", Donostia-San Sebastián (Spain)
08.2017	"Nanophysics, from fundamental to applications: reloaded", Quy Nhon (Vietnam)
04.2017	"13th Capri Spring School on transport in nanostructures with special focus on driven quantum systems", Anacapri (Italy)
03.2017	Spring Meeting of the "Condensed Matter Division of the DPG", Dresden (Germany)
09.2016	"Topological States of Matter", Donostia-San Sebastián (Spain)
08.2016	"Topological Matter School", Donostia-San Sebastián (Spain)
07.2016	"Interfacial Spintronics and spin waves", Donostia-San Sebastián (Spain)
07.2016	"Nanotechnology meets quantum information", Donostia-San Sebastián (Spain)
04.2016	"12th Capri Spring School on transport in nanostructures with special focus on driven quantum systems", Anacapri (Italy)
03.2016	"NanoSpain 2016", Logroño (Spain)
03.2016	Spring Meeting of the "Condensed Matter Division of the DPG", Regensburg (Germany)
08.2015	"Workshop MANA - DIPC. "Nanostructures and Complex Functional Materials", Donostia-San Sebastián (Spain)
07.2015	"FRIAS Workshop Quantum Dissipation", Freiburg (Germany)
07.2015	"Interaction effects in graphene and related materials", Donostia-San Sebastián (Spain)
07.2015	"New Trends in Topological Insulators 2015", Donostia-San Sebastián (Spain)

04.2015	"11th Capri Spring School on transport in nanostructures with special focus on topological superconductivity", Anacapri, 12-19 April 2015 (Italy)
10.2014	"Topological and Dirac matter: from modeling to imaging", Bordeaux, 12-14 November 2014 (France)
10.2014	"Nanotechnology International Conference" (TNT2014), 27-31 October 2014, Barcelona (Spain)
05.2014	"New frontiers for Majorana fermions from condensed to dark matter", 5-6 May 2014, INFN Frascati National Laboratories (Italy)
09.2013	"European Material Research Society (eMRS2013) Fall Meeting", Warsaw University of Technology (Poland)
04.2013	"9th Capri Spring School on Transport in Nanostructures 2013", Capri (Italy)
03.2013	Spring Meeting of the "Condensed Matter Division of the DPG", Regensburg (Germany)
03.2013	International focus workshop on "Flat Bands: Design, Topology, and Correlations", MPI-PKS, Dresden (Germany)
09.2012	International Workshop on "Non-equilibrium processes and fluctuation-dissipation theorems", Capri (Italy)
04.2012	"8th Capri Spring School on Transport in Nanostructures 2012", Capri (Italy)
04.2012	"Graphene Conference 2012", Brussels (Belgium)
03.2012	Workshop on "Topological states of Matter", Freiburg (Germany)
03.2012	"7th Annual IEEE International Conference on Nano/Micro Engineered and Molecular Systems", Kyoto (Japan)
10.2011	The Lavoisier Discussions workshops "Graphene-based hybrid structures", Mulhouse (France)
10.2011	International Workshop on "Carbon-based Spintronics", MPI-PKS, Dresden (Germany)
09.2011	International Workshop on "Quantum Spintronics II ", Porto Ottiolu, Sardinia (Italy)
08.2011	International Workshop on "Quantum phenomena in graphene, other low-dimensional materials, and optical lattices", Erice (Italy)
04.2011	"7th Capri Spring School on Transport in Nanostructures 2011", Capri (Italy)
10.2010	FRIAS-ICAM Exploratory Workshop on "Nontrivial Quantum Effects in Biomolecular Systems", Capri (Italy)
10.2010	Workshop on "Quantum coherence and correlations in condensed-matter and cold-atom systems", Évora (Portugal)
10.2010	Workshop on "Emerging Trends in Advanced Correlated Materials", Capri (Italy)
08.2010	6th International Conference on the "Physics and Applications of Spin Related Phenomena in Semiconductors", Tokyo (Japan)
05.2010	3rd Black Forest Focus on Soft Matter on "Frontiers in Dynamics - from Random to Quantum Walks", Breisach (Germany)
04.2010	"6th Capri Spring School on Transport in Nanostructures 2010", Capri (Italy)

03.2010	Spring Meeting of the "Condensed Matter Division of the DPG", Regensburg (Germany)
03.2010	Spring Meeting of the "Atomic Physics Division of the DPG", Hannover (Germany)
01.2010	International Conference on "Molecular Electronics", Emmeten (Swiss)
08.2009	2nd Black Forest Focus on Soft Matter on "Quantum efficiency", Titisee (Germany)
04.2009	"5th Capri Spring School on Transport in Nanostructures 2009", Capri (Italy)
03.2009	Spring Meeting of the "Condensed Matter Division of the DPG", Dresden (Germany)
11.2008	Workshop on "Correlations and coherence in quantum matter", Évora (Portugal)
06.2008	1st FoNE Conference, Taormina (Italy)
04.2008	"4th Capri Spring School on Transport in Nanostructures 2008", Capri (Italy)
12.2007	Workshop on "Quantum transport, magnetic nano-devices, and spintronics", Napoli (Italy)
05.2007	International Conference on "Nanospintronics Design and Realization ICNDR 2007", Dresden (Germany)
04.2007	"3rd Capri Spring School on Transport in Nanostructures 2007", Capri (Italy)
09.2006	Graduiertenkolleg meeting "Research School Nonlinearity and Nonequilibrium in Condensed Matter", Windberg (Germany)
08.2006	Workshop on "Dynamics and Relaxation in Complex Quantum and Classical Systems and Nanostructures", Dresden (Germany)
04.2006	"2nd Capri Spring School on Transport in Nanostructures 2006", Capri (Italy)
03.2006	Spring Meeting of the "Condensed Matter Division of the DPG", Dresden (Germany)
09.2005	Workshop on "Spin-Dependent Transport through Nanostructures – Spintronics '05", Poznan (Poland)
04.2005	Spring Meeting of the "Condensed Matter Division of the DPG", Berlin (Germany)
10.2004	Workshop on "Spintronics: Spin Injection, Transport, and Manipulation", Bochum (Germany)
09.2004	Conference on "New Concepts and Materials for Molecular Electronics and Nanotechnology (CMME '04)", Puszczykowo, Poznan (Poland)
07.2004	Workshop on "Controlling decoherence", Bad Honnef (Germany)
05.2004	XXIII Convegno di "Fisica Teorica e Struttura della Materia", Fai della Paganella (Italy)
03.2004	Spring Meeting of the "Condensed Matter Division of the DPG", Regensburg (Germany)
12.2003	Workshop on "Solid State Quantum Information Processing", Amsterdam (The Netherlands)
09.2003	Meeting of "Società Italiana di Fisica LXXXIX", Parma (Italy)
09.2003	Workshop on "Spin and Charge Transport in Nanostructures", Braga (Portugal)

06.2003 INFMeeting – National Conference on Condensed Matter Physics, Genova (Italy)

07.2002 International Summer School of Physics “Enrico Fermi”: Course CLI “Quantum Phenomena in Mesoscopic Systems”, Varenna (Italy)

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PUBLICATION LIST IN PEER REVIEWED JOURNALS

REFEREED FULL PAPERS:

All papers can be downloaded by using the link on the reference. Letter papers are shown in blue boxes, review papers in yellow boxes. Number of citations [source Web of Science (November 2019)]:

- [47] M. Blanco de Paz, C. Devescovi, G. Giedke, J. J. Saenz, M. G. Vergniory, B. Bradlyn, **D. Bercioux**, & A. García-Etxarri
Tutorial: Computing topological invariants in two-dimensional photonic crystals
Submitted for publication to *Advanced Quantum Technologies*
Times Cited: 0
- [46] **D. Bercioux** & A. De Martino
Spin-orbit interaction and snake states in graphene p - n junction
[\[arXiv:1907.01233\]](#), *Physical Review B* **100**, 115407 (2019).
Times Cited: 0
- [45] S. N. Kempkes, M. R. Slot, J. J. van den Broeke, P. Capiod, W. A. Benalcazar, D. Vanmaekelbergh, **D. Bercioux**, I. Swart, & C. Morais Smith
Robust zero-energy modes in an electronic higher-order topological insulator
[\[arXiv:1905.06053\]](#), *Nature Materials* (2019).
Times Cited: 0
- [44] M. Blanco de Paz, M. G. Vergniory, **D. Bercioux**, A. García-Etxarri & B. Bradlyn
Engineering Fragile Topology in Photonic Crystals: Topological Quantum Chemistry of Light
[\[arXiv:1903.02562\]](#), *Phys. Rev. Research* **1**, 032005(R)(2019).
Times Cited: 0
- [43] H. Nam Do, H. Anh Le, & **D. Bercioux**
Time-evolution patterns of electrons in twisted bilayer graphene
[\[arXiv:1901.02794\]](#), *Physical Review B* **99**, 165127 (2019).
Times Cited: 1
- [42] **D. Bercioux** & A. Iñiguez
“Nanoscience — Quantum fractals”
[News & View, Nature Physics 15, 111 \(2019\)](#).
News & Views article featuring papers by Kempkes *et al.*, [Nature Physics 15, 127 \(2019\)](#).
Times Cited: 0
- [41] **D. Bercioux**, B. Bujnowski & S. Bergeret
“Quantum Transport Properties of an Exciton Insulator/Superconductor Hybrid Junction”
[\[arXiv:1806.03991\]](#), *Advanced Quantum Technologies* **2**, 1800049 (2019).
Times Cited: 0
[This article was featured in online blog Advanced Science News \(2019\)](#)
- [40] **D. Bercioux** & P. Lucignano
“Quasiparticle cooling using a Topological insulator-Superconductor hybrid junction”
[\[arXiv:1804.07170\]](#), *European Journal of Physics Special Topics* **227**, 1323 (2018)
Times Cited: 0
- [39] G. Buchs, **D. Bercioux**, L. Mayrhofer, & O. Gröning
“Confined electron and hole states in semiconducting carbon nanotube sub-10 nm artificial quantum dots”
[\[arXiv:1709.07671\]](#), *Carbon* **132**, 304 (2018).
Times Cited: 1
[This article was featured in online blog Nanowerk \(2018\)](#)
- [38] **D. Bercioux**, O. Dutta, & E. Rico
“Solitons in one-dimensional lattices with a flat band”
[\[arXiv:1609.06292\]](#), *Annalen der Physik* **529**, 1600262 (2017).
Times Cited: 3
- [37] **D. Bercioux**, F. S. Bergeret, & T.M. Klapwijk
“Transport properties of an electron-hole bilayer/superconductor hybrid junction”
[\[arXiv:1703.10510\]](#), *Physical Review Letters* **119**, 067001 (2017).
Times Cited: 0
[This article was featured in online blog MappingIgnorance \(2017\)](#)

- [36] **D. Bercioux** & Sander Otte,
 “Quantum Simulation — Solid-state platforms”
[News & View, Nature Physics 13, 628 \(2017\)](#)
 Times Cited: 2
- [35] B. Bujnowski, **D. Bercioux**, F. Konschelle, J. Cayssol & F. S. Bergeret
 “Andreev spectrum of a Josephson junction with spin-split superconductors”
[\[arXiv:1607.07772\]](#), [EPL 115 67001 \(2016\)](#).
 Times Cited: 3
- [34] **D. Bercioux** & P. Lucignano
 “Quantum transport in Rashba spin-orbit materials: A review”
[\[arXiv:1502.00570\]](#), [Report on Progress in Physics 78, 106001 \(2015\)](#).
 Times Cited: 71
- [33] **D. Bercioux**, R. Egger, P. Hänggi & M. Thorwart
 Focus on nonequilibrium fluctuation relations: from classical to quantum
[New Journal of Physics 17, 020201 \(2015\)](#).
 Editorial introduction to a special issue of [New Journal of Physics](#).
 Times Cited: 2
- [32] L. Lenz, D.F. Urban, & **D. Bercioux**
 “Rashba spin-orbit interaction in graphene armchair nanoribbons”
[\[arXiv:1210.2865\]](#), [The European Journal of Physics B, 86 502 \(2013\)](#).
 Times Cited: 12
- [31] A. Inhofer & **D. Bercioux**
 “Proposal for an on-demand source of polarized electrons into the edges of a topological insulator”
[\[arXiv:1307.1198\]](#), [Physical Review B 88, 235412 \(2013\)](#).
 Times Cited: 35
- [30] M. Schulze, **D. Bercioux**, & D. F. Urban
 “Adiabatic pumping in the quasi-one-dimensional triangle lattice”
[\[arXiv:1208.6113\]](#), [Physical Review B 87, 024301 \(2013\)](#).
 Times Cited: 2
- [29] **D. Bercioux**, D. F. Urban, F. Romeo, & R. Citro
 “Rashba spin-orbit-interaction-based quantum pump in graphene”
[\[arXiv:1204.5008\]](#), [Applied Physics Letters 101, 122405 \(2012\)](#).
 Times Cited: 22
- [28] L. Lenz & **D. Bercioux**
 “Dirac-Weyl electrons in a periodic spin-orbit potential”
[\[arXiv:1106.4242\]](#), [EPL 96, 27006 \(2011\)](#).
 Times Cited: 10
- [27] D. F. Urban, **D. Bercioux**, M. Wimmer, W. Häusler
 “Barrier transmission of Dirac-like pseudospin-one particles”
[\[arXiv:1106.2170\]](#), [Physical Review B 84, 115136 \(2011\)](#).
 Times Cited: 54
 This article was featured by Physical Review B (September 2011) in the section [Kaleidoscope](#)
- [26] L. Mayrhofer & **D. Bercioux**
 “Pseudo-spin-dependent scattering in carbon nanotubes”
[\[arXiv:1009.4839\]](#), [Physical Review B 84, 115126 \(2011\)](#).
 Times Cited: 3
- [25] N. Goldman, D. F. Urban, & **D. Bercioux**
 “Topological Phases for Fermionic Cold Atoms on the Lieb Lattice”
[\[arXiv:1101.4500\]](#), [Physical Review A 83, 063601 \(2011\)](#).
 Times Cited: 109
- [24] **D. Bercioux**, G. Buchs, H. Grabert, & O. Gröning
 “Defect-Induced Multicomponent Electron Scattering in Single-Walled Carbon Nanotubes”
[\[arXiv:1011.1423\]](#), [Physical Review B 83, 165439 \(2011\)](#).
 Times Cited: 15

- [23] **D. Bercioux**, N. Goldman, & D. F. Urban
 “Topology-induced phase transitions in quantum spin-Hall lattice”
[\[arXiv:1007.2056\]](#), [Physical Review A 83, 023609 \(2011\)](#).
 Times Cited: 25
 This article was featured by Physical Review A (February 2011) in the section [Kaleidoscope](#)
- [22] C. Vierheilig, **D. Bercioux**, & M. Grifoni
 “Dynamics of a qubit coupled to a dissipative nonlinear quantum oscillator: an effective bath approach”
[\[arXiv:1010.4684\]](#), [Physical Review A, 83, 012106 \(2011\)](#).
 Times Cited: 8
- [21] M. Scheid, **D. Bercioux**, & K. Richter
 “Spin-Orbit Based Coherent Spin Ratchets”
[\[arXiv:1004.5279\]](#), [Chemical Physics 375, 276 \(2010\)](#).
 Times Cited: 2
- [20] **D. Bercioux** & A. De Martino
 “Spin-resolved transmission through spin-orbit nanostructures in graphene”
[\[arXiv:1002.0441\]](#), [Physical Review B 81, 165410 \(2010\)](#).
 Times Cited: 85
- [19] **D. Bercioux**, D. F. Urban, H. Grabert, & W. Häusler
 “Massless Dirac-Weyl Fermions in a T_3 Optical Lattice”
[\[arXiv:0909.3035\]](#), [Physical Review A 80, 063603 \(2009\)](#).
 Times Cited: 86
- [18] S. Smirnov, **D. Bercioux**, M. Grifoni, & K. Richter
 “Charge ratchet from spin flip: Space-time symmetry paradox”
[\[arXiv:0911.3273\]](#), [Physical Review B 80, 201310\(R\) \(2009\)](#).
 Times Cited: 4
- [17] G. Buchs, **D. Bercioux**, P. Ruffieux, P. Gröning, H. Grabert, & O. Gröning
 “Electron scattering in intranantotube quantum dots”
[\[arXiv:0812.3883\]](#), [Physical Review Letters 102, 245505 \(2009\)](#).
 Times Cited: 17
- [16] S. Pugnetti, F. Dolcini, **D. Bercioux**, & H. Grabert
 “Electron tunneling into a quantum wire in the Fabry-Pérot regime”
[\[arXiv:0810.2962\]](#), [Physical Review B 79, 035121 \(2009\)](#).
 Times Cited: 26
- [15] S. Smirnov, **D. Bercioux**, M. Grifoni, & K. Richter
 “Interplay between quantum dissipation and an in-plane magnetic field in the spin ratchet effect”
[\[arXiv:0809.1296\]](#), [Physical Review B 78, 245323 \(2008\)](#).
 Times Cited: 6
- [14] S. Smirnov, **D. Bercioux**, M. Grifoni, & K. Richter
 “Quantum dissipative Rashba spin ratchets”
[\[arXiv:0803.3526\]](#), [Physical Review Letters 100, 230601 \(2008\)](#).
 Times Cited: 24
 This article was featured by M. Flatté in the “News & Views” section of [Nature Physics 4, 587 \(2008\)](#)
- [13] M. Scheid, **D. Bercioux**, & K. Richter
 “Zeeman ratchets: Pure spin current generation in mesoscopic conductors with non-uniform magnetic fields”
[\[arXiv:0707.2478\]](#), [New Journal of Physics 9, 401 \(2007\)](#).
 Times Cited: 23
 This article was featured by M. Flatté in the “News & Views” section of [Nature Physics 4, 587 \(2008\)](#)
- [12] M. Scheid, A. Pfund, **D. Bercioux**, & K. Richter
 “Coherent spin ratchets: A spin-orbit based quantum ratchet mechanism for spin-polarized currents in ballistic conductors”
[\[arXiv:cond-mat/0601118\]](#), [Physical Review B 76, 195303 \(2007\)](#).
 Times Cited: 18
- [11] C. A. Perroni, **D. Bercioux**, V. M. Ramaglia, & V. Cataudella
 “Rashba quantum wire: exact solution and ballistic transport”
[\[arXiv:cond-mat/0701508\]](#), [Journal of Physics: Condensed Matter 19, 186227 \(2007\)](#).
 Times Cited: 41

- [10] S. Smirnov, **D. Bercioux** & M. Grifoni
 “Bloch’s theory in periodic structures with Rashba’s spin-orbit interaction”
[\[arXiv:0705.3830\]](#), *EPL* **80**, 27003 (2007).
 Times Cited: 10
- [9] M. Scheid, M. Wimmer, **D. Bercioux** & K. Richter
 “Zeeman ratchets for ballistic spin currents”
[\[arXiv:cond-mat/0607380\]](#), *physica status solidi (c)* **3**, 4235 (2006).
 Times Cited: 7
- [8] **D. Bercioux**, D. Frustaglia, & M. Governale
 “Signatures of spin-related phases in transport through regular polygons”
[\[arXiv:cond-mat/0505750\]](#), *Physical Review B* **72**, 113310 (2005).
 Times Cited: 21
- [7] **D. Bercioux**, M. Governale, V. Cataudella, & V. M. Ramaglia
 “Rashba effect in quantum networks”
[\[arXiv:cond-mat/0502455\]](#), *Physical Review B* **72**, 075305 (2005).
 Times Cited: 43
- [6] **D. Bercioux** & V. M. Ramaglia
 “The spin-double refraction in two-dimensional electron gas”
[\[arXiv:cond-mat/0502456\]](#), *Superlattices and Microstructures* **37**, 337 (2005).
 Times Cited: 1
- [5] V. M. Ramaglia, **D. Bercioux**, V. Cataudella, G. De Filippis, & C. A. Perroni
 “Spin polarization of electrons with Rashba double-refraction”
[\[arXiv:cond-mat/0403534\]](#), *Journal of Physics: Condensed Matter* **16**, 9143 (2004).
 Times Cited: 53
- [4] **D. Bercioux**, M. Governale, V. Cataudella, & V. M. Ramaglia,
 “Rashba-effect-induced localization in quantum networks”
[\[arXiv:cond-mat/0401187\]](#), *Physical Review Letters* **93**, 56802 (2004).
 Times Cited: 57
- [3] **D. Bercioux**, M. Governale, V. Cataudella, & V. M. Ramaglia
 “Quantum networks in the presence of the Rashba effect and a magnetic field”
Materials Science—Poland **22**, 553 (2004).
 Times Cited: 1
- [2] V. M. Ramaglia, **D. Bercioux**, V. Cataudella, G. De Filippis, C.A. Perroni, & F. Ventriglia
 “Conductance of a large point contact with Rashba effect”
[\[arXiv:cond-mat/0203569\]](#), *The Euroean Physical Journal B* **36**, 365 (2003).
 Times Cited: 32
- [1] G. De Filippis, V. Cataudella, C.A. Perroni, V. M. Ramaglia, & **D. Bercioux**
 “Ground state features of the Fröhlich model”
[\[arXiv:cond-mat/0309309\]](#), *The Euroean Physical Journal B* **36**, 65 (2003).
 Times Cited: 11

REFERRED CONFERENCE PUBLICATIONS:

- [1] **D. Bercioux** & L. Mayrhofer
 “Pseudo-spin filter in metallic single-walled carbon nanotubes”
[7th IEEE International Conference on Nano/Micro Engineered and Molecular Systems \(NEMS\), 2012.](#)
 Times Cited: 0

BOOKS:

- [1] **D. Bercioux**, J. Cayssol, M. Garcia Vergniory, M. Reyes Calvo (Eds.)
[Topological Matter: Lectures from the Topological Matter School 2017](#),
 Springer Series in Solid State Sciences (2018).
 Times Cited: 1