

**Part A. PERSONAL INFORMATION**

CV date	2/6/2026
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First name	Marius Vasile		
Family name	Costache		
Gender (*)	Male	Date of Birth	29/11/1977
Social Security, Passport, ID number	Y0507476H		
e-mail	costache@ub.edu		
URL Web	https://webgrec.ub.edu/webpages/000004/cat/costache.ub.edu.html		
Open Researcher and Contributor ID (ORCID) (*)	0000-0001-7432-6175		

(*) *Mandatory***A.1. Current position**

Position	Associate Professor		
Initial date	16/01/2022		
Institution	University of Barcelona		
Department/Center	Faculty of Physics / Department of Condensed Matter Physics		
Country	Spain	Teleph. number	665148194
Key words	Experimental quantum materials; Electronic device; Spintronics		

A.2. Previous positions

Period	Position/Institution/Country/Interruption cause
2009 - 2022	Ramon y Cajal Researcher; Juan de la Cierva Post-Doc / Catalan Institute of Nanoscience and Nanotechnology / Spain
2007 -2009	Postdoctoral Associate / Massachusetts Institute of Technology

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD in Physics	University of Groningen / The Netherlands	2007
Master and Graduate	University of Bucharest / Romania	2002

Part B. CV SUMMARY (*max. 5000 characters, including spaces*)

- Awards and Fellowships**

2016, Honor certificate for receiving awards or distinctions in recognition of scientific merits. Spanish National Research Council (CSIC)

2015, Young Scientist Medal in the field of Magnetism, International Union of Pure and Applied Physics (IUPAP)

2012, Ramón y Cajal Fellowship, Spanish Ministry of Science (Spain).

2009, Juan de la Cierva Postdoctoral Fellowship, Spanish Ministry of Science (Spain)

2001, Scholarship for Excellence, Romanian Ministry of Education, success rate < 1%

- Teaching experience**

- **Supervision of doctoral theses and/or projects**

2017-2020, **PhD thesis**, Martin Colombano Sosa, Title: High precision measurements of magnetic fields and synchronization in optomechanical cavities, Defense date: 18/09/2020

2016-2020, **PhD thesis**, Luis Antonio Benítez, Title: Spin-orbit coupling in graphene/transition metal dichalcogenides devices, Defense date: 20/11/2020

2015-2019, **PhD thesis**, Zewdu Messele, Title: High-quality CVD graphene for spintronic applications, Defense date: 19/12/2019

2018, master student, Mr. Josef Svetlik, from Tech. University of Liberec (Czech Republic)

- Taught courses

2022, Master degree - Quantum Science and Technology, University of Barcelona

2022, Physics degree – Mechanics, University of Barcelona

2018 - 2020, Master degree - Statistics and Data Analysis, BIST / Pompeu Fabra University

2004 - 2005, Physics degree - Solid State Physics, University of Groningen

• Institutional Responsibilities

2019-2022, Woman Talent Programme Committee, responsible for the recognition of the best PhD thesis, article and research grants lead by ICN2 women researchers

2017-2022, Equal Opportunities Committee at ICN2: promoting equal opportunities for women and members of minority groups in science at ICN2

2017-2022, ICN2 Mentoring Programme: helping young colleagues with career guidance, development and improve skills through the sharing of professional experiences.

• Commissions of Trust

2021,2023 Member of scientific evaluation panel of FLAG-ERA Call 2021(2023), EU

2021, Peer Reviewer of the Science Fund of the Republic of Serbia

2019, 2020, 2021, Member of evaluation panel (CE-24), French National Research Agency

2020, Reviewer expert, M-ERA.NET call, EU

2020, Member of scientific evaluation panel of POLS - National Science Centre, Poland

2020, Reviewer, Swedish Research Council, KON-NT: Consolidator Grant 2020, Sweden

2019, 2020, Reviewer, Deutsche Forschungsgemeinschaft (DFG), Germany

Guest Editor: 2019, 2022 *JPhys Materials* (IOP Publishing), Open access journal. Focus issue (2019): Spin-dependent phenomena in new materials: from 2D materials to topological insulators; Focus issue (2022): Quantum Magnonics

Guest Editor: 2020, 2022 *Crystals* (MDPI) / Special Issue: Design, Characterization and Application of 2D materials. Special Issue: Review Papers in Two-Dimensional Materials

Editorial Board: (2019 - present), *JPhys Materials* (IOP Publishing)

Organization of Scientific meetings: one session for Intermag 2020 (Magnetization Dynamics and Micromagnetics); one symposium for JEMS 2018 (Magnetism and spin transport in topological materials); The 2018 BIST PostDoc Day #2 conference.

Part C. RELEVANT MERITS

C.1. Publications

1. T. Guillet (AC), R. Galceran, JF Sierra, F.J Belarre, B. Ballesteros, **M. V. Costache**, D. Dosenovic, H. Okuno, A. Marty, M. Jamet, F. Bonell, S. O. Valenzuela, (2024) Spin–Orbit Torques and Magnetization Switching in (Bi,Sb)₂Te₃/Fe₃GeTe₂ Heterostructures Grown by Molecular Beam Epitaxy, **Nano Letters** 24 (3), 822-828

2. L.Camosi (AC), J. Světlík, **M. V Costache**, W. Savero Torres, I.Fernández Aguirre, V.Marinova, D. Dimitrov, M. Gospodinov, J. F Sierra, S.O Valenzuela, (2022) Resolving spin currents and spin densities generated by charge-spin interconversion in systems with reduced crystal symmetry, **2D Materials**, 9, 3, 035014
3. F. Giustino, Ji H. Lee, F Trier,..., **M.V. Costache** (23/28),.., and S. Roche(AC), (2021), The 2021 quantum materials roadmap (**Invited review**), **J. Phys. Mater.** 3, 042006, cited: 142
2. M.F. Colombano, G. Arregui, F. Bonell,..., D. Navarro-Urrios (AC), and **M.V. Costache**, (2020), Ferromagnetic resonance assisted optomechanical magnetometer, **Phys. Rev. Lett.** 125, 147201, cited: 15
4. L.A. Benitez, W Savero Torres, JF Sierra, M Timmermans, JH Garcia, S Roche, **M.V. Costache**, and S.O Valenzuela, (2020), Tunable room-temperature spin galvanic and spin Hall effects in van der Waals heterostructures, **Nature Materials** 19, 170–175, cited: 172
5. C Moreno, M Vilas, B Kretz,..., **M.V. Costache** (5/10),..., A Mugarza (AC), (2018), Bottom up synthesis of multifunctional nanoporous graphene, **Science** 360, 199, cited: 491
6. A. Benítez, W. Savero-Torres, J.F. Sierra, F. Bonell, **M.V. Costache**, and S.O. Valenzuela(AC), (2018), Strongly anisotropic spin relaxation in graphene-transition metal dichalcogenide heterostructures at room temperature, **Nature Physics** 14, 303, cited: 232
7. **M.V. Costache** (AC), I. Neumann, J.F. Sierra, V. Marinova, M. Gospodinov, S. Roche, S.O. Valenzuela(AC) (2014), Fingerprints of Inelastic Transport at the Surface of the Topological Insulator Bi₂Se₃: Role of Electron-Phonon Coupling, **Phys. Rev. Lett.** 112, 086601, cited: 66
8. **M.V. Costache** (AC), G. Bridoux, I. Neumann, and S.O. Valenzuela (AC), (2012), Magnon-drag Thermopile, **Nature Materials** 11, 199–202, cited: 106
9. I.M. Miron, K. Garello, G. Gaudin, P-J Zermatten, **M.V. Costache**, S. Auffret, S. Bandiera, B. Rodmacq, A. Schuhl, and P. Gambardella (AC), (2011), Perpendicular switching of a single ferromagnetic layer induced by in-plane current injection, **Nature** 476, 189, cited: 2872
10. **M.V. Costache** and S.O. Valenzuela (AC), (2010), Experimental Spin Ratchet, **Science** 330, 6011, 1645, cited: 62

C.2. Congress

Invited talk, 7th edition of the International workshop of materials physics, (2022), Bucharest

Invited talk, KAUST Workshop: Future Trends in Applied Physics, (2021), Saudi Arabia

Invited seminar, Université Paris-Saclay, (2020), Paris

Invited talk, Grenoble-Barcelona twin conference: From quantum systems to new materials and smart electrical energy, (2019), Grenoble

Invited talk, The 9th International Conference on Amorphous and Nanostructured Chalcogenides, (2019), Chisinau, Republic of Moldova

Invited talk, 43rd WOCSDICE - Workshop on Compound Semiconductor Devices and Integrated Circuits held in Europe, (2019), Cabourg, France

Invited talk, International Nanodevices and Computing Conference, IEEE IRDS and IEEE ICRC, (2019), Grenoble-Minatec

Invited talk, 2nd NEREID Workshop on Alternative Computing Paradigms, (2017), Barcelona

Invited talk, Barcelona meeting of GRAPHENE SPINTRONICS WP, (2016), Barcelona

Invited talk, Beyond CMOS Workshop - NanoElectronics Roadmap for Europe: Identification and Dissemination (NEREID), (2016), Helsinki

Invited Lecturer, SpinIncur Summer School2015, (2015), Braga

Invited keynote speaker, XXII International Summer School Nicolas Cabrera,(2015), Madrid

C.3. Research projects

CNS2022-135821, Espín de electrones - Actuación y detección de movimiento mecánico, Tipus Projecte Programa NFIS - Programa Nacional de Física, PI: Marius Vasile Costache 2023-2025, 165 k€

TED2021-132040B-C21, Towards ALL-optical sEnsinG and signal pRocessing using cavity and moleculaR Optomechanics, PI: Daniel Navarro Urrios, Projecte Programa NNMA - Programa Nacional de Materiales Període, 2022-2024

PID2020-113024GB-I00, Acoustic control of magnetic excitations in nanometric devices MCIUN, Programa Nacional de Materiales, 2021-2023, PI: J M Hernández, University of Barcelona, MV Costache: research team, 200 k€

PCI2019-103739, Functional 2D materials and heterostructures for hybrid spintronic-memristive devices, MINECO AEI, M-ERA.NET Transnational Call 2018, 2019-2022, MV Costache: Coordinator of full EU project with 4 international partners, 125 k€ (for ICN2)

FIS2015-62641-ERC, Spin Current-Based Actuation and Detection of Mechanical Motion, MINECO AEI, Proyectos Europa Excelencia, 2016, PI: MV Costache, ICN2, 62.4 k€

2016 BP 00303, Engineering magnon-photon quantum systems, Beatriu de Pinós –AGAUR, 2017-2019, fellowship grant for Dr. Pol Forn Díaz, ICN2, PI: MV Costache, 92 k€

FETPROACT-01-2018, Dissipationless topological channels for information transfer and quantum metrology, H2020-EU, ICN2, PI: Valenzuela, MV Costache: research team, 620 k€

No. 696656, Graphene-based disruptive technologies, Graphene Flagship EU Horizon 2020, 2016-2019, ICN2, PI: Valenzuela, MV Costache: research team, 200 k€

RYC-2011-08319, Spin transport and magnetization dynamics in nanostructures, MINECO, Ramon y Cajal Programme, 2012-2017, PI: MV Costache (fellowship grant)

MAT2016-75952-RP, Spintronics in 2 Dimensional Dirac Systems, MINECO, 2016-2018, ICN2, PI: Valenzuela, MV Costache: research team, 100 k€

MAT2013-46785-P, Spintronics in 2 Dimensional Dirac Systems, MINECO, 2014-2016, ICN2, PI: Valenzuela, MV Costache: research team 120 k€

C.4. Contracts, technological or transfer merits

European patent (EP19382032), S Valenzuela, JF Sierra, J Cuppens, MV Costache, 01/02/2019, ICN2, Spain