



Part A. PERSONAL INFORMATION

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|----------------|------------|
| CV date | 15/10/2019 |
|----------------|------------|

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|--------------------------------------|---|--------------------|--|
| First and Family name | Mar Bastero Gil | | |
| Social Security, Passport, ID number | | Age | |
| Researcher codes | WoS Researcher ID (*) | F-1405-2016 | |
| | SCOPUS Author ID(*) | | |
| | Open Researcher and Contributor ID (ORCID) ** | 000-0001-9962-5905 | |

(*) At least one of these is mandatory

(**) Mandatory

A.1. Current position

| | | | |
|--------------------------------|---|--------|------------|
| Name of University/Institution | University of Granada | | |
| Department | Theoretical Physics and Physics of the Cosmos | | |
| Address and Country | Fuentenueva s/n, Granada-18071, Spain | | |
| Phone number | 958249999 | E-mail | mbg@ugr.es |
| Current position | Associate professor | From | 2010 |
| Key words | Cosmology, inflation, primordial spectrum, particle physics | | |

A.2. Education

| PhD | University | Year |
|------------------------|--------------------|------|
| Undergraduate, Physics | UAM, Madrid, Spain | 1989 |
| PhD in Physics | UAM, Madrid, Spain | 1994 |

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

6-year research periods: 4 (last in 2015)

Citations (total): 2646 Average last 5 years: 40.1

Publications (Q1): 63

h index: 32

Source: spires

PhD supervised last 5 years: 1

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

Previous positions:

- "Profesor Contratado Doctor", Department of theoretical physics and physics of the cosmos, Faculty of science, University of Granada (Spain), 25 Nov. 2008- 20 Sep. 2010.
 - Research contract "Ramón y Cajal", Department of theoretical physics and physics of the cosmos, Faculty of science, University of Granada (Spain), 25 Nov. 2003- 24 Nov. 2008 (I3 evaluation: 2007)
 - Postdoctoral research contract, Centre for Theoretical Physics, University of Sussex (U.K.), 16 Sept. 2001 - 15 Sep. 2003.
 - INFN postdoctoral fellowship, Pisa (Italy) 1 Oct. 2000 - 15 Sep. 2001.
 - Postdoctoral research contract, Physics Department, University of Southampton (UK) 9 Jun. 1997 - 30 Sep. 2000.
 - Postdoctoral research fellowship (MEC), SISSA, Trieste (Italy) 1 Jan. 1995- 31 Dec. 1996.
- Others:** Higgs Center Affiliate, University de Edimburgo (UK), since 2013.

Research lines:

Cosmology and Particle Physics

Inflation and inflationary model building. Supersymmetric and supergravity inflationary models. Warm inflation. Preheating: non-perturbative production of axions, gravitinos, gravity waves.

Primordial spectrum of perturbations: non-linear effects after inflation. Curvaton scenario.

Dark energy.

Baryogenesis/Leptogenesis.



Particle Physics phenomenology: Susy GUTs, threshold effects, fine-tuning problem.

Part C. RELEVANT MERITS

C.1. Publications (including books)

- 1) Reexamination of the warm inflation curvature perturbations spectrum, Mar Bastero-Gil, Arjun Berera, Jaime R. Calderón, JCAP 1907 (2019) 019.
- 2) Warm inflation within a supersymmetric distributed mass model, Mar Bastero-Gil, Arjun Berera, Rafael Hernández-Jiménez, João G. Rosa, Phys.Rev. D99 (2019) 103520.
- 3) Vector dark matter production at the end of inflation, Mar Bastero-Gil, Jose Santiago, Lorenzo Ubaldi, Roberto Vega-Morales, JCAP 1904 (2019) 015.
- 4) Dynamical and observational constraints on the Warm Little Inflaton scenario, Mar Bastero-Gil, Arjun Berera, Rafael Hernández-Jiménez, João G. Rosa, Phys.Rev. D98 (2018) 083502.
- 5) Adiabatic out-of-equilibrium solutions to the Boltzmann equation in warm inflation, Mar Bastero-Gil, Arjun Berera, Rudnei O. Ramos, Joao G. Rosa, JHEP 1802 (2018) 063.
- 6) Constraining Warm Inflation with CMB data, Mar Bastero-Gil, Sukannya Bhattacharya, Koushik Dutta, Mayukh Raj Gangopadhyay, JCAP 1802 (2018) 054.
- 7) The role of fluctuation-dissipation dynamics in setting initial conditions for inflation, Mar Bastero-Gil, Arjun Berera, Robert Brandenberger, Ian G. Moss, Rudnei O. Ramos, Joao G. Rosa, JCAP 1801 (2018) 002.
- 8) Warm Little Inflaton, Mar Bastero-Gil, Arjun Berera, Rudnei O. Ramos, Joao G. Rosa, Phys.Rev.Lett. 117 (2016) 151301.
- 9) Inflaton dark matter from incomplete decay, Mar Bastero-Gil, Rafael Cerezo, Joao G. Rosa, Phys.Rev. D93 (2016) 103531.
- 10) Theory of non-Gaussianity in warm inflation, Mar Bastero-Gil, Arjun Berera, Ian G. Moss, Rudnei O. Ramos, JCAP 1412 (2014) 008.
- 11) Observational implications of mattergenesis during inflation, Mar Bastero-Gil, Arjun Berera, Rudnei O. Ramos, João G. Rosa, JCAP 1410 (2014) 053.
- 12) Cosmological fluctuations of a random field and radiation fluid, Mar Bastero-Gil, Arjun Berera, Ian G. Moss, Rudnei O. Ramos, JCAP 1405 (2014) 004.
- 13) The importance of being warm (during inflation), Sam Bartrum, Mar Bastero-Gil, Arjun Berera, Rafael Cerezo, Rudnei O. Ramos, Joao G. Rosa, Phys.Lett. B732 (2014) 116.
- 14) General dissipation coefficient in low-temperature warm inflation, Mar Bastero-Gil, Arjun Berera, Rudnei O. Ramos, Joao G. Rosa, JCAP 1301 (2013) 016.
- 15) Non-linear preheating after inflation and gravitational wave production, Mar Bastero-Gil, J.Phys.Conf.Ser. 314 (2011) 012082.
- 16) Warm baryogenesis, Mar Bastero-Gil, Arjun Berera, Rudnei O. Ramos, Joao G. Rosa, Phys.Lett. B712 (2012) 425.
- 17) Shear viscous effects on the primordial power spectrum from warm inflation, Mar Bastero-Gil, Arjun Berera, Rudnei O. Ramos, JCAP 1107 (2011) 030.
- 18) Warming up brane-antibrane inflation, Mar Bastero-Gil, Arjun Berera, Joao G. Rosa, Phys.Rev. D84 (2011) 103503.
- 19) Observational CMB predictions from warm inflation, M. Bastero-Gil. AIP Conf.Proc. 1458 (2012) 39.
- 20) The gravitino problem in supersymmetric warm inflation, Juan C. Bueno Sanchez, Mar Bastero-Gil, Arjun Berera, Konstantinos Dimopoulos, Kazunori Kohri, JCAP 1103 (2011) 020.
- 21) Dissipation coefficients from scalar and fermion quantum field interactions, Mar Bastero-Gil, Arjun Berera, Rudnei O. Ramos, JCAP 1109 (2011) 033.
- 22) Non-linear metric perturbation enhancement of primordial gravitational waves, M. Bastero-Gil, J. Macias-Perez, D. Santos, Phys.Rev.Lett. 105 (2010) 081301.
- 23) Power suppression from disparate mass scales in effective scalar field theories of inflation and quintessence, Mar Bastero-Gil, Arjun Berera, Brendan M. Jackson, JCAP 1107 (2011) 010.
- 24) Gauge Non-Singlet Inflation in SUSY GUTs, Stefan Antusch, Mar Bastero-Gil, Jochen P. Baumann, Koushik Dutta, Steve F. King, Philipp M. Kostka, JHEP 1008 (2010) 100.



- 25) Hybrid Quintessential Inflation, Mar Bastero-Gil, Arjun Berera, Brendan M. Jackson, Andy Taylor, Phys.Lett. B678 (2009) 157.
- 26) Chaotic Inflation in Supergravity with Heisenberg Symmetry, Stefan Antusch, Mar Bastero-Gil, Koushik Dutta, Steve F. King, Philipp M. Kostka, Phys.Lett. B679 (2009) 428.
- 27) Warm inflation model building, Mar Bastero-Gil, Arjun Berera, Int.J.Mod.Phys. A24 (2009) 2207.
- 28) The Palatini formalism for higher-curvature gravity theories, Mar Bastero-Gil, Monica Borunda, Bert Janssen, AIP Conf.Proc. 1122 (2009) 189.
- 29) Solving the eta-Problem in Hybrid Inflation with Heisenberg Symmetry and Stabilized Modulus, Stefan Antusch, Mar Bastero-Gil, Koushik Dutta, Steve F. King, Philipp M. Kostka, JCAP 0901 (2009) 040.

C.2. Research projects and grants

Title: Particle and Astroparticle Physics at the University of Granada (SOMM/17/6104/UGR)

IP: Antonio Bueno Villar

Funding Agency: Junta de Andalucía, January 2018- December 2020, 880.000 euros

Title: "Effective theories of Cosmology and Gravity" (FIS2016-78198-P);

PI: Mar Bastero Gil

Funding agency: MICINN; January 2017- December 2019. 32.500 euros.

Title: "Effective theories of Cosmology and Gravity" (PP2015-03).

PI: Mar Bastero Gil

Funding agency: university of Granada; January 2016- December 2016. 2575 euros.

Title: "String inspired effective theories of gravity: cosmological implications and phenomenological predictions" (FIS2010-17395).

PI: Mar Bastero Gil

Funding agency: MICINN; January 2011- December 2013. 19360 euros.

Title: "String inspired effective theories of gravity: cosmological implications and phenomenological predictions" (FIS2007-63364).

PI: Mar Bastero Gil

Funding agency: MICINN; October 2007- September 2010. 48400 euros.

Title: "String inspired effective theories of gravity and cosmology, and phenomenological predictions" (FIS2004-06823).

PI: Mar Bastero Gil

Funding agency: MEC; 13/12/2004 – 12/12/2007. 17020 euros

Title: "Precision calculations in Particle Physics" (P10-FQM-06552).

PI: Francisco del Águila

Funding agency: Junta de Andalucía; 15/03/2011-14/03/2015. 271.527 euros

Title: "New Physics searches in particle accelerators and astroparticle observatories" (FQM 03048).

PI: Francisco del Águila

Funding agency: Junta de Andalucía; 18/01/2008 – 17/01/2012. 331.668 euros

Title: "Fluctuations after inflation and metric non-perturbative effects" (IN2P3 06-03).

PI: Mar Basero-Gil

Funding agency: MEC; 01/04/2005 - 31/03/2006. 2900 euros

Title: National Center for Particle, Astroparticle and Nuclear Physics (CPAN). **PI: Antonio Pich-Zardoya**

Funding agency: MICINN; Duración: Desde 01/10/2007. 10.000.000 euros.



C.3. Contracts

C.4. Patents

C.5, C.6, C.7... (e. g., Institutional responsibilities, memberships of scientific societies...)

C.5. Conference/workshops organisation

Local organizing Committee: GR22 and Amaldi13 Conference", 7-12 July 2019, Valencia (Spain); "22nd International Conference From the Planck Scale to the Electroweak Scale" (PLANCK 2019), 3-7 June 2019, Granada (Spain)

Organizing & Scientific Committee: "VI Meeting on Fundamental Cosmology", 28-30 May 2018, Granada (Spain); "8th Iberian Cosmology Meeting", 24-26 April 2013, Granada (Spain); "Cosmology Meeting, Granada 2005", April 2005, Granada (Spain).

Scientific Committee: "VII Meeting on Fundamental Cosmology", 9-11 September 2019, Madrid (Spain); "11th Iberian Cosmology Meeting", 29-31 March 2016, Porto (Portugal); Organizing Committee: "3th Iberian GW Meeting", 26-28 February 2014, Granada (Spain); "5th Iberian Cosmology Meeting", 29-31 March 2010, Porto (Portugal); "Bilbao Encounter on New Standard Cosmology, BICOS 2007", April 2007, Bilbao (Spain);

C.6. Talks in International Conference/workshops (last 5 years):

Title: "Vector Dark Matter production at the end of inflation", 23rd annual International Conference on Particle Physics and Cosmology (COSMO-19), Aachen (Germany), 02/09-06/09 2019.

Title: "Vector Dark Matter production at the end of inflation", Workshop "14th Iberian Cosmology Meeting", Bilbao, 15/04-17/04 2019.

Title: "Little Warm Inflation", Workshop on the Standard Model and beyond, Corfu (Greece), 31/08-09/09 2018.

Title: "Adiabatic out-of-equilibrium solutions to the Boltzmann equation", Workshop "13th Iberian Cosmology Meeting", Lisbon, 26/03-28/03 2018.

Title: "Inflation and the initial condition problem; the role of fluctuation-dissipation dynamics",

Workshop "21st annual International Conference on Particle Physics and Cosmology (COSMO-17)", Paris, 28/08-1/09 2017.

Title: "Initial conditions for inflation: the role of fluctuation-dissipation dynamics", Workshop "12th Iberian Cosmology Meeting", Valencia (España), 10/04-12/04 2017.

Title: "Little warm inflation",

workshop "III Saha Theory Workshop: Aspects of Early Universe Cosmology", Kolkata (India), 16/01/2017-20/01/2017.

Title: Little Warm Inflation,

"Exploring the Energy Ladder of the Universe", MITP, Mainz, Germany, 29/05-11/06 2016.

Title: Cosmology: Theory,

"XLIV International Meeting on Fundamental Physics", IFT, Madrid (Spain), 04/04-07/04 2016.

Title: Little Warm Inflation: Observational predictions,

"11th Iberian Cosmology Meeting", Porto, Portugal, 29/03-31/03 2016.

Title: Dissipation during inflation: warm inflation after Planck,

"Modern Cosmology: Early Universe, CMB and LSS, Benasque (Spain) 03/08-17/08 2014

Title: The inflaton as a Dark Matter candidate,

"Planck 2014, from the Planck scale to the electroweak scale", Paris (France), 26/05-30/05 2014

Title: Observational implications of mattergenesis during inflation,

"9th Iberian Cosmology Meeting", Aveiro (Portugal) 27/04-29/04 2014.