

MARÍA BENITO

PERSONAL INFORMATION

Born on 1989, in Asturias, Spain.

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EDUCATION

- 2015-Present* **Instituto de Física Teórica, Universidade Estadual Paulista, São Paulo (Brazil)**
Expected Feb. 2019 PhD
Supervisor: Prof. Dr. Fabio Iocco
Title: *Determination of the Dark Matter Distribution in the Milky Way (A study of its Uncertainties and Implications on Particle Dark Matter Searches.)*
- 2013-2014* **Universidad Autónoma de Madrid, Madrid (Spain)**
M.S. in Elementary Particles and Cosmology
Supervisors: Prof. Dr. Fabio Iocco & Dr. Miguel Pato
Title: *A Determination of the Dark Matter Density Structure in the Milky Way*
- 2007-2013* **Universidad Autónoma de Madrid, Madrid (Spain)**
5-year Degree of Physics
- 1996-2006* **Conservatorio Profesional de Música del Nalón, Sama de Langreo (Spain)**
Studies in violin, *Grado Elemental* (4 years) - *Grado Medio* (6 years)

RESEARCH INTERESTS

Dark Matter in galaxies: galaxy kinematics and dynamics, mass modelling of galaxies, distribution of Dark Matter in the Milky Way. Dark Matter phenomenology in astrophysical environments. Galaxy formation and evolution. Alternative theories of gravity. γ -ray astronomy. Statistics.

FELLOWSHIPS & SCHOLARSHIPS

- 2015-present* CAPES (Coordenação de Aperfeiçoamento de Nível Superior) fellow at Instituto de Física Teórica, UNESP, São Paulo (Brazil).
- September 2014* Multidark Summer Student at IFT-UAM/CSIC, Madrid (Spain).
- 2011-2012* Erasmus Grant at Humboldt Universität zu Berlin (Germany).
- 2007-2008* Excellence Grant to enter University by the Comunidad de Madrid.

SCIENTIFIC VISITS

- May, June 2018* DESY, Zeuthen (Germany).
- January 2018* CIEMAT, Madrid (Spain).
- July 2017* DESY, Zeuthen (Germany).

TALKS & SEMINARS

- December 2018* Talk at LAPTh, Annecy (France).
“Milky Way Dark Matter Density Profile”
- November 2018* **II South American Dark Matter Workshop** at IFT-UNESP/ICTP-SAIFR, São Paulo (Brazil).
“The Effect of Galactic Uncertainties on Particle Dark Matter Constraints”
- October 2018* **The Puzzle of Dark Matter, Assembling the Pieces** at DESY, Hamburg (Germany).
“Particle Dark Matter Constraints: the Effect of Galactic Uncertainties”
- May 2018* **Tensions in the Λ CDM Paradigm** at Mainz Institute for Theoretical Physics (MITP), Mainz (Germany).
“Testing Modified Gravity Theories with the Milky Way”
- March 2018* **Reunião Temática Workshop** at IFT-UNESP/ICTP-SAIFR, São Paulo (Brazil).
“Status of Large Magellanic Cloud Studies with CTA”
- December 2017* Seminar at Institute for Theoretical Particle Physics and Cosmology, RWTH Aachen University, Aachen (Germany).
“An Estimate of the Dark Matter Profile in the Galactic Bulge Region”
- May 2017* **South American Dark Matter Workshop** at IFT-UNESP/ICTP-SAIFR, São Paulo (Brazil).
“An Estimate of the Dark Matter Profile in the Galactic Bulge Region”
- November 2016* **XIII Workshop on New Physics in Space** at IFT-UNESP/ICTP-SAIFR, São Paulo (Brazil).
“An Estimate of the Dark Matter Profile in the Galactic Bulge Region”
- October 2016* **III Dark Matter Day in São Paulo** at IFT-UNESP/ICTP-SAIFR, São Paulo (Brazil).
“Dark Matter Distribution in the Galactic Bulge”
- June 2016* **School on Dark Matter** at IFT-UNESP/ICTP-SAIFR, São Paulo (Brazil).
“Dark Matter Distribution in the Milky Way: a Departure from Classical Analyses”.

POSTERS

- July 2017* **IAU Symposium 334 Rediscovering our Galaxy** at Telegrafenberg, Potsdam (Germany).
“An Estimate of the Dark Matter Profile in the Galactic Bulge Region”

PUBLICATIONS

- Benito, M.*, Bernardos, M.I., Fedorova, E., Iocco, F., Karukes, E., Mangano, S., Sergijenko, O.,
 “Characterization of the Large Magellanic Cloud at TeV energies, for CTA”, in prep.
- Karukes, E.V., *Benito, M.*, Iocco, F., Trotta, R., Geringer-Sameth, A., “Milky Way Dark Matter
 Density Profile and its Reconstruction”, in prep.
- Benito, M.*, Cuoco, A., Iocco, F., “Handling the Uncertainties in the Galactic Dark Matter
 Distribution for Particle Dark Matter Searches”, in prep.
- Negrelli, C., *Benito, M.*, Landau, S., Iocco, F., Kraiselburd, L., “Testing MOG Theory in the
 Milky Way”, 2018, PRD, accepted. [[arxiv: 1810.07200](https://arxiv.org/abs/1810.07200)]
- Iocco, F., *Benito, M.*, “An Estimate of the DM Profile in the Galactic Bulge Region”, Phys. Dark
 Univ., 15:90–95, 2017. [[arxiv: 1611.09861](https://arxiv.org/abs/1611.09861)]

Benito, M., Bernal, M., Bozorgnia, N., Calore, F., Iocco, F., “Particle Dark Matter Constraints: the Effect of Galactic Uncertainties”, JCAP, 1702(02):007, 2017. [[arxiv: 1612.02010](#)]

PROFESSIONAL MEMBERSHIPS

- Member of the CTA collaboration (since January 2017)

TECHNICAL SKILLS

- **Data Analysis:** γ -ray data analysis with CTOOLS; DS9, CLUMPY.
- **Programming:**
 - Experienced: PYTHON, C++, Unix OS, Bash Shell, L^AT_EX.
 - Familiar: C, Mathematica, MATLAB.
 - Encountered: Fortran90, HTML.

LANGUAGES

- Mother tongue: Spanish
- Fluent: English, Portuguese
- Basics: German, Libras

OTHER INTERESTS

I like sports, especially swimming.