

CURRICULUM VITAE

Personal & Contact Information

Family name : **Oñorbe Bernis**
First name : **Jose**
Nationality : Spanish
Date of birth : 2nd July 1980
email : onorbe@mpia.de
URL for web site : <http://www.joseonorbe.com/>

Education

2003. Graduate Studies in Physics: Theoretical Physics, at the Universidad Autónoma de Madrid (UAM, Madrid, Spain).

2005. Master in Advanced Studies on Astrophysics at the Universidad Autónoma de Madrid. Spain.

2009. Ph.D. in AstroPhysics. Diploma Title.: *Structure, Kinematics and Evolution of Elliptical Galaxies from Hydrodynamical Simulation.* Universidad Autónoma de Madrid. Spain. Supervisor: Prof. R. Domínguez-Tenreiro.

Current Position

2017 – present. Research Associate, Institute for Astronomy, University of Edinburgh, United Kingdom.

Past Positions

2005 – 2009. Ph.D. student Universidad Autónoma de Madrid, Spain.

2009 – 2010. Postdoctoral Fellow at the Universidad Autónoma de Madrid, Spain.

2010 – 2013. Fulbright Postdoctoral Fellow, University of California, Irvine, United States.

2013 – 2017. Postdoctoral Fellow, Max Planck Institute for Astronomy, Heidelberg, Germany

Fellowships/Awards

2005 – 2009. Ph.D. Research Fellowship: Formación de Personal Investigador, from Spanish Ministry of Education and Science.

2010 – 2012. Fulbright Postdoctoral Fellowship.

2013. University of California-HiPACCs Small Grants Program

2017. My Marie Skłodowska-Curie EC grant application received the **Seal of Excellence**.

Computational Experience

- Astrophysical and Cosmology Codes: GIZMO, GADGET, NYX, ENZO, DEVA, MUSIC, yt, PYNBODY.
- Large experience in competitive regime applications for computational time projects in High Performance Computing facilities, its use and management: XSEDE, NAS, PRACE, NERSC, MPCDF (RZG), RES.

Teaching and Outreach Experience

2004. Master for High School Teaching at the Universidad Complutense de Madrid. Practice at I.E. Cervantes High School (Madrid).

2009 - 2010. Lecture on Computational Astrophysics in the POPIA Master and PhD Degree Program of Universidad Autonoma de Madrid and Universidad Complutense de Madrid Universities.

- *Why do we say that the space is cold?*, J. Oñorbe. Chapter in the outreach book: "Science, and I also understand it!". Publication scheduled for November 2016.

<http://divulgacioncientificadecientificos.blogspot.de/p/capitulos-c.html>.

- *arc2parc* online calculator. An online calculator to convert between angular size and linear size. <http://www.mpia.de/homes/onorbe/arsec2parsec/>.

- *September 2017. Galaxies Inside Computers*, Outreach talk during Open Days of the Royal Observatory of Edinburgh.

Organisation of International Conferences

- From Wall to Web. Berlin, Germany, 24-29 July 2016.
- MPA-MPIA Joint Workshop. Heidelberg, Germany, 23-27 June 2014.
- Intergalactic Matters. Heidelberg, Germany 16-20 June 2014.
- H-Metal Workshop. El Escorial, Madrid, Spain, 16-18 October 2010.

Professional Memberships, Service

-2017 - *present* Member of the Astronomy, Space and Earth Sciences panel of the Spanish Supercomputing Network (RES).

- Reviewer of proposals for the SuperMuc Petascale System (Leibniz Supercomputing Centre, Germany) and ISCRA (Italian SuperComputing Resource Allocation).

- Referee for *Astrophysical Journal*, *Astrophysical Journal Letters*, *Monthly Notices of the Royal Astronomy Society*.

- SEA (Spanish Astronomy Association).

PUBLICATION LIST

Publications in Refereed Journals

As in September 2017, I have 30 refereed publications and 1673 citations. First author paper (bold numbers):

8. Second author papers: 7. Current h-index: 17.

1. Clues on the Physical Origin of the Fundamental Plane from Self-Consistent Hydrodynamical Simulations. **J. Oñorbe**, R. Domínguez-Tenreiro, A. Sáiz, A. Serna and H. Artal. 2005, The Astrophysical Journal, Volume 632, Issue 2, pp. L57-L60. [astro-ph/0511533](#).
2. The Lack of Structural and Dynamical Evolution of Elliptical Galaxies since $z \sim 1.5$: Clues from Self-Consistent Hydrodynamical Simulations. R. Domínguez-Tenreiro, **J. Oñorbe**, A. Sáiz, H. Artal and A. Serna. 2006, The Astrophysical Journal, Volume 636, Issue 2, pp. L77-L80. [astro-ph/0511556](#).
3. Clues on the Regularity in the Structure and Kinematics of Elliptical Galaxies from Self-Consistent Hydrodynamical Simulations. **J. Oñorbe**, R. Domínguez-Tenreiro, A. Sáiz and A. Serna. 2006, Monthly Notices of the Royal Astronomy Society, Volume 373, pp. 503-520. [astro-ph/0609499](#).
4. Bright and Dark Matter in Elliptical Galaxies: Mass and Velocity Distributions from Self-consistent Hydrodynamical Simulations. **J. Oñorbe**, R. Domínguez-Tenreiro, A. Sáiz, A. Serna and H. Artal. 2007, Monthly Notices of the Royal Astronomy Society, Volume 376, pp. 39-60. [astro-ph/0612732](#).
5. Shape and kinematics of elliptical galaxies: evolution due to merging at $z < 1.5$. A.C. González-García, **J. Oñorbe**, R. Domínguez-Tenreiro and M.A. Gómez-Flechoso. 2009, Astronomy & Astrophysics, Volume 497, Issue 1, pp.35-40. [astro-ph/0812.4306](#).
6. Large-Scale Gas Dynamics in the Adhesion Model: Implications for the Two-Phase Massive Galaxy Formation Scenario. R. Domínguez-Tenreiro, **J. Oñorbe**, F. Martínez-Serrano and A. Serna. 2011, Monthly Notices of the Royal Astronomy Society, Volume 413, pp. 3022-3038. [astro-ph/1010.6294](#).
7. Massive Galaxies at High- z : Assembly Patterns, Structure & Dynamics in the Fast Phase of Galaxy Formation. **J. Oñorbe**, F. Martínez-Serrano, R. Domínguez-Tenreiro, A. Knebe and A. Serna. 2011, The Astrophysical Journal, Volume 732, Issue 2, pp. L32. [astro-ph/1103.4214](#).
8. Cosmological Simulations with Self-Interacting Dark Matter I: Constant Density Cores and Substructure. M. Rocha, A.H. Peter, J.S. Bullock, M. Kaplinghat, S. Garrison-Kimmel, **J. Oñorbe** and L.A. Moustakas. 2013, Monthly Notices of the Royal Astronomy Society, Volume 430, pp. 81. [astro-ph/1208.3025](#).
9. The AGORA High-resolution Galaxy Simulations Comparison Project. J. Kim, and the AGORA collaboration. 2014, The Astrophysical Journal Supplement, Volume 210, Issue 1, 20 pp. [astro-ph/1308.2669](#).
10. How to zoom: Lagrange volume and the multimass technique. **J. Oñorbe**, A. Maller, J.S. Bullock, S. Garrison-Kimmel and O. Hahn. 2014, Monthly Notices of the Royal Astronomy Society, Volume 437, pp. 1894. [astro-ph/1208.3025](#).
11. Sterile neutrino dark matter bounds from galaxies of the Local Group. S. Horiuchi, P. Humphrey, **J. Oñorbe**, K. Abazajian, M. Kaplinghat, S. Garrison-Kimmel. 2014, Phys. Rev. D., Volume 89, 025017. [astrp-ph/1311.0282](#).
12. The high- z universe confronts warm dark matter: Galaxy counts, reionization and the nature of dark matter. C. Schultz, **J. Oñorbe**, K. Abazajian, J. Bullock. 2014, Monthly Notices of the Royal Astronomy Society, Volume 442, pp. 1597. [astro-ph/1401.3769](#).
13. Galaxies on FIRE (Feedback In Realistic Environments): stellar feedback explains cosmologically inefficient star formation. P. Hopkins, D. Keres, **J. Oñorbe**, C.A. Faucher-Giguère, E. Quataert, N. Murray, J. Bullock. 2014, Monthly Notices of the Royal Astronomy Society, Volume 445, pp. 581. [astro-ph/1311.2073](#)

14. Core Formation in Dwarf Halos with Self Interacting Dark Matter: No Fine-Tuning Necessary.
O. Elbert, J. Bullock, S. Garrison-Kimmel, M. Rocha, **J. Oñorbe**, A. Peter. 2014, Monthly Notices of the Royal Astronomy Society, Volume 453, pp. 29. [astro-ph/1412.1477](#).
15. Lagrangian Volume Deformations around Simulated Galaxies.
S. Robles, R. Domínguez-Tenreiro, **J. Oñorbe**, F. Martínez-Serrano. 2015, Monthly Notices of the Royal Astronomy Society, Volume 451, pp. 486. [astro-ph/1504.06297](#).
16. Forged in FIRE: cusps, cores, and baryons in low-mass dwarf galaxies.
J. Oñorbe, M. Boylan-Kolchin, J. Bullock, P. Hopkins, D. Keres, C.A. Faucher-Giguère, E. Quataert, N. Murray. 2015, Monthly Notices of the Royal Astronomy Society, accepted. [astro-ph/1502.02036](#).
17. Sweating the small stuff: simulating dwarf galaxies, ultra-faint dwarf galaxies, and their own tiny satellites.
C. Wheeler, **J. Oñorbe**, J.S. Bullock, M. Boylan-Kolchin, O.D. Elbert, S. Garrison-Kimmel, P.F. Hopkins, D. Keres. 2015, Monthly Notices of the Royal Astronomy Society, Volume 453, p.1305. [astro-ph/1504.02466](#).
18. Characterizing the Jeans Filtering Scale of the Intergalactic Medium.
G. Kulkarni, J. F. Hennawi, **J. Oñorbe**, A. Rorai, V. Springel. 2015, Monthly Notices of the Royal Astronomy Society, accepted. [astro-ph/1504.00366](#).
19. Effects of Coupled Dark Energy on the Milky Way and its Satellites.
C. Penzo, A. V. Macciò, M. Baldi, L. Casarini, **J. Oñorbe**. 2015, Monthly Notices of the Royal Astronomy Society, 461, 2490. [astro-ph/1504.07243](#).
20. The Impact of Baryonic Physics on the Structure of Dark Matter Halos: the View from the FIRE Cosmological Simulations.
T. K. Chan, D. Keres, **J. Oñorbe**, P. F. Hopkins, A. L. Muratov, C. A. Faucher-Giguère, E. Quataert. 2015, Monthly Notices of the Royal Astronomy Society, 454, 2981. [astro-ph/1507.02282](#).
21. Properties of resonantly produced sterile neutrino dark matter subhaloes.
S. Horiuchi, B. Bozek, K. Abazajian, M. Boylan-Kolchin, J.S. Bullock, S. Garrison-Kimmel, **J. Oñorbe**. 2016, Monthly Notices of the Royal Astronomy Society, Volume 456, p. 4346. [astro-ph/1512.04548](#).
22. Modeling the Lyman- α Forest in Collisionless Simulations.
D. Sorini, **J. Oñorbe**, J. F. Hennawi. 2016, The Astrophysical Journal, Volume 827, Issue 2, 23 pp. [astro-ph/1602.08099](#).
23. High Angular Momentum Halo Gas: a Feedback and Code-Independent Prediction of LCDM.
K. Stewart, A. Maller, **J. Oñorbe**, J. Bullock, M.R. Joung, J. Devriendt, D. Ceverino, D. Keres; P.F. Hopkins, C.A. Faucher-Giguère. 2016, 843, 47. [astro-ph/1606.08542](#)
24. FIRE in the Field: Simulating the Threshold of Galaxy Formation.
A. Fitts, B. K. Boylan-Kolchin, O. Elbert, J. Bullock, P. Hopkins, **J. Oñorbe**, et al. 2016, 471, 3547 [astro-ph/1611.02281](#).
25. Self-Consistent Modeling of Reionization in Cosmological Hydrodynamical Simulations.
J. Oñorbe, J.F. Hennawi, Z. Lukić. 2017, The Astrophysical Journal, Volume 837, Issue 1060, 23 pp [astro-ph/1607.04218](#).
26. The no-spin zone: rotation vs dispersion support in observed and simulated dwarf galaxies.
C. Wheeler, A. Pace, J.S. Bullock, M. Boylan-Kolchin, **J. Oñorbe**, A. Fitts, P.F. Hopkins, D. Keres. 2017, Monthly Notices of the Royal Astronomy Society, Volume 465, p. 2420. [astro-ph/1511.01095](#).
27. Measurement of the small-scale structure of the intergalactic medium using close quasar pairs
A. Rorai, J.F. Hennawi, **J. Oñorbe**, M. White, J.X. Prochaska, G. Kulkarni, M. Walther, K.G. Lee, Z. Lukić. 2017, Science, 356, 418. [astro-ph/1607.04218](#).
28. Constraining Reionization with the $z \sim 5 - 6$ Lyman- α Forest Power Spectrum: the Outlook after Planck.
J. Oñorbe, J.F. Hennawi, Z. Lukić, M. Walther 2017, The Astrophysical Journal, accepted. [astro-ph/1703.08633](#).
29. A Fundamental Test for Galaxy Formation Models: Matching the Lyman- α Absorption Profiles of Galactic Halos over Three Decades in Distance.
D. Sorini, **J. Oñorbe**, J.F. Hennawi, Z. Lukić 2017, The Astrophysical Journal, submitted. [astro-ph/1709.03988](#).

30. A New Precision Measurement of the Small-Scale Line-of-Sight Power Spectrum of the Ly- α Forest. M. Walther, J.F. Hennawi, H. Hiss, **J. Oñorbe** et al. 2017, The Astrophysical Journal, submitted. astro-ph/1709.07354.

Selected International Conference Talks

(just oral contributions during the last year)

- *UV Background Models in Hydrodynamical Simulations.*
The Dawn of Galaxies, Obergulg, Austria, January 2017.
- *Modeling gas flows in galaxies* (invited review talk).
Annual Meeting German Astrophysical Society, Bochum, Germany, September 2016.
- *Direct Constraints of HI Cosmic Reionization from Lyman- α observations at $z\sim 5-6$.*
From Wall to Web, Berlin, Germany, July 2016.
- *New Models of the UV-Background in Cosmological Hydrodynamical Simulations.*
High-z, Malta, July 2016.
- *Galaxies on FIRE (Feedback in Realistic Environments): The Role of Stellar Feedback in Dwarf Galaxy Formation.*
Dark Matter 2016, Santander, Spain, June 2016.
- *New Models of the UV-Background in Cosmological Hydrodynamical Simulations: Implications for IGM and galaxy formation observations.*
Dark Ages 2016, Heidelberg, Germany, June 2016.
- *Direct Constraints of HI Cosmic Reionization from Lyman- α observations at $z\sim 5-6$.*
Cosmology 2016, Barcelona, June 2016.
- *Future simulations and astronomical data* (invited review talk).
Dark Matter in the Milky Way, Mainz, Germany, May 2016.