

# LUCA VISINELLI

GRAPPA  
University of Amsterdam  
The Netherlands

+39 349 470 3231

[l.visinelli@uva.nl](mailto:l.visinelli@uva.nl)

[lucavisinelli.space](http://lucavisinelli.space)

[luca.visinelli](https://www.linkedin.com/in/lucavisinelli)

## Education

- December 16, 2011 **Ph.D. in Physics**, *The University of Utah*, Salt Lake City, USA.  
Advisor: Dr. Paolo Gondolo. Thesis: [Axions in CDM and inflation models](#)
- August 6, 2011 **M.Sc. in Physics**, *The University of Utah*, Salt Lake City, USA.  
Advisor: Dr. Paolo Gondolo. Topics: Theoretical physics
- June 22, 2007 **M.Sc. in Physics**, *University of Bologna*, Italy.  
Advisor: Dr. Fiorenzo Bastianelli. Thesis: [Neutrino oscillations in curved spacetime](#).  
Grade: 110/110 *cum Laude*
- October 14, 2005 **B.Sc. in Physics**, *University of Bologna*, Italy.  
Advisor: Dr. Giovanni Carlo Bonsignori. Thesis: *The Interacting Boson Model*.  
Grade: 110/110 *cum Laude*
- July 4, 2002 **High School Diploma**, *High School "E. Fermi"*, Bologna, Italy.  
Grade: 100/100

## Research Experience

- 2019 – Today **Post-doctoral researcher**, [GRAPPA Amsterdam](#) (Netherlands)  
*Principal investigator*: Prof. Christopher Weniger (GRAPPA Amsterdam)  
I am currently working on models linking the evolution of dark energy with Planck and supernovae data, aimed at easing the  $H_0$  tension. I am also working on astroparticles, in particular on models of light bosons as the dark matter.
- 2018 – 2019 **Post-doctoral researcher**, [Uppsala University](#) (Sweden)  
*Principal investigator*: Prof. Ulf Danielsson (Uppsala University)  
I have worked on models linking the evolution of dark energy with Planck and supernovae data, aimed at easing the  $H_0$  tension.
- 2016 – 2018 **Post-doctoral researcher**, [Stockholm University and Nordita](#) (Sweden)  
*Principal investigator*: Prof. Katherine Freese (U. of Michigan and Stockholm U.)  
I have worked on axion cosmology, the Higgs field as a spectator during inflation, capture of dark matter by massive bodies and by primordial black holes, modelling and evolution of dark stars with the [MESA](#) stellar code. [Here is my interview at Stockholm University](#).
- 2013 – 2015 **Postdoctoral fellow**, [Mediterranean Center on Climate Changes \(CMCC\)](#), Bologna (Italy)  
*Principal investigators*: Simona Masina (2013-2015), Marcello Vichi (2013-2014);  
I have developed a numerical code for assessing the global ocean carbon uptake, aiming to assess the global carbon flux within the GeoCarbon project <http://www.geocarbon.net>.
- 2007 – 2011 **Doctoral thesis researcher**, The University of Utah (USA)  
*Advisor*: Prof. Paolo Gondolo (U. of Utah)  
I worked on axions in models of cold dark matter and inflation.
- 2007 – 2011 **Bachelor thesis researcher**, University of Bologna (Italy)  
*Advisors*: Prof. Fiorenzo Bastianelli (Bologna U.), Prof. Paolo Gondolo (U. of Utah)  
Bachelor thesis on neutrino flavour oscillations in curved space-time.

---

## Participation in Research and Development Contracts

- 2019-today Dutch Research Council, contract No. 680.92.18.03 “The Hidden Universe of Weakly Interacting Particles”, Principal Investigator Prof. Paul De Jong (University of Amsterdam), 2018-2023. I am participating as a post-doctoral researcher at GRAPPA University of Amsterdam since September 2019.
- 2018-2019 Swedish Research Council, contract No. 638-2013-8993, Principal Investigator Prof. Katherine Freese (UT Austin and Stockholm University), 2014-2024. Approximately 10.000.000,00 EUR. I participated as a researcher at NORDITA and Uppsala University.
- 2016-2018 Swedish Research Council, contract No. 638-2013-8993, Principal Investigator Prof. Katherine Freese (UT Austin and Stockholm University), 2014-2024. Approximately 10.000.000,00 EUR. I participated as a postdoc at NORDITA and Stockholm University.
- 2015 EU FP7-SPACE “MyOcean followup”, Principal Investigator Prof. Simona Masina (Research division director, Euro-Mediterranean Centre on Climate Changes), 2014-2015. 99.244,19 EUR. I participated as a post-doctoral researcher at CMCC.
- 2013-2014 EU FP7-SPACE “MyOcean2”, Principal Investigator Prof. Simona Masina (Research division director, Euro-Mediterranean Centre on Climate Changes), 2012-2014. 464.980,00 EUR. I participated as a post-doctoral researcher at CMCC.
- 2013-2014 EU FP7-ENV “GEOCARBON”, Principal Investigator Prof. Simona Masina (Research division director, Euro-Mediterranean Centre on Climate Changes), 2012-2014. 95.000,00 EUR. I participated as a post-doctoral researcher at CMCC.

---

## Grants and Fellowships Awarded

- November 2020 [Fellini Fellowship under Marie Skłodowska-Curie COFUND Action](#), 2020-2023. Project: “Tools for Axions, Leptogenesis and Neutrino Theories (TALeNT)”. Approximately 52.000 EUR/year, to be spent at INFN Frascati.
- July 2020 [KIAS Assistant Professorship \(Non-tenure track\)](#), Declined.
- 2007-2008 [Award for PhD students abroad \(26.318,70 EUR\)](#), University of Bologna
- Fall 2006 Undergraduate Student Award (approx. 2.000 EUR), University of Bologna

---

## Other Awards

- Fall 2019 [Tax Relief Award for highly skilled immigrants in the Netherlands](#)
- Fall 2016 [Tax Relief Award for foreign key personnel in Sweden](#)
- Spring 2011 Outstanding Teaching Assistantship Award, The University of Utah.
- 2001-2002 Honorable Mention at the Italian Physics Olympiads.

---

## Grants and Fellowships not obtained

- Jan 2020 [“Ramon y Cayal” Fellowship](#)
- 2018, 2019 [COST Action Proposal OC-2019-1-23688 “COSMIC WISPerS in the Dark Universe: Theory, astrophysics and experiments”](#)
- Sep 2018 [Marie Curie Action](#)
- Sep 2018 “La Caixa” Junior Fellowship
- Apr 2018 [Vetenskapsrådet starting grant](#)

---

## Research in Physics

<b>Topics</b>	Theoretical physics, astroparticle physics, and cosmology. <b>Sample talk:</b> my presentation in Georgetown University (Washington D.C.) for the Vera Rubin Symposium, link: <a href="https://www.youtube.com/watch?v=iazE3tBg2cw">https://www.youtube.com/watch?v=iazE3tBg2cw</a>
<b>Interests</b>	Phenomenology of the physics beyond the Standard Model of particle physics
<b>Statistics (INSPIRE)</b>	39 articles, 32 JCR publications, 1250+ citations, 41.5 average citations per referred paper, <b>h-index=21</b> (as of September 3, 2020)
<b>INSPIRE</b>	<a href="https://inspirehep.net">My article list on https://inspirehep.net</a>
<b>ORCID</b>	<a href="https://orcid.org/0000-0001-7958-8940">0000-0001-7958-8940</a>
<b>ResearcherID</b>	<a href="https://www.researcherid.org/rid/E-9985-2018">E-9985-2018</a>
<b>Scopus</b>	<a href="https://www.scopus.com/authid/detail.uri?authorid=34168444500">34168444500</a>
<b>Google Scholar</b>	<a href="https://scholar.google.it/citations">https://scholar.google.it/citations</a>
<b>ArXiv</b>	<a href="https://arxiv.org">My article list on https://arxiv.org</a>
<b>GIT Repository</b>	<a href="https://github.com/lucavisinelli">https://github.com/lucavisinelli</a>

---

## Teaching Experience

2017	Lecturer for FK5024 “Nuclear physics”, Stockholm University, Stockholm (Sweden)
2015-2016	Lecturer for “Introductory Mathematics”, Department of Political Sciences, University of Bologna (Italy)
2015	Teaching assistant in Mathematics for International Markets, Department of Economics, University of Bologna. Supervisor: Prof. Sabrina Mulinacci
2015	Teaching assistant for “Mathematics for Economics and Finance”, Department of Economics, University of Bologna. Supervisor: Prof. Alessandra Giovagnoli
2010-2011	Teaching assistant for Physics 3740, “Special relativity and quantum mechanics”, The University of Utah. Supervisors: Prof. Kyle Dawson and Prof. Jordan Gerton
2009	Teaching assistant for Physics 5020, “Electromagnetism”, The University of Utah. Supervisor: Prof. Mikhail Raikh
2008	Teaching assistant for Physics 5010, “Classical and Quantum Mechanics”, The University of Utah. Supervisor: Prof. Mikhail Raikh

---

## Supervision and Mentoring

2019–today	I am mentoring Ph.D. student Youjia Wu (University of Michigan). Advisor: Katherine Freese; topics: dark matter physics and stellar formation.
2019–2020	I <b>supervised</b> Master student Nicklas Ramberg (Uppsala University), now at Mainz University. <a href="#">[LINK TO NICKLAS RAMBERG'S MASTER THESIS]</a>
2018–2019	I have mentored Ph.D. student Irina Galstyan (Stockholm University). Advisor: Katherine Freese; topics: neutrino detection.
2017	I have mentored Ph.D. student Janina Renk (Stockholm University). Advisors: Katherine Freese, Joakim Edsjö; topics: stellar evolution with <a href="#">MESA</a> .

---

## Additional work experience

- 2015 **Editing work for JCAP and JHEP**, Sissa-Medialab publications, Trieste (Italy)
- 2015 – 2016 **High school teacher**, Private High School "M. Malpighi", Bologna (Italy)
- 2015 – 2016 **High school teacher**, Public High School "E. Majorana", Bologna (Italy)
- 2011 – 2016 **Private tutoring** in mathematics and physics for high school and university students.
- 2012 – 2013 **Quantitative Analyst**, Iason LTD, Milan [www.iasonltd.com](http://www.iasonltd.com).  
I have implemented a set of numerical codes aimed at pricing defaultable coupon bonds in C/C++, Matlab, Excel. My personal contribution has been cited in:  
A. Castagna and F. Fede, *Measuring and Managing Liquidity Risk*, Wiley (2013).
- 2011 – 2012 **Editor for high-school mathbooks**, Zanichelli Editore.

---

## Service in Editorial Boards

- 2020-2021 I am among the guest editors for the Special Issue of the journal Universe “*Dark Matter and Dark Energy: Particle Physics, Cosmology, and Experimental Searches*”, to be published in 2021. Link: [www.mdpi.com/journal/universe/special\\_issues/DM\\_DE](http://www.mdpi.com/journal/universe/special_issues/DM_DE).

---

## Academic Service

- 2017-2018 Nordita Postdoc Representative (Administrative position), Stockholm (Sweden).
- 2017-2018 Organising the bi-weekly “Beyond the Standard Model” Workgroup at Oskar Klein Centre, Stockholm (Sweden).
- 2016-Today Regular refereeing for Physical Review Letters (PRL), Physical Review D (PRD), Physics Letters B (PLB), Journal of Cosmology & Astroparticle Physics (JCAP), Modern Physics Letters A (MPLA), Universe.

---

## Programming skills

- Systems Linux, UNIX, Mac OS, Microsoft.
- Programming Python, Fortran, C/C++, Visual Basic, Pascal, parallel computing with MPI.
- Calculus Mathematica, Matlab, R.
- Databases Maintenance of numerical codes using the GIT repository
- Datasets Manipulating large datasets in different format: NetCDF, ASCII, NCO, CDO.
- Supercomputer High performance computing (IBM iDataplex cluster “Athena”, 7712 cores).
- Text editor Microsoft Office,  $\text{\LaTeX}$ , Vi.
- Software used GALPROP, DarkSUSY, Gadget2, MESA, NEMO, BFM.

---

## Languages

- Italian Mother tongue
- English Writing, Speaking, Listening. 2007- TOEFL English Certification.  
2002 - University of Cambridge FCE, Bologna.

---

## Articles published in peer-reviewed international journals

A complete list of my publications can be found at: <http://inspirehep.net/author/profile/L.Visinelli.1>

31. L. Di Luzio, M. Giannotti, E. Nardi, and **L. Visinelli**, *The landscape of QCD axion models*, *Physics Reports* **1**, 870 [[hep-ph/2003.01100](#)] (2020).
30. S. Vagnozzi, C. Bambi, and **L. Visinelli**, *Concerns regarding the use of black hole shadows as standard rulers*, *Class. Quant. Grav.* **37**, 8 [[gr-qc/2001.02986](#)] (2020).
29. S. Vagnozzi, **L. Visinelli**, O. Mena, and D. Mota, *Do we have any hope of detecting scattering between dark energy and baryons through cosmology?*, *Mon. Not. R. Astron. Soc.* **493** 1, 1139 [[gr-qc/1911.12374](#)] (2020).
28. **L. Visinelli** and J. Redondo, *Axion Miniclusters in Modified Cosmological Histories*, *Phys. Rev. D* **101**, 023008 [[hep-ph/1808.01879](#)] (2020).
27. **L. Visinelli**, S. Vagnozzi, and U. Danielsson, *Revisiting a negative cosmological constant from low-redshift data*, *Symmetry* **11**(8), 1035, Special Issue [[astro-ph/1907.07953](#)] (2019).
26. T. Tenkanen and **L. Visinelli**, *Axion dark matter from Higgs inflation with an intermediate  $H_*$* , *JCAP* **1908**, 033 [[astro-ph/1906.11837](#)] (2019).
25. E. Di Valentino, R. Ferreira, **L. Visinelli**, and U. Danielsson, *Late time transitions in the quintessence field and the  $H_0$  tension*, *Phys. Dark Univ.* **26**, 100385 [[astro-ph/1906.11255](#)] (2019).
24. C. Bambi, K. Freese, S. Vagnozzi, and **L. Visinelli**, *Testing the rotational nature of the super-massive object M87\* from the circularity and size of its first image*, *Phys. Rev. D* **100**, 044057 [[gr-qc/1904.12983](#)] (2019).
23. S. Vagnozzi and **L. Visinelli**, *Hunting for extra dimensions in the shadow of M87\**, *Phys. Rev. D* **100**, 024020 [[gr-qc/1905.12421](#)] (2019).
22. N. Ramberg and **L. Visinelli**, *Probing the Early Universe with Axion Physics and Gravitational Waves*, *Phys. Rev. D* **99**, 123513 [[astro-ph/1904.05707](#)] (2019).
21. W. H. Kinney, S. Vagnozzi, and **L. Visinelli**, *The Zoo Plot Meets the Swampland: Mutual (In)Consistency of Single-Field Inflation, String Conjectures, and Cosmological Data*, *Class. Quant. Grav.* **36**, 11 [[astro-ph/1808.06424](#)] (2019).
20. **L. Visinelli** and S. Vagnozzi, *Cosmological window onto the string axiverse and the supersymmetry breaking scale*, *Phys. Rev. D* **99**, 063517 [[hep-ph/1809.06382](#)] (2019).
19. S. Boucenna, F. Kühnel, T. Ohlsson, and **L. Visinelli**, *Novel Constraints on Mixed Dark-Matter Scenarios of Primordial Black Holes and WIMPs*, *JCAP* **1807**, 003 [[hep-ph/1712.06383](#)] (2018).
18. K. Freese, E. Sfakianakis, P. Stengel, and **L. Visinelli**, *The Standard Model Higgs Boson can delay Reheating in Inflation*, *JCAP* **1805**, 067 [[hep-ph/1712.03791](#)] (2018).
17. **L. Visinelli**, N. Bolis, and S. Vagnozzi, *Brane-world extra dimensions in light of GW170817*, *Phys. Rev. D* **97**, 064039 [[gr-qc/1711.06628](#)] (2018).
16. **L. Visinelli**, S. Baum, J. Redondo, K. Freese, F. Wilczek, *Dilute and dense axion stars*, *Phys. Lett. B* **777**, 64 [[astro-ph/1710.08910](#)] (2018).

15. **L. Visinelli**, *(Non-)thermal production of WIMPs during kination*, *Symmetry* **10**, 546 [[astro-ph/1710.11006](#)] (2018).
14. **L. Visinelli**, *Light axion-like dark matter must be present during inflation*, *Phys. Rev. D* **96**, 023013 [[astro-ph/1703.08798](#)] (2017).
13. S. Baum, **L. Visinelli**, K. Freese, and P. Stengel, *Dark matter capture, sub-dominant WIMPs, and neutrino observatories*, *Phys. Rev. D* **95**, 043007 [[astro-ph/1611.09665](#)] (2017).
12. **L. Visinelli**, *Observational Constraints on Monomial Warm Inflation*, *JCAP* **1607**, 054 [[astro-ph/1605.06449](#)] (2016).
11. **L. Visinelli**, *Condensation of Galactic Cold Dark Matter*, *JCAP* **1607**, 009 [[hep-ph/1509.05871](#)] (2016).
10. **L. Visinelli** and P. Gondolo, *Kinetic decoupling of WIMPs: analytic expressions*, *Phys. Rev. D* **91** 8, 083526 [[astro-ph/1501.02233](#)] (2015).
9. **L. Visinelli**, *Neutrino flavor oscillations in a curved space-time*, *Gen. Rel. Grav.* **47** 5, 62 [[gr-qc/1410.1523](#)] (2015).
8. **L. Visinelli**, *Cosmological perturbations for an inflaton field coupled to radiation*, *JCAP* **1501**, 005 [[astro-ph/1410.1187](#)] (2015).
7. **L. Visinelli**, S. Masina, M. Vichi, A. Storto, and T. Lovato, *Impacts of Data Assimilation on the Global Ocean Carbonate System*, *Journal of Marine Systems* **158**, 106 (2015).
6. **L. Visinelli**, S. Masina, M. Vichi, and A. Storto, *Impacts of Physical Data Assimilation on the Global Ocean Carbonate System*, *Biogeosciences Discussions* **11** (4), 5399-5441 (2014).
5. P. Gondolo and **L. Visinelli**, *Axion Cold Dark Matter in view of BICEP2 results*, *Phys. Rev. Lett.* **113**, 011802, *Editor's Suggestion* [[hep-ph/1403.4594](#)] (2014).
4. **L. Visinelli**, *Axion-Electromagnetic Waves*, *MPLA* **28**, 35 [[physics.class-ph/1401.0709](#)] (2013).
3. **L. Visinelli**, *Natural Warm Inflation*, *JCAP* **1109**, 013 [[astro-ph/1107.3523](#)] (2011).
2. **L. Visinelli** and P. Gondolo, *Axions Cold Dark Matter in Nonstandard Cosmologies*, *Phys. Rev. D* **81**, 063508 [[astro-ph/0912.0015](#)] (2010).
1. **L. Visinelli** and P. Gondolo, *Dark Matter Axions Revisited*, *Phys. Rev. D* **80**, 035024 [[astro-ph/0903.4377](#)] (2009).

---

## Articles currently under review or recently accepted

2. B. Carr, F. Kühnel, and **L. Visinelli**, *Constraints on Stupendously Large Black Holes*, Submitted to MNRAS [[astro-ph/2008.08077](#)] (2020).
1. D. Alesini et al., *KLASH Conceptual Design Report* [[ins-det/1911.02427](#)].

---

## Proceedings

2. **L. Visinelli**, *Analytic expressions for the kinetic decoupling of WIMPs*, *Journal of Physics - Conference Series* **718** [[astro-ph/1601.00817](#)] (2016).
1. **L. Visinelli** and P. Gondolo, *Axion Cold Dark Matter Revisited*, *Journal of Physics - Conference Series* **203** [[astro-ph/0910.3941](#)] (2010).

---

## Articles in preparation

5. A. Litsa, K. Freese, E. Sfakianakis, P. Stengel, and **L. Visinelli**, *Large Density Perturbations from Higgs-Modulated Reheating*, In preparation.
4. A. Litsa, K. Freese, E. Sfakianakis, P. Stengel, and **L. Visinelli**, *Primordial Non-Gaussianity from Higgs-Modulated Reheating*, In preparation.
3. T. Edwards, B. Kavanagh, **L. Visinelli**, and C. Weniger, *Tidally Disrupting Axion Miniclusters in the Milky Way*, In preparation.
2. Y. Wu, H. Yu, **L. Visinelli**, and K. Freese, *Dark Stars with Self-Interacting dark matter*, In preparation.
1. T. Rindler-Daller, K. Freese, R. Townsend, and **L. Visinelli**, *Stability and Pulsation of the First Dark Stars*, In preparation.

---

## Articles unpublished

2. **L. Visinelli** and P. Gondolo, *An integral equation for distorted wave amplitudes*, [[hep-ph/1007.2903](#)] (2010).
1. **L. Visinelli** and P. Gondolo, *Neutrino Oscillations & Decoherence*, [[hep-ph/0810.4132](#)] (2008).

---

## Outreach: Presenting science to popular audience

- |               |   |
|---------------|---|
| August 2020   | Public lecture "Buchi neri e onde gravitazionali: La ricerca in Italia" (In Italian).<br>Youtube links: <a href="#">PART 1</a> <a href="#">PART 2</a> |
| March 2016    | Public lecture "Capire le onde gravitazionali" (In Italian), Bologna.   |
| November 2015 | Public lecture "Physics for everybody!" (In Italian), Bologna.  |
| February 2013 | Public lecture "Galileo, father of the scientific method" (In Italian), Bologna.  |
| April 2011    | Public lecture "Dark Matters", The University of Utah, Math Department.   |

---

## Workshop attendance

- |                |  |
|----------------|--|
| April 2017     | <a href="#">The 5th MCTP Spring Symposium</a> , Ann Arbor, MI (USA)            |
| September 2014 | <a href="#">Data Assimilation in Ocean Physics</a> , Trieste (Italy)           |
| June 2013      | <a href="#">Advanced School on Data Assimilation</a> , Bologna (Italy)         |
| December 2009  | <a href="#">Focus week on indirect dark matter search</a> , IPMU Tokyo (Japan) |

---

## Visiting researcher

- |                |                             |
|----------------|-----------------------------|
| 4/20–5/20 2019 | University of Michigan (MI) |
| Apr 10–20 2019 | Barry University (FL)       |
| Jan 20–31 2019 | INFN Frascati (IT)          |
| May 1–15 2017  | Perimeter Institute (CA)    |
| Mar 6 –10 2017 | Harvard University (MA)     |
| Feb 25–30 2017 | MIT (MA)                    |
| Jan–Feb 2017   | University of Michigan (MI) |



## Invited talks

35. 10/13/20 Undergraduate seminar, Colgate University (NY), *One dark matter candidate: the axion*
34. 06/04/20 International Institute of Physics, Natal (BR), *Radio and gravitational wave signals from cosmic axions* [[LINK to the YouTube video on the IIP channel: https://rb.gy/tsg0of](https://rb.gy/tsg0of)]
33. 05/11/20 Newton 1665 webinars series, *New physics out of the Shadow*  
[[LINK to the YouTube video on the Newton1665 channel: https://www.youtube.com/watch?v=yCDUfzv8oKY](https://www.youtube.com/watch?v=yCDUfzv8oKY)]
32. 04/29/20 Latin American Webinars (LAWphysics) series, *Astrophysics with axion stars and miniclusters*  
[[LINK to the YouTube video on the LAWphysics channel: https://www.youtube.com/watch?v=ilfmBKMgyH8](https://www.youtube.com/watch?v=ilfmBKMgyH8)]
31. 04/07/20 University of Texas at Austin (USA), *The future of light boson dark matter*
30. 03/02/20 DAMTP Institute of Astronomy, University of Cambridge (UK), *Light boson dark matter*
29. 12/20/19 National Institute Of Chemical Physics And Biophysics, Tallinn (ES), *Light boson dark matter*
28. 11/27/19 Fudan University, Shanghai (CHN), *Testing the rotational nature of the supermassive object M87\**
27. 11/25/19 Shanghai Jiao Tong University, Shanghai (CHN), *Light bosons as dark matter candidates*
26. 11/07/19 Nordita, Stockholm (SE), *Testing the rotational nature of the supermassive object M87\**
25. 05/21/19 INFN Frascati, Rome (IT), *Axion miniclusters and implications for axion detection*
24. 05/10/19 Wayne State University, MI (USA), *Probing the Early Universe with Axion Physics*
23. 05/01/19 Kavli Institute for Cosmological Physics, IL (USA), *Probing the Early Universe with Axions*
22. 04/30/19 Argonne National Laboratory, IL (USA), *Probing the Early Universe with Axions*
21. 04/25/19 University of Michigan, MI (USA), *The Quest for the Axion*
20. 04/17/19 Barry University, FL (USA), *Introduction to Cosmology and Particle Physics*
19. 04/12/19 University of Florida, FL (USA), *Probing the Early Universe with Axion Physics*
18. 04/04/19 IFIC, Valencia (ES), *Probing the Early Universe with Axions*
17. 01/08/19 SISSA, Trieste (IT), *The Cold Dark Matter axion and Axion Stars*
16. 10/23/18 Nikhef Amsterdam (NL), *The Quest for the Axion*
15. 11/30/18 INFN Frascati, Rome (IT), *Motivations for the search of light axions*
14. 10/23/18 University of Bologna (IT), *Searching for Axions and the String Axiverse in the Cosmo*
13. 10/18/18 INFN Frascati, Rome (IT), *Searching for Axions in the Lab and in the Cosmo*
12. 04/11/18 Latin American Webinars (LAWphysics) series, *The axion in cosmology and astrophysics*  
[[LINK to the YouTube video on the LAWphysics channel: https://www.youtube.com/watch?v=YWqVpPrpLjw](https://www.youtube.com/watch?v=YWqVpPrpLjw)]
11. 02/01/18 CEICO, Prague (CZ), *The Cold Dark Matter axion and Axion Stars*
10. 12/01/17 University of Turin (IT), *The Cold Dark Matter axion and Axion Stars*



9. 08/16/17 University of Oslo (NO), *Dark matter capture and neutrino observatories*
8. 06/15/17 University of Bologna (IT), *Dark matter capture and neutrino observatories*
7. 02/01/07 University of Michigan, MI (USA), *Axion cold dark matter, miniclusters, and axion stars*
6. 10/25/16 University of Helsinki (FI), *Axion cold dark matter, status and perspectives*
5. 01/21/16 University of Zaragoza (ES), *Axion cold dark matter, status and perspectives*
4. 06/03/13 CMCC Lecce (IT), *Impacts of Data Assimilation on the Global Ocean Carbonate System*
3. 06/15/11 University of Pisa (IT), *Axion cold dark matter in standard and non-standard cosmologies*
2. 10/12/10 University of New Mexico, NM (USA), *An integral equation for distorted-wave amplitudes*
1. 05/21/09 University of Bologna (IT), *Axion cold dark matter revisited*

## Conference talks

25. 08/24/20 [Cosmology from Home](#), *Axion Miniclusters: Tidal Disruption and Radioastronomy*
24. 07/21/20 [IDM2020](#), Zurich (CH), *The future of Axion Physics*
23. 09/2-6/19 [TeVPA 2019](#), Sydney (AU), *Probing the Early Universe with Axion Physics*
22. 06/24-06/26 [Vera Rubin Fest](#), Washington DC (USA), *Axions*
21. 06/10-14/19 [Invisibles19](#), Valencia (ES), *Coordinating one of the panel discussion session*
20. 12/18/18 [SLAP 2018](#), King's College London (UK), *The Cold Dark Matter axion and Axion Stars*
19. 12/11/18 [The quest for New Physics](#), Instituto de Física Corpuscular (ES), *Axion Stars*
18. 09/05/18 [Invisibles18 Workshop](#), Karlsruhe Institute of Technology (DE), *Dilute and dense axion stars*
17. 06/20/18 [14th Patras Workshop](#), DESY Hamburg (DE),  
*The Higgs Boson can delay Reheating after Inflation*
16. 06/12/18 [Preparing for Dark Matter Particle Discovery](#), Chalmers University of Technology, Goteborg (SE),  
*The Higgs Boson can delay Reheating after Inflation*
15. 03/07/18 [Ultralight Dark Matter and Axions](#), University of Michigan (USA),  
*The parameter space of axion-like particles*
14. 02/22/18 [UCLA Dark Matter 2018](#), UCLA (USA), *Axions in cosmology and astrophysics*
13. 08/31/17 [DaVCO](#), CP<sup>3</sup> Origin (DK), *Axions and ALPs as the Cold Dark Matter*
12. 08/04/17 [Self-interacting dark matter](#), Niels Bohr Institute (DK), *Sharpening Fuzzy Dark Matter*
11. 07/19/17 [Advances in Theoretical Cosmology in Light of Data](#) Nordita (SE), *Axion dark matter*
10. 12/06/16 [Axion Dark Matter workshop](#), Nordita (SE), *Axion dark matter, miniclusters, and axion stars*
9. 08/12/16 [IDM2016](#), Sheffield (UK), *Galactic Cold Dark Matter from First Principles*
8. 09/07/15 [TAUP 2015](#), Turin (IT) *Analytical expressions for the kinetic decoupling of WIMPs*

7. 11/19/14 [GEOCARBON Final Meeting](#), Paris (FR),  
*Summary contribution to GEOCARBON from Land and Ocean Components*
6. 07/08/14 [NEMO Users Meeting](#), Grenoble (FR),  
*Assimilation of Physical and Carbonate Data on the Global Ocean Carbonate System*
5. 10/15/10 [American Physical Society Four Corners Meeting](#), Ogden (USA),  
*An integral equation for distorted-wave amplitudes*
4. 07/13/10 [PPC 2010 Conference](#), Turin (IT), *An integral equation for distorted-wave amplitudes*
3. 03/28/10 [SnowPac & SnowCluster 2010](#), Alta (USA), *Axion dark matter in non-standard cosmologies*
2. 07/02/09 [TAUP 2009](#), Rome (IT), *Axion cold dark matter revisited*
1. 10/20/07 [American Physical Society Four Corners](#), Flagstaff (USA),  
*Oscillation amplitude for neutrino wave packets*

---

## Other Interests

- |       |  |
|-------|--|
| Music | I play both electric and classical guitar. I have played in several groups spanning different styles (blues, rock, metal). |
| Sport | I have practiced Chinese Martial Arts (Wushu) for several years. I train regularly.  |
| Books | I usually read during holidays, especially science fiction and historical reconstructions.                                 |

---

## References (currently writing letters for my profile)

**Katherine Freese** **Full Professor (Postdoc supervisor),**  
• Department of Physics, University of Texas at Austin  
2515 Speedway, Austin TX 78712 USA;  
• Department of Physics, Stockholm University  
Roslagstullsbacken 21 A 10691 Stockholm, Sweden .  
Tel. +1 734 604 1325, Email: [ktfreese@umich.edu](mailto:ktfreese@umich.edu).

**Frank Wilczek** **Full Professor,**  
• Department of Physics, Massachusetts Institute of Technology  
77 Massachusetts Ave, 6-301. Cambridge, MA 02139 USA;  
• Department of Physics and Origins Project, Arizona State University  
Tempe, AZ 25287 USA  
• Department of Physics, Stockholm University  
Roslagstullsbacken 21 A 10691 Stockholm, Sweden  
• T. D. Lee Institute and Wilczek Quantum Center, Shanghai Jiao Tong University  
Shanghai 200240, China.  
Tel. +1 617 253 0284, Email: [wilczek@mit.edu](mailto:wilczek@mit.edu).  
Secretary [for reference letters]: [Anne.Dominic@asu.edu](mailto:Anne.Dominic@asu.edu).

**Paolo Gondolo** **Full Professor (Ph.D. supervisor),**  
• Department of Physics and Astronomy, The University of Utah  
115 S 1400 E #201, Salt Lake City, UT 84112-0830.  
Tel. +1 801 581 77 88, Email: [paolo.gondolo@utah.edu](mailto:paolo.gondolo@utah.edu).

**Javier Redondo** **Associate Professor,** Theoretical physics dept.,  
Zaragoza University, C/ Pedro Cerbuna 12 E-50009, Zaragoza, Spain.  
Tel. +34 876 553312, Email: [jredondo@unizar.es](mailto:jredondo@unizar.es).

**Fiorenzo Bastianelli** **Associate Professor (Bachelor advisor),**  
• Department of Physics and Astronomy, University of Bologna  
Via Irnerio 46 40126 Bologna, Italy.  
Tel. +39 051 209 11 86, Email: [Fiorenzo.Bastianelli@bo.infn.it](mailto:Fiorenzo.Bastianelli@bo.infn.it).

**Sabrina Mulinacci (Teaching)** **Associate Professor,**  
• Department of Statistical Sciences, University of Bologna,  
Via Belle Arti 41 40126 Bologna, Italy.  
Tel. +39 051 209 43 68, Email: [sabrina.mulinacci@unibo.it](mailto:sabrina.mulinacci@unibo.it).