Curriculum Vitae

Lurdes Ondaro Mallea

lurdes.ondaro@dipc.org – arXiv

Current Position

2021–2025(expected) PhD in Computational Cosmology

Institution: Donostia International Physics Center, Donostia, Spain
Advisors: Prof. Raul Angulo
Main research topics: structure formation; simulations; warm dark matter and first halo formation, phase-space simulations, baryonic effects on cosmic gas, theoretical modelling of kinetic Sunyaev-Zel'dovich effect, constraining AGN-feedback.

Academic background

09/20–07/21 Master Degree in Theoretical Physics and Physics of the Cosmos

Institution: Universidad Autónoma de Madrid, Madrid, Spain
Advisor: Prof. Raul Angulo, Prof. Miguel Ángel Sánchez Conde
Thesis: *γ-ray annihilation flux in Warm Dark Matter cosmologies*

09/19–06/20 Research Assistant in Computational Cosmology

Institution: Donostia International Physics Center, Spain
Advisor: Prof. Raul Angulo

06/19–09/19 Summer Internship in Computational Cosmology

Institution: Donostia International Physics Center, Spain
Advisor: Prof. Raul Angulo

2015–2019 Bachelor Degree in Physics

Institution: University of the Basque Country, Leioa, Spain
Advisor: Jon Urrestila
Thesis: *Time in Physics*

Grants, Honors and Awards

2022 2.5M CPUh allocation in MareNostrum IV

Co-PI of CPU-time allocation in the Spanish Supercomputing Network.

2021 La Caixa Inphinit Retaining Fellowship (total awarded: 115.092 €)

An extremely-competitive PhD fellowship awarded to $< 4\%$ of applicants over all areas of science and humanities in Spain and Portugal.

2021 IKASIKER Fellowship (total awarded: 600 €)

A competitive Basque government fellowship for top Master's students to conduct their thesis within a research group.

2019 DIPC Summer Fellowship (total awarded: 2100 €)

Ten research internships (out of ≈ 300 applicants) addressed to Bachelor and Master's students to carry out research projects at Donostia International Physics Center.

2019 Extraordinary Prize for the Best Academic Record of Physics

First ranked in Bachelor's degree (final mark: 8.53/10) among 47 graduates (average mark: 6.95/10).

Outreach & Services

2024	Reviewer of the *Open Journal of Astrophysics*;
12/2024	Outreach talk; Public presentation organized by local astronomy group, Oñati
12/2024	Outreach interview; EHU-Ekinean podcast of the University of the Basque Country
02/2024	Visit to high-school students within the program "Women in Science"; Donostia
10/2023	Talk & public interview; *El palo de Eratóstenes*, Aranzadi Science Association
10-11/2023	Scientific advisor & guide; STRÖM astronomy exposition, Donostia
12/2021	Newspaper interview; El Diario Vasco
10/2021	Outreach talk; XXX Jornadas Astronómicas de Aranzadi, Donostia

Research Students Supervised

2024 Kurt Walsen: *The kinetic Sunyaev-Zeldovich signal in zoom-in hydrodynamical simulations*

Presentations

11/2024	**ETH Cosmology group, Zürich** *Constraining AGN feedback using kinetic Sunyaev-Zeldovich signal*	contributed
11/2024	**Astroparticle Symposium workshop, Paris-Saclay** *Constraining AGN feedback using kinetic Sunyaev-Zeldovich signal*	invited
12/2023	**Galaxy Clustering club, Department of Astrophysics, Zürich** *Non-universality of the halo mass function: origins and modelling*	contributed
09/2023	**COSMO23 Conference, Madrid** *Simulating the first haloes in warm dark matter cosmologies*	contributed
05/2023	**CosmoLSS workshop, Donostia** *Simulating the first haloes in warm dark matter cosmologies*	contributed
04/2023	**Future Science with CMB x LSS, YITP, Kyoto University** *Non-universality of the halo mass function: origin and modelling (poster)*	contributed
12/2022	**Winter School of Astrophysics, Insituto de Astrofísica de Canarias** *Simulating the first haloes in warm dark matter cosmologies*	contributed
11/2022	**VIIIth Meeting in Fundamental Cosmology, Granada** *Simulating the first haloes in warm dark matter cosmologies*	contributed
10/2022	**Galaxy Clustering club, Department of Astrophysics, Zürich** *Simulating the first haloes in warm dark matter cosmologies*	contributed
05/2022	**Advances in Cosmology through numerical Simulations, MIAPbP** *Simulating the first haloes in warm dark matter cosmologies*	contributed
02/2021	**Galaxy Clusters Journal Club, MPE, Gärching** *Non-universality of the halo mass function: origin and modelling*	invited
02/2021	**Galaxy Clusters Journal Club, Observatory of Trieste** *Non-universality of the halo mass function: origin and modelling*	invited

Graduate-level schools and other events

12/2022	**Winter School of Astrophysics, Instituto de Astrofísica de Canarias**
05/2022	**Advances in Cosmology through Numerical Simulations, MIAPbP, Gärching**
06/2021	**Gamma rays to shed light on dark matter, Insituto de Fisica Teorica, Madrid**

Publication list

First author

- **Ondaro-Mallea, Lurdes**, Raul E. Angulo, Giovanni Aricò, and et al. (2025a). *Constraints on baryonic feedback from kinetic Sunyaev-Zeldovich signal. In prep.*
- **Ondaro-Mallea, Lurdes**, Raul E. Angulo, Giovanni Aricò, and et al. (2025b). *Theoretical modelling of the kinetic Sunyaev-Zeldovich signal: a baryonification model. In prep.*
- **Ondaro-Mallea, Lurdes**, Raul E. Angulo, Giovanni Aricò, Joop Schaye, Ian G. McCarthy, and Matthieu Schaller (Dec. 2024). "FLAMINGO: Galaxy formation and feedback effects on the gas density and velocity fields". In: *arXiv e-prints*. DOI: 10.48550/arXiv.2412.09526
- **Ondaro-Mallea, Lurdes**, Raul E. Angulo, Jens Stücker, Oliver Hahn, and Simon D. M. White (Feb. 2024). "Phase-space simulations of prompt cusps: simulating the formation of the first haloes without artificial fragmentation". In: *Monthly Notices of the Royal Astronomical Society* 527.4, pp. 10802–10821. DOI: 10.1093/mnras/stad3949
- **Ondaro-Mallea, Lurdes**, Raul E. Angulo, Matteo Zennaro, Sergio Contreras, and Giovanni Aricò (Feb. 2022). "Non-universality of the mass function: dependence on the growth rate and power spectrum shape". In: *Monthly Notices of the Royal Astronomical Society* 509.4, pp. 6077–6090. DOI: 10.1093/mnras/stab3337

Co-author

- Matteo Zennaro, Giovanni Aricò, Carlos García-García, Raúl E. Angulo, **Ondaro-Mallea, Lurdes**, Sergio Contreras, Andrina Nicola, Matthieu Schaller, and Joop Schaye (Dec. 2024). "A 1% accurate method to include baryonic effects in galaxy-galaxy lensing models". In: *arXiv e-prints*. DOI: 10.48550/arXiv.2412.08623
- Ian G. McCarthy, Alexandra Amon, Joop Schaye, Emmanuel Schaan, Raul E. Angulo, Jaime Salcido, Matthieu Schaller, Leah Bigwood, Willem Elbers, Roi Kugel, John C. Helly, Victor J. Forouhar Moreno, Carlos S. Frenk, Robert J. McGibbon, **Ondaro-Mallea, Lurdes**, and Marcel P. van Daalen (Oct. 2024). "FLAMINGO: combining kinetic SZ effect and galaxy-galaxy lensing measurements to gauge the impact of feedback on large-scale structure". In: *arXiv e-prints*. DOI: 10.48550/arXiv.2410.19905
- Giovanni Aricò, Raul E. Angulo, Sergio Contreras, **Ondaro-Mallea, Lurdes**, Marcos Pellejero-Ibañez, and Matteo Zennaro (Sept. 2021). "The BACCO simulation project: a baryonification emulator with neural networks". In: *Monthly Notices of the Royal Astronomical Society* 506.3, pp. 4070–4082. DOI: 10.1093/mnras/stab1911