HERNÁN E. NORIEGA

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EDUCATION

Instituto de Física, Universidad Nacional Autónoma de México (UNAM) *2022 - Present*
PhD in Science (Physics) *CDMX, Mexico*

Advisors: Dra. Mariana Vargas-Magaña & Dr. Alejandro Aviles
Grants: CONACYT Scholarship, PAEP-UNAM, PAPIIT

Instituto de Física, Universidad Nacional Autónoma de México *2020 - 2021*
Master in Science (Physics) *CDMX, Mexico*

Thesis: 'Effects of massive neutrinos on the Large Scale Structure of the Universe'
Thesis Advisors: Dra. Mariana Vargas-Magaña & Dr. Alejandro Aviles

Distinctions: Graduated with honors; Highest score 100 %
Grants: CONACYT Scholarship, PAEP-UNAM

Universidad del Atlántico (UA) *2014 - 2019*
BA in Physics *Barranquilla, Colombia*

Thesis: 'Constant-roll inflation driven by a scalar field with nonminimal derivative coupling'
Thesis Advisor: Dr. Alexander Oliveros

Distinctions: Graduated with honors; 1^{st} Class (Rank 1/55)
Grants: UA Scholarship

LANGUAGES

Spanish Native
English Fluent

LONG-TERM ACADEMIC VISITS

Instituto de Ciencias del Cosmos, Universitat de Barcelona *July, 2023 - December, 2023*
Visiting Graduate Student with Dr. Héctor Gil-Marín & Dra. Licia Verde *Barcelona, Spain*

Instituto Nacional de Investigaciones Nucleares (ININ) *2022 - Feb, 2024*
Visiting Graduate Student with Dr. Alejandro Aviles *La Marquesa, Mexico*

Instituto de Ciencias Físicas, UNAM *Jan. - April, 2021*
Visiting Graduate Student with Dr. Sebastien Fromenteau *Cuernavaca, Mexico*

SELECTED PUBLICATIONS

Full list of publications available at: Google Scholar, arXiv, INSPIRE

Listed in chronological order
** = Author list alphabeticized*

1. C. Garcia-Quintero, **H.E. Noriega**, A. de Mattia, A. Aviles, K. Lodha, D. Chebat, J. Rohlf, S. Nadathur, W. Elbers, et al., "*Cosmological implications of DESI DR2 BAO measurements in light of the latest ACT DR6 CMB data*," e-Print: 2504.18464 [astro-ph.CO] (Apr 25, 2025).

2. *DESI Collaboration, M. Abdul Karim, et al., **incl. H.E. Noriega**, "*DESI DR2 Results II: Measurements of Baryon Acoustic Oscillations and Cosmological Constraints*," e-Print: 2503.14738 [astro-ph.CO] (Mar 18, 2025).
3. W. Elbers, A. Aviles, **H.E. Noriega**, D. Chebat, A. Menegas, C.S. Frenk, C. Garcia-Quintero, D. Gonzalez, M. Ishak, O. Lahav, K. Naidoo, G. Niz, C. Yèche, et al., "*Constraints on Neutrino Physics from DESI DR2 BAO and DR1 Full Shape*," e-Print: 2503.14744 [astro-ph.CO]
4. M. Ishak, J. Pan, R. Calderon, K. Lodha, G. Valogiannis, A. Aviles, G. Niz, L. Yi, C. Zheng, C. Garcia-Quintero, A. de Mattia, L. Medina-Varela, J.L. Cervantes-Cota, U. Andrade, D. Huterer, **H.E. Noriega**, G. Zhao, A. Shafieloo, W. Fang, et al., "*Modified Gravity Constraints from the Full Shape Modeling of Clustering Measurements from DESI 2024*", e-Print: 2411.12026
5. *DESI Collaboration, A.G. Adame, et al., **incl. H.E. Noriega**, "*DESI 2024 V: Full-Shape Galaxy Clustering from Galaxies and Quasars*", e-Print: 2411.12021
6. **Hernán E. Noriega**, A. Aviles, "*Unveiling neutrino masses: Insights from a robust BOSS and eBOSS data analysis and prospects for DESI and beyond*", Phys. Rev. D Letter **111** (2025) 6, L061307 (arXiv)
7. **H.E. Noriega**, A. Aviles, H. Gil-Marín, S. Ramirez-Solano, S. Fromenteau, et al., "*Comparing Compressed and Full-Modeling analyses with FOLPS: implications for DESI 2024 and beyond*", JCAP **01** (2025) 136 (arXiv)
8. S. Ramirez-Solano, M. Icaza-Lizaola, **H.E. Noriega**, "*Full Modeling and parameter compression methods in configuration space for DESI 2024 and beyond*", JCAP **01** (2025) 129 (arXiv)
9. M. Maus, Y. Lai, **H.E. Noriega**, S. Ramirez-Solano, A. Aviles, et al., "*A comparison of effective field theory models of redshift space galaxy power spectra for DESI 2024 and future surveys*", JCAP **01** (2025) 134 (arXiv)
10. Y. Lai, C. Howlett, M. Maus, H. Gil-Marín, **H.E. Noriega**, et al., "*A comparison between ShapeFit compression and Full-Modelling method with PyBird for DESI 2024 and beyond*", JCAP **01** (2025) 139 (arXiv)
11. Mario A. Rodriguez-Meza, Alejandro Aviles, **Hernan E. Noriega**, Cheng-Zong Ruan, Baojiu Li, Mariana Vargas-Magaña, Jorge L. Cervantes-Cota, "*fkPT: constraining scale-dependent modified gravity with the full-shape galaxy power spectrum*", JCAP **03** (2024) 049 (arXiv)
12. **Hernán E. Noriega**, Alejandro Aviles, Sebastien Fromenteau, Mariana Vargas-Magaña, "*Fast computation of non-linear power spectrum in cosmologies with massive neutrinos*", *JCAP* 11 (2022) 038 (arXiv).
13. A. Oliveros, **Hernán E. Noriega**, "*Constant-roll inflation driven by a scalar field with nonminimal derivative coupling*", *Int. J. Mod. Phys. D* **28** (2019) 12, 1950159 (arXiv).

SELECTED TALKS

* = *Virtual Talk*

- **Neutrinos from Home, Large scale structure formation in the presence of massive neutrinos.*
- *INSTITUTE OF SPACE SCIENCES (ICE-CSIC,IEEC) Seminar: Large scale structure formation with scale-dependent linear growth function*, Barcelona, Spain, Dec.
- *DESI Collaboration Meeting, KP5 parallel: Exploring Systematics in Compressed and Full-Shape Analyses of DESI Abacus Mocks using `FOLPSν`: Insights from Fourier Space*, Durham, United Kingdom, July.
- *DESI Collaboration Meeting, Breakout 3a: Compressed Statistics (joint KP57+GQC) - Updates on FOLPS*, Cancun, Mexico, Dec.

- *VIII Essential Cosmology for the Next Generation*, Cancun, Mexico, Dec. - *Contributed Talk.*
- **DESI Collaboration Meeting, Breakout 7a: Update on GQC projects – Bayview*, Berkeley, California, USA, June.
- *Short course: FFTLog formalism in cosmological perturbation theories*, Instituto Avanzado de Cosmología (IAC), CDMX, Mexico, Aug. - *Invited Talk.*
- *II Workshop on Current Challenges in Cosmology*, UAN, Univalle, UNAL y COLCIENCIAS, Bogotá, Colombia, Nov.

ACADEMIC EXPERIENCE

Vera C. Rubin Observatory (LSST) *2022 - Present*
LSST member

Dark Energy Spectroscopic Instrument (DESI) *2021 - Present*
DESI member

Galaxies Quasars Clustering (GQC) working group

Institución Educativa Distrital Ciudadela Estudiantil *2019 - 2020*
High School teacher in Physics and Mathematics *Barranquilla, Colombia*

Universidad del Atlántico *2019 - 2020*
Administrative staff: Physics labs *Barranquilla, Colombia*

Universidad del Atlántico *2016 - 2018*
Assistant teacher *Barranquilla, Colombia*

TECHNICAL STRENGTHS

Computing Languages	Python, C/C++ MATHEMATICA, MATLAB
Codes Developed	FOLPSν, fkpt, C2C
Supercomputer	NERSC, COSMA, Miztli, Atocatl

REFERENCES

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Dr. Alejandro Aviles
CONACYT & ININ
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Dr. Sebastien Fromenteau
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