Uendert Andrade

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Professional Appointments

University of Michigan, Ann Arbor, MI — September 2022 – **Present**
Leinweber Postdoctoral Fellow, Department of Physics

Observatório Nacional, Rio de Janeiro, Brazil — March 2022 – August 2022
Postdoctoral Fellow (to complete the PhD academic year)

Education

Observatório Nacional, Rio de Janeiro, Brazil — March 2018 – March 2022
Ph.D., Department of Astronomy; advisor: Jailson Alcaniz
Probing the fundamental hypotheses of the standard cosmology

Observatório Nacional, Rio de Janeiro, Brazil — March 2016 – February 2018
M.Sc., Department of Astronomy; advisor: Jailson Alcaniz
Testing the cosmological isotropy

Federal Rural University of Rio de Janeiro, Seropédica, Brazil — February 2011 – January 2016
B.S., Department of Physics
Canonical Quantization with Constraints

Fellowships & Awards

Postdoctoral Fellowship — December 2021 – August 2022
Ministry of Science, Technology and Innovation of Brazil

State of Rio de Janeiro Best Ph.D candidates Award — March 2020 – November 2021
Fundação de Amparo à Pesquisa do Estado do Rio de Janeiro

Doctorate Abroad Program Award — September 2019 – February 2020
Coordenação de Aperfeiçoamento de Pessoal de Nível Superior

Fellowship Award for Ph.D. — March 2018 – February 2020
Coordenação de Aperfeiçoamento de Pessoal de Nível Superior

Fellowship Award for M.Sc. — March 2016 – February 2018
Coordenação de Aperfeiçoamento de Pessoal de Nível Superior

Leadership & Service Roles

Dark Energy Spectropic Instrument (DESI)

Collaboration-internal reviewer — July 2025

DR2 BAO Co-Coordinator, GQC Working Group — August 2024 – October 2025
The Galaxy & Quasar Clustering (GQC) Working Group leads one of the key DESI science programs, delivering precision measurements of cosmic distances, structure growth. As co-coordinator of the DR2 BAO Key Project, I oversaw coordination between the GQC and other Working Groups (e.g., Cosmological Parameter Estimation) to ensure the delivery of the DESI DR2 cosmological results.

Lead, DR2 BAO Topical Group — August 2024 – October 2025
Topical Group charged with carrying out the Baryon Acoustic Oscillation (BAO) analyses within the GQC Working Group. I lead the galaxy clustering measurements, reconstruction, and final distance-scale measurements, performing and supervising systematic validation and robustness tests across all DESI GQC tracers.

Leinweber Institute for Physics, University of Michigan

Organizer, UM Cosmology Group Meeting and Cosmo Seminar — Fall 2025
Scheduled seminar speakers, coordinated details, and maintained and advertised schedule.

Organizer, Michigan Cosmology Summer School 2025, Ann Arbor, MI — June 2025
Co-organized the 3rd Michigan Cosmology Summer School, focused on bridging cosmological data and theory.

Organizer, UM Cosmology Group Meeting — Winter 2024
Organized weekly group meeting and led discussions.

Organizer, Michigan Cosmology Summer School 2023, Ann Arbor, MI June 2023
Co-organized the 2nd Michigan Cosmology Summer School, a hybrid event focused on interface between data and theory.

Miscellaneous

Referee, Journal of High Energy Astrophysics (JHEAp) 2025 – **Present**
Referee, Monthly Notices of the Royal Astronomical Society (MNRAS) 2020 – **Present**

Student Supervision & Mentoring

Professional Mentoring

Ana Sofia Uzsoy (Ph.D. student, Harvard University) December 2024 – **Present**
Serving as a mentor in the DESI Diversity, Equity, and Inclusion (DEI) Mentorship Program, a collaboration-wide initiative focused on the professional and career development of early-career scientists within DESI.

Research Mentoring

Andrew Hope (Undergraduate, University of Michigan) August 2025 – **Present**
Project: Baryonic effects in cosmological observables
Co-supervising with Dragan Huterer.

Nick Sanders (Ph.D. student, Ohio University) August 2025 – **Present**
Mentoring with Hee-Jong Seo on DESI combined-tracer analyses. Providing mentorship and technical guidance on the validation of the joint-tracer BAO pipeline, including cross-checks of fitting procedures, pipeline consistency, and interpretation of results.

Isabele Vitorio (Ph.D. student, University of Michigan) May 2025 – **Present**
Full-shape cosmology and halo occupation distribution analysis
Advising on theoretical modeling and parameter inference pipelines.

Ricardo Fernandes (Ph.D. student, Universidade Federal da Bahia) December 2024 – **Present**
Project: Geometry–growth split as a consistency test of ΛCDM
Co-supervising with Rodrigo von Marttens.

Nicola Deiosso (Ph.D. student, CIEMAT Universidad Autónoma de Madrid) May – August 2025
Project: Improving BGS clustering statistics for DESI
Co-advised the visiting student at the University of Michigan with Dragan Huterer. Advised on assessing and mitigating modeling challenges in the BGS sample for the DESI DR2 BAO analysis, where using all BGS galaxies would increase the effective survey volume by $\sim 20\%$ but introduces additional clustering-related complexities.

Prakhar Bansal (Ph.D. student, University of Michigan) 2024
Task: Systematics validation for DESI DR2 BAO analyses
Mentored through BAO tests for spurious BAO-like features in the hexadecapole as part of the blinding verification.

Jiaming Pan (Ph.D. student, University of Michigan) 2023 – 2025
Task: Blinding strategy and fiducial cosmology tests for DESI
Mentored on the generation and validation of clustering statistics for DESI blinding analysis, as well as on fiducial-cosmology verification tests for the DR2 BAO analysis.

Xiaoyun Shao (Ph.D. student, Observatório Nacional, Brazil) 2022 – 2024
Project: Cosmic homogeneity as a cosmological test; Eur. Phys. J. C 84, 655 (2024)
Co-supervised with Rodrigo Gonçalves and Jailson Alcaniz.

Teaching Experience

Co-Instructor, Introductory Physics University of Michigan Winter 2026 (upcoming)
Assisting course instructor; responsibilities will include helping prepare and deliver lectures, guiding discussion sections, and supporting student learning during office hours.

DESI Early Career Scientists Lecture, Cancún, Mexico December 2024
Overview of the Galaxy Quasar Clustering BAO: From Y1 to Y3

Cosmologia Numérica com CLASS e MontePython August 2022
Organized and lectured in a week-long graduate course on computational cosmology at the Observatório Nacional, Rio de Janeiro, Brazil, focusing on numerical modeling using the CLASS Boltzmann code and MontePython MCMC framework. The course included lectures and hands-on sessions (20 total hours) and was attended by M.Sc. and Ph.D. students in cosmology and astrophysics.

Certified Physics Teacher, Brazil 2013 – **Present**
Hold a national teaching certification (*Licenciatura em Física*), qualifying to teach physics in Brazilian public and private high schools. Received formal training in pedagogy, classroom methodology, and inclusive education, including strategies for supporting students with disabilities such as hearing and speech impairments.

High School Physics Teacher, Brazilian Public School System 2013 – 2014
Taught introductory and intermediate physics courses covering classical mechanics, thermodynamics, and electromagnetism to public high school students. Applied inclusive teaching methods and developed adapted instructional materials for students with disabilities, emphasizing hands-on activities, conceptual understanding, and student engagement.

Outreach & Media

Interview, *Scientific American* March 2025
Featured in the article *Shocking Dark Energy Findings Challenge the Standard Model of the Universe*, explaining DESI unblinding process and communicating its significance to the general public.

Video Presentation, DESI YouTube Channel March 2025
Presenter of the talk *"DESI DR2: Baryon Acoustic Oscillations from Galaxies and Quasars,"* delivered on behalf of the DESI Collaboration. YouTube video, published on the official DESI YouTube Channel, introduces the second data release (DR2) BAO results.

Interview, University of Michigan News September 2024
Featured in the University of Michigan News article *Dark energy–filled black holes plus DESI data give neutrino masses that make sense*; provided data products and guidance used in the new report.

Blog Post, DESI Collaboration May 2024
Contributed to the post *Closing Our Eyes to Truly See — Blinding in DESI's Analysis of Its Cosmological Measurements*, explaining the importance of catalog-level blinding in ensuring unbiased cosmological inference for a general audience.

Interview, University of Michigan News April 2024
Featured in the University of Michigan News article *New DESI results strengthen hints that dark energy may evolve*, discussing the implications of recent DESI findings for dark energy and the accelerating universe.

Semana Nacional de Ciência e Tecnologia, Brasília, Brazil October 2021
Participated in Brazil's National Week of Science and Technology, engaging the public with interactive demonstrations on general relativity and the solar eclipse as experimental confirmations of Einstein's theory. Contributed to activities designed to make modern cosmology accessible to a broad audience.

Research Presentations

Invited Talks

Conference on the Intersections of Particle & Nuclear Physics, Madison, WI June 2025
Plenary: *DESI DR2: New Cosmological Constraints and Challenges to the ΛCDM Model*

NASA Cosmic Structure Science Interest Group, Virtual May 2025
DESI DR2: Measurements of Baryon Acoustic Oscillations and Cosmological Constraints

LEPP Journal Club Seminar, Cornell University April 2025
Cosmological Constraints from DESI: DR1 to latest DR2

Cosmology on the Steep Rise, Sexten, Italy February 2025
Cosmology from DESI DR1: Baryon Acoustic Oscillations & Full-Shape Measurements

Cosmology Meeting, Perimeter Institute for Theoretical Physics October 2024
Cosmological constraints from DESI DR1

Cosmology Meeting, University of Waterloo October 2024
An Empirical Consistency Test of Dark Energy Models

CCAPP Seminar, The Ohio State University November 2024
DES Y6 extensions and growth–geometry split analyses

XIII International Conference on New Frontiers in Physics, Crete, Greece August 2024
Cosmology from the DESI Year 1 Baryon Acoustic Oscillations Measurements

DESI Collaboration Meeting, Marseille, France July 2024
Plenary: *Summary of KP7a Results: Cosmological constraints from DESI DR1 and external data*

ICCUB Seminar, University of Barcelona, Barcelona, Spain — June 2024
Testing the Consistency of Growth and Expansion with the Dark Energy Survey

Contributed (Conference) Talks

COSMO2025, Pittsburgh, PA — October 2025
Validation of DESI DR2 Baryon Acoustic Oscillations Measurements

VII CosmoSul, Salvador, Brazil — August 2024
Cosmology from the DESI Year 1 Baryon Acoustic Oscillations Measurements

Cosmology in the Adriatic — From PT to AI, Split, Croatia — July 2024
DESI Blinding Methodology and Validation

VIII Essential Cosmology for the Next Generation, Cancún, Mexico — December 2022
A Test of the Standard Cosmological Model with Geometry and Growth

XLI Brazilian National Meeting of Particle and Field Physics, Virtual — September 2021
A Test of the Standard Cosmological Model with Geometry and Growth

J-PAS Theory Workshop, Virtual — September 2020
An empirical consistency test of LCDM cosmology with J-PAS

Research Seminars

Annual Graduate Student Seminar, Rio de Janeiro, Brazil — August 2021
Tests of the Standard Cosmological Model

Annual Graduate Student Seminar, Rio de Janeiro, Brazil — September 2020
Geometry-Growth splitting technique: An empirical consistency test of LCDM cosmology

Annual Graduate Student Seminar, Rio de Janeiro, Brazil — June 2019
Cosmic Isotropic with Low-z Pantheon Type Ia Supernovae

Cosmology Group Meeting, University of Michigan — September 2019
Testing the Cosmological Principle with Type Ia Supernovae and Gamma Ray Burst

Annual Graduate Student Seminar, Rio de Janeiro, Brazil — August 2017
Cosmic Isotropic Test with Type Ia Supernovae

Poster Presentations

DES Collaboration Meeting, Portsmouth, UK — January 2023
A Test of the Standard Cosmological Model with Geometry and Growth

XXI Jorge André Swieca Summer School in Particles and Fields, Virtual — February 2021
A Test of the Standard Cosmological Model with Geometry and Growth

Gravitational Wave Challenges and Cosmology Workshop, Natal, Brazil — June 2019
Revisiting the statistical isotropy of GRB sky distribution

Professional Training/Workshops

A Discussion on the Cosmological Principle, Virtual — October 2021
Cosmology from Home 2021, Virtual — July 2021
Lighting talk: short introduction on my research topics
As Astrocientistas, Virtual — February 2021
Brazilian Meeting of Girls & Women in Astrophysics, Gravitation & Cosmology
Joint ICTP-Trieste-SAIFR School on Observational Cosmology, São Paulo, Brazil — July 2019
Short presentation: Tests of cosmological isotropy
Cosmology Summer School 2020 at the University of Michigan, Virtual — June 2020
Ciclo de Cursos Especiais (CCE), Observatório Nacional, Brazil — 2016, 2017, 2018, 2020, 2021
IV Jayme Tiomno School of Cosmology at Observatório Nacional, Brazil — August 2016

Skills

Programming	Python, C/C++; some Fortran
Software & Computing	Git/GitHub, LaTeX, Jupyter, Slack, Zoom, Microsoft Office, HPC
Languages	Portuguese (native), English (fluent), Spanish (conversational)