

Maja Lujan Niemeyer

Max Planck Institute for Astrophysics \diamond Karl-Schwarzschild-Str. 1 \diamond D-85741 Garching, Germany
maja@mpa-garching.mpg.de \diamond <https://mlujnie.github.io> \diamond ORCID: 0000-0002-6907-8370

EDUCATION

PhD in Physics	final grade: summa cum laude (highest distinction)
Max Planck Institute for Astrophysics, Garching	October 2021 - February 2026
M.Sc. in Physics	final grade (best possible grade: 1.0): 1.16
Thesis: <i>Lyman-α Halos around High-Redshift Lyman-α Emitting Galaxies</i>	grade: 1.0
Ludwig-Maximilians-Universität München	April 2019 - September 2021
B.Sc. in Physics	final grade (best possible grade: 1.0): 1.6
Thesis: <i>Sky Subtraction Techniques for Multiplexed Integral Field Spectrographs</i>	grade: 1.0
Ludwig-Maximilians-Universität München	October 2017 - January 2019
Georg-August-Universität Göttingen	October 2016 - September 2017

RESEARCH INTERESTS

Line intensity mapping, Lyman- α radiative transfer, reionization, low-surface brightness phenomena

FIRST-AUTHOR PUBLICATIONS

TOTAL CITATIONS: 76

- \diamond **M. Lujan Niemeyer**, E. Komatsu et al. (2025)
Ly α Intensity Mapping in HETDEX: Galaxy-Ly α Intensity Cross-Power Spectrum
Astrophysical Journal 999 177, arXiv:2510.11427
Contribution: full analysis, modeling, and interpretation of the measurement and writing of the draft.
- \diamond **M. Lujan Niemeyer** (2025)
Effect of Lyman- α Radiative Transfer on Intensity Mapping Power Spectra
Astrophysical Journal 980 250, arXiv:2407.03060
- \diamond **M. Lujan Niemeyer**, J. L. Bernal, E. Komatsu (2023):
SIMPLE: Simple Intensity Map Producer for Line Emission
Astrophysical Journal 958 4; arXiv:2307.08475
Contribution: developed, tested, and published the code; wrote the draft.
- \diamond **M. Lujan Niemeyer**, W. P. Bowman, R. Ciardullo et al. (2022):
Ly α Halos around [O III]-selected Galaxies in HETDEX
Astrophysical Journal Letters 934 L26; arXiv:2207.11098
Contribution: full analysis and interpretation of the measurement and writing of the draft.
- \diamond **M. Lujan Niemeyer**, E. Komatsu, C. Byrohl et al. (2022):
Surface Brightness Profile of Lyman- α Halos out to 320 kpc in HETDEX
Astrophysical Journal 929 90; arXiv:2203.04826
Contribution: full analysis and interpretation of the measurement and writing of the draft.

OTHER PUBLICATIONS

- ◇ M. Mirza Khanlari, K. Gebhardt, L. H. Weiss et al. (including **M. Lujan Niemeyer**, 2025)
The HETDEX Survey: Probing Neutral Hydrogen in the Circumgalactic Medium of 88,000 Lyman Alpha Emitters
Astrophysical Journal 989 169; arXiv:2507.15942
Contribution: helped write the discussion; edited the draft.
- ◇ L. H. Weiss, K. Gebhardt, D. Davis et al. (including **M. Lujan Niemeyer**, 2025)
Using Ly α Absorption to Measure the Intensity and Variability of $z \sim 2.4$ Ultraviolet Background Light
Astrophysical Journal 983 72; arXiv:2504.13253
Contribution: created analysis, code, and text for Figure 3; provided ideas for the interpretation; edited the draft.
- ◇ L. H. Weiss, D. Davis, K. Gebhardt et al. (including **M. Lujan Niemeyer**, 2024):
Absorption Troughs of Lyman Alpha Emitters in HETDEX
Astrophysical Journal 962 102; arXiv:2401.02490
Contribution: provided and tested several ideas to confirm that this is real signal; edited the draft.
- ◇ D. Davis, K. Gebhardt, E. Mentuch Cooper et al. (including **M. Lujan Niemeyer**, 2023)
HETDEX Public Source Catalog 1—Stacking 50,000 Lyman Alpha Emitters
Astrophysical Journal 954 209; arXiv:2307.03096
Contribution: provided ideas for the analysis; edited draft.
- ◇ E. Mentuch Cooper, K. Gebhardt, D. Davis et al. (including **M. Lujan Niemeyer**, 2023)
HETDEX Public Source Catalog 1: 220 K Sources Including Over 50 K Ly α Emitters from an Un-targeted Wide-area Spectroscopic Survey
Astrophysical Journal 943 177; arXiv:2301.01826
Contribution: tested the public data product; contributed to the HETDEX API; edited the draft.
- ◇ C. Liu, K. Gebhardt, E. Mentuch Cooper et al. (including **M. Lujan Niemeyer**, 2022)
The Active Galactic Nuclei in the Hobby–Eberly Telescope Dark Energy Experiment Survey (HETDEX) II. Luminosity Function
Astrophysical Journal 935 132; arXiv:2207.11801
Contribution: edited the draft.
- ◇ K. Gebhardt, E. Mentuch Cooper, R. Ciardullo et al. (including **M. Lujan Niemeyer**, 2021)
The Hobby–Eberly Telescope Dark Energy Experiment (HETDEX) Survey Design, Reductions, and Detections
Astrophysical Journal 923 217; arXiv:2110.04298
Contribution: developed the full-frame sky subtraction technique; edited the draft.
- ◇ D. Davis, K. Gebhardt, E. Mentuch Cooper et al. (including **M. Lujan Niemeyer**, 2021)
Detection of Lyman Continuum from $3.0 < z < 3.5$ Galaxies in the HETDEX Survey
Astrophysical Journal 920 122; arXiv:2107.11319
Contribution: wrote the code for and the explanation of the weighted biweight location estimator; edited the draft.

TALKS

- ◇ Fachbeirat (external advisory board) Seminar at Max Planck Institute for Astrophysics March 2026
- ◇ Large-Scale Structure Days 2025 October 2025
- ◇ Line Intensity Mapping 2025 June 2025
- ◇ HETDEX Collaboration Meeting 2025 May 2025
- ◇ Line Intensity Mapping 2024 June 2024
- ◇ HETDEX Collaboration Meeting 2024 May 2024
- ◇ Alpine Cosmology Workshop July 2023
- ◇ Present and Future of Line Intensity Mapping Conference April 2023
- ◇ **Invited:** The Multiphase CGM Conference February 2023
- ◇ What Matter(s) around Galaxies conference September 2022
- ◇ Institute seminar at Max Planck Institute for Astrophysics May 2022
- ◇ **Invited:** seminar at Max Planck Institute for Extraterrestrial Physics March 2022

RESPONSIBILITIES AND SERVICE

- ◇ **Co-Investigator** of the VIRUS Deep Field project 2020 - now
- ◇ **Deputy Chair** of the HETDEX Cosmology Science Working Group February 2026 - now

OUTREACH AND TEACHING

- ◇ **Podcast Interview at Bayerischer Rundfunk:**
invited guest in a live national TV and radio podcast about young scientists in Germany 2025
- ◇ **MPA planetarium:** explained the research conducted at MPA to > 200 students 2022 - now
- ◇ **Girl's day at MPA:** helped organize outreach event for female high-school students 2023
- ◇ **Mentored** a new PhD student through the MPA buddy system 2022
- ◇ **Outreach Article:** MPA Research Highlight 2022
- ◇ **Official Blog** of the University of Göttingen: wrote articles about studying physics 2017
- ◇ **Teaching Assistant** at University of Göttingen (Mathematical Methods for Physicist) 2017

VISITING RESEARCH AND SCHOOLS

- ◇ University of Texas at Austin February - March 2024
- ◇ University of Texas at Austin February - March 2020
- ◇ University of Texas at Austin February - September 2019
Research Assistant: Developed a new sky subtraction algorithm for multiplexed integral-field spectrographs to optimize the data processing for line intensity mapping measurements.
- ◇ First Light School on Stars, Galaxies, and Black Holes in the Epoch of Reionization
Advanced School, IAG/University of São Paulo, Brazil July - August 2019

SKILLS

Python	very good skills; experience with, e.g., astropy, numpy, scipy, matplotlib, cython, numba, dask, mpi4py, multiprocessing, sklearn, emcee, cobaya.
C/C++	good skills; experience with OpenMP
LaTeX	very good skills
Linux command line	basic skills
Git	basic skills
HPC facilities	TACC, MPCDF computing facilities
Hydrodynamic codes	Athena, Arepo, and Gadget
Languages	German (native), English (fluent), Spanish (basics), Latin (Latinum)

CITIZENSHIP

Germany, USA

REFERENCES

Eiichiro Komatsu

Max Planck Institute for Astrophysics
komatsu@mpa-garching.mpg.de

José Luis Bernal

Instituto de Física de Cantabria (IFCA)
jlbernal@ifca.unican.es

Karl Gebhardt

University of Texas at Austin
gebhardt@astro.as.utexas.edu

Eric Gawiser

Rutgers University
gawiser@physics.rutgers.edu