# Meghana Killi

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## Work Experience

Postdoctoral Researcher, **Centro de Astrofísica y Tecnologías Afines (CATA)** 2023–Present
Host: Diego Portales University Santiago, Chile

## Education

**Cosmic DAWN Center (DAWN), University of Copenhagen (UCPH)** Copenhagen, Denmark
M.Sc. & Ph.D. in Astrophysics, Supervisor: Darach Watson 2021–2023

**University of Texas at Austin (UT Austin)** Austin, Texas, USA
B.S.(Highest Honors) in Astronomy, Advisors: Caitlin Casey and Volker Bromm 2016–2018

**Indian Institute of Technology at Kharagpur (IIT KGP)** Kharagpur, India
B.Tech.(Honours) in Mechanical Engineering 2011–2015

## List of Publications

[1] A. Posses, ..., **M. Killi**, et al. "The ALMA-CRISTAL survey: Extended [CII] emission in an interacting galaxy system at $z \sim 5.5$". In: *arXiv e-prints*, arXiv:2403.03379 (Mar. 2024), arXiv:2403.03379. arXiv: 2403.03379 [astro-ph.GA].

[2] **M. Killi**, M. Ginolfi, G. Popping, et al. "The ALPINE-ALMA [C II] survey: Characterisation of Spatial Offsets in Main-Sequence Galaxies at $z \sim 4-6$". In: *arXiv e-prints*, arXiv:2402.07982 (Feb. 2024), arXiv:2402.07982. DOI: 10.48550/arXiv.2402.07982. arXiv: 2402.07982 [astro-ph.GA].

[3] **M. Killi**, D. Watson, G. Brammer, et al. "Deciphering the JWST spectrum of a 'little red dot' at $z \sim 4.53$: An obscured AGN and its star-forming host". In: *arXiv e-prints*, arXiv:2312.03065 (Dec. 2023), arXiv:2312.03065. DOI: 10.48550/arXiv.2312.03065. arXiv: 2312.03065 [astro-ph.GA].

[4] K. E. Heintz, ..., **M. Killi**, et al. "Gauging the mass of metals in the gas phase of galaxies from the Local Universe to the Epoch of Reionization". In: 678, A30 (Oct. 2023), A30. DOI: 10.1051/0004-6361/202346573. arXiv: 2308.14813 [astro-ph.GA].

[5] K. E. Heintz, ..., **M. Killi**, et al. "Extreme damped Lyman-$\alpha$ absorption in young star-forming galaxies at $z = 9-11$". In: *arXiv e-prints*, arXiv:2306.00647 (June 2023), arXiv:2306.00647. DOI: 10.48550/arXiv.2306.00647. arXiv: 2306.00647 [astro-ph.GA].

[6] **M. Killi**, D. Watson, S. Fujimoto, et al. "A solar metallicity galaxy at $z > 7$? Possible detection of the [N II] 122 $\mu$m and [O III] 52 $\mu$m lines". In: 521.2 (May 2023), pp. 2526–2534. DOI: 10.1093/mnras/stad687. arXiv: 2211.01424 [astro-ph.GA].

[7] M. Kaasinen, ..., **M. Killi**, et al. "To see or not to see a $z \sim 13$ galaxy, that is the question. Targeting the [C II] 158 $\mu$m emission line of HD1 with ALMA". In: 671, A29 (Mar. 2023), A29. DOI: 10.1051/0004-6361/202245093. arXiv: 2210.03754 [astro-ph.GA].

[8] C. M. Casey, A. Cooray, **M. Killi**, et al. "Near-infrared MOSFIRE Spectra of Dusty Star-forming Galaxies at $0.2 < z < 4$". In: 840.2, 101 (May 2017), p. 101. DOI: 10.3847/1538-4357/aa6cb1. arXiv: 1703.10168 [astro-ph.GA].

## Approved Proposals

**Dust in Galaxies at z=8–11**
P.I.: Seiji Fujimoto; Project code: 2022.1.01562.S 2022
20 hours to observe ALMA Band 7 dust continuum of 23 bright Lyman Break Galaxy (LBG) candidates at z∼8–11 with approved JWST Cycle 1 spectroscopy

**The First Measurement of Metallicity and ISM Conditions of a Normal Galaxy at Reionisation**
P.I.: Darach Watson; Project code: 2019.1.01778.S 2019
10 hours to measure [N II] and [O III] 52µm fluxes for A1689-zD1 in ALMA Bands 7 and 9 for the first metallicity estimate in the reionization epoch

**Testing Long GRB SNe as a Source of r-process Material in the Universe**
P.I.: Jonatan Selsing; DDT code: 2102.D-5025 2018
6 hours to observe the evolution of GRB171205A/SN2017iuk, ∼1 year after explosion using HAWK-I and X-SHOOTER instruments.

## Talks and Posters

**CATA Scientific Meeting**, Santiago — Jan 2024
"Galaxy and AGN evolution through multi-wavelength observations"

**Charting the Metallicity Evolution History of the Universe**, Catania — Sep 2022
"A solar metallicity galaxy at $z > 7$"

**European Astronomical Society annual meeting**, Valencia — Jun 2022
"Spatial offsets between stellar and ISM phases in distant main-sequence galaxies"
"[O III] 52µm and [N II] 122µm at $z > 7$; Novel metallicity constraint in the reionization epoch"

**DAWN Summit**, Copenhagen — 2020, 2021, 2022

**Undergraduate Research Forum**, Austin — Apr 2017
**Fall Undergraduate Research Symposium**, Austin — Sep 2016
**Texas Astronomy Undergraduate Research Symposium**, Waco — Sep 2016
"Lessons on obscured star formation from ALMA archival data in COSMOS"

## Teaching

**Teaching Assistant** for Quantum Mechanics 2 (Lab; undergraduate level), UCPH — 2022, 2023
Course Instructors: Anders Sørensen, Jason Koskinen

**Teaching Assistant** for Theoretical Astrophysics (Masters' level), UCPH — 2020
Course Instructor: Martin Pessah

**Tutor** at Texas Athletics Student Services, UT Austin — 2016
Undergraduate Calculus, Physics, and Astronomy

**Tutor** at National Service Scheme (NSS), IIT KGP — 2011-2012
Grade 10 Mathematics

## Scholarships and Awards

**CATA Postdoctoral Fellowship** — 2023-Present

**DAWN PhD Fellowship** — 2018–2023

**General International Student and Scholar Services Financial Aid Award**, UT Austin — 2017

**Best Presentation, Chemistry and Astronomy**, UT Austin Fall Undergraduate Research Symposium — 2016

**John W. Cox Endowment for the Advanced Studies in Astronomy**, UT Austin — 2016

**Dr. Ambedkar National Merit Scholarship**, India — 2009, 2011

**Certificate of Merit** from Narayana Group of Educational Institutions for academic excellence — 2008–2009

**Ranked 10th** in the state of Andhra Pradesh, India in the Jr.APAMT (Andhra Pradesh Association of Mathematics Teachers) exam — 2008

## Skills

**Programming:** (proficient) Python, (basic) C++, JavaScript, SQL

**Data analysis:** Morphology and spectroscopy including spectral cube collapse, source extraction, aperture photometry and flux extraction, centroid fitting, emission line identification and fitting, 1D line profile fitting, and plotting spectra and images

**Instruments:** HST, JWST, VLT (KMOS), ALMA

**Data reduction/Pipelines:** ALMA, VLT (KMOS incl. P2UI, KARMA, EsoReflex)

**Astronomy Programs:** (proficient) CASA, GALFIT, msaexp, (basic) CARTA, EAZY, Bagpipes, TOPCAT, DS9, QFitsView, IDL

**Other:** (proficient) LaTeX, MSOffice, MacOS, (basic) GitHub, HTML, CSS

**Languages:** (proficient) English, Telugu, Hindi, (basic) Korean, Spanish