Jianhang CHEN

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Max Planck Institute for Extraterrestrial Physics
Giessenbachstrasse 1
85748 Garching, Munich, Germany

Education

PhD of Astronomy | ESO & Ludwig Maximilian University of Munich — Sep. 2020 – Aug. 2023, Garching, Germany
Distant, dusty star-forming galaxies | Supervisor: Prof. Rob Ivison

Master of Astrophysics | Nanjing University — Sep. 2017 – Jun. 2020, Nanjing, China
Studying galactic feedbacks with multi-phase gas | Supervisor: Prof. Yong Shi & Prof. Zhi-yu Zhang

Bachelor of Physics | Lanzhou University — Sep. 2013 – May. 2017, Lanzhou, China

Employment

Postdotoral Fellow | Max Planck Institute for Extraterrestrial Physics — Sep. 2023 – now, Garching, Germany

Telescope Proposals and Observing Experience

PI Proposals:

- **ALMA** Cycle-12, 2025.1.00710.S: *Do Normal Galaxies Host Ordered Magnetic Fields at Cosmic Noon?*, **27 hrs (A priority)**.
- **ALMA** Cycle-12, 2025.1.00635.S: *A Magnetic Rosetta Stone: measuring magnetic fields in a distant starburst at z=2.6*, **37 hrs (B priority)**.
- **VLBA** VLBA/25B-191, *Probing the jet-BLR connection in an early accreting efficient SMBH*, **8+12 hrs (B priority)**.
- **VLT/ERIS** P114, 114.271N: *What drives the quick formation of galactic magnetic fields at cosmic noon?*, **10.6 hrs (B priority)**
- **NOEMA** Winter 2023, W23CR: *Into the heart of darkness*, **32 hr (B priority)**.
- **ALMA** Cycle-10, 2023.1.00318.S: *How important are magnetic fields in early disk galaxies?*, **30.4 hrs (B priority)**.
- **VLT/MUSE** P111, 111.253V: *Probing unobscured star formation in a new sample of ALMA-selected proto-cluster cores at* $z > 3$, **16 hrs (B priority)**.
- **IRAM30m** Summer 2022 Delta, 095-22: *The tip of the iceberg?*, **34.4 hrs (A priority)**.
- **ALMA** Cycle-9, 2022.1.00495.S: *Isotopic constraints on the IMF in the most extreme star-forming environments in the Universe*, **23.7 hrs (A priority)**.
- **JCMT** 22A, M22AP002: *Revealing the structure around a putative new SMG proto-cluster core*, **8.5 hrs (B priority)**.
- **ALMA** Cycle-8, 2021.1.00458.S: *Dust polarisation in distant, star-foming galaxies: a transformative survey of the viable targets*, **25.1 hrs (B priority)**.
- **NEOMA** Summer 2020, S20BB: *Searching for molecular gas in HI-rich red spirals*, **2.8 hrs (B priority)**.

Selected Co-I Proposals (leading contribution):

- **ALMA** Cycle-12, 2025.1.00878.S: *Revealing the B-fields at 800 Myr after the Big Bang*, 14 hrs, (PI. Enrique Lopez-Rodriguez, A priority).
- **ALMA** Cycle-12, 2025.1.00878.S: *Pilot survey tracing the magnetic fields across z=1.9-4.5 using dusty star-forming galaxies*, 49 hrs, (PI. Enrique Lopez-Rodriguez).

- **ALMA** Cycle-12, 2025.1.00494.S: *The first resolved study of dust polarization in a sample of extreme starbursts*, 30.6 hrs, (PI. Kevin Harrington, A priority).
- **VLA** VLA/25A-165, *THE corona hunt in high-z lensed quasars* 8 hrs, (PI Santiago Del Palacio)
- **ALMA** Cycle-8, 2021.1.00018.S: *Exploiting a snapshot survey of the 3,083 reddest Herschel sources to reveal distant protoclusters*, 30.6 hrs, (PI. R. Ivison).
- **VLA** 2020B, 20B-180: *Off-nuclear star formation in a gas-rich low-mass S0 galaxy*, 27 hrs, (PI: Zhengyi Chen)
- **NOEMA** Summer 2020, S20CK: *Exploiting a snapshot survey of the 3,083 reddest Herschel sources to reveal distant protoclusters*, 26 hrs, (PI: Vinodiran Arumgam)
- **IRAM30m** Summer 2020, 062-20: *Do Changing-look AGNs reside in the gas-rich environment?*, 23.5 hrs, (PI: Xiaoling Yu)

Observing Experience:

- IRAM30m, NIKA2, 6 nights, 18-25 Oct. 2022
- IRAM30m, NIKA2, 7 nights, 13-21 Oct. 2024
- Paranal, VLT/ERUS, 6 half-nights, 24-31 Aug. 2024
- Paranal, VLT/ERUS, 6 half-nights, 26-31 Aug. 2025

Research Experience

Short term visit, Durham University/Physics department — 14-24 Sep. 2022
Host: Prof. Mark Swinbank Topic: dynamical modeling — Durham, UK

11th NOEMA Interferometry School — 21-25 Nov. 2021
Winter School — Grenoble, France

Astrophysics, Formation and Evolution of Galaxy cluster Across Cosmic Time — 23 Nov.-1 Dec. 2021
Winter School — Tenerife, Spain

10th IRAM 30-meter School on Millimeter Astronomy — 15-23 Nov. 2021
Winter School — Online

Astrostatistics and R training — 09-13 Jul. 2018
The 2nd East Asian Astrostatistics International Conference (EAAIC2018) — Nanjing, China

Conference and Seminar Talks

Dusty, star-forming galaxies — 11 Jan. 2023
ASIAA Colloquium — Remote

Opportunities with dusty, star-forming galaxies — 9 Jan. 2023
MPE Seminar talk — Garching, Germany

ALMACAL IX: multi-band ALMA survey for dusty star-forming galaxies — 15–23 Dec. 2022
A half-century of millimeter and submillimeter astronomy — Miyakojima, Japan

ALMACAL: Number counts and the resolved fractions of the CIB — 3–4 Mar. 2022
Meeting of ALMA Young Astronomers — Online

Submillimetre number counts — 5–6 Nov. 2021
12th IMPRS Symposium — Garching, Germany

The spatial extension of AGN narrow line regions — 1–4 Apr. 2019
MaNGA Collaboration Meeting — Oxford, UK

Posters

ALMACAL: A 'free' submillimetre galaxy survey — 3–5 May. 2022
PoSTER 2022 - Galaxy Evolution (Best poster award) — Online

ALMACAL: Hunting for regions over-dense in SMGs — 23 Nov.–1 Dec. 2021
XXXII Canary Islands Winter School of Astrophysics — Tenerife, Spain

Community Involvement

Scientific Assistant at ESO OPC P109 & P110 Nov. 2021 & May. 2022
Helping to organise pannel discussion for time allocation of ESO telescopes

Organisor of student session of Munich Joint Astronomy Colloquium Nov. 2021
Helping to coodinate the discussion between students and the speaker

Member of LOC for the 11th IMPRS Symposium May 2021
Helping to organise meeting schedule

Scientific referee for Publications of the Astronomical Society of Japan 2020

Awards and Scholarship

International Max-Planck Research Scholarship (IMPRS) on Astrophysics 2020-2023
Grant for PhD study

Excellence Scholarship Spring 2019
Nanjing University

Outstanding Graduates Award Spring 2017
Lanzhou University

National Encouragement Scholarship 2015,2016
Merit based scholarship for colleage students in China

The First Prize Scholarships Spring 2014
Lanzhou University

Skills

Languages: Chinese (Native), English (C1)
Programming: Python (NumPy, SciPy, Matplotlib, Pandas), MATLAB, Mathematica
Document Creation: HTML, LaTex, Markdown
Software: pPXF, CASA, CARTA, DS9, BBarolo, Galpak

References

- Prof. Dr. Rob Ivison
  European Southern Observatory (ESO)
  Rob.Ivison@eso.org
- Dr. Martin Zwaan
  ALAM Regional Center / ESO
  mzwaan@eso.org
- Dr. Céline Péroux
  European Southern Observatory
  Aix Marseille Université, CNRS, LAM
  celine.peroux@gmail.com

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ADS Library

List of Publications

First & second author papers:

- "SDSS-IV/MaNGA: The Size–Luminosity Relation of Extended Narrow Line Region in Low-luminosity AGNs Xu" **Chen**, et al., RAA, 25, 115016 (2025)
- "A kiloparsec-scale ordered magnetic field in a galaxy at z = 5.6" **Chen**, Lopez-Rodriguez, Ivison et al. A&A, 692A, 34 (2024).
- "ALMACAL. XI. Over-densities as signposts for proto-clusters? A cautionary tale" **Chen**, Ivison, Zwaan et al. A&A 675L, 10 (2023).
- "ALMACAL IX: multi-band ALMA survey for dusty star-forming galaxies and the resolved fractions of the cosmic infrared background" **Chen**, Ivison, Zwaan et al. MNRAS, 518, 1378 (2023)
- "The spatial extension of extended narrow line regions in MaNGA AGN" **Chen**, Shi, Dempsey et al. MNRAS, 489, 855 (2019)

Publicaons in preparaon and selected non-refereed publicaons:

- "NOEMA3D. Spatially resolved Dust, CO, and [C I] in massive star-forming main sequence galaxies at cosmic noon" **Chen**, NOEMA3D Team (2026).
- "MUSE-ALMA Haloes XIV. The ALMA Large Programme Data Release" Péroux, **Chen**, Bollo et al.
- "Licking the plate: Dusty star-forming galaxies buried in the ALMA calibration data" **Chen**, Ivison, Zwaan et al. EPJ Web of Conferences, Volume 293, id.00011

Co-author papers:

- "Probing Infrared eXcess to Investigate Early-Universe Dust (PIXIEDust)" Bakx et al., arXiv, arXiv:2512.07964 (2025)
- "Resolving stellar populations, star formation, and ISM conditions with JWST in a large spiral galaxy at z ∼ 2" Parlanti et al., arXiv, arXiv:2510.09820 (2025)
- "The ALMA-CRISTAL survey: Resolved kinematic studies of main sequence star-forming galaxies at 4 < z < 6" Lee et al., A&A, 701, A260 (2025)
- "PHIBSS: Searching for Molecular Gas Outflows in Star-forming Galaxies at z = 0.5–2.6" Barfety et al., ApJ, 988, 55 (2025)
- "A Comparative Study of the Ground State Transitions of CO and C I as Molecular Gas Tracers at High Redshift" Frias Castillo et al., ApJ, 987, 158 (2025)
- "The Ultradiffuse Galaxy AGC 242019 with a Negative Metallicity Gradient" Ni et al., ApJ, 986, 112 (2025)
- "Galaxy morphologies at cosmic noon with JWST: A foundation for exploring gas transport with bars and spiral arms" Espejo Salcedo et al, A&A, 700A, 42 (2025)
- "NOEMA^{3D}: A first kpc resolution study of a $z \sim 1.5$ main sequence barred galaxy channeling gas into a growing bulge" Pastras et al., arXiv, arXiv:2505.07925 (2025)
- "ALMACAL – XIV. X-Shooter spectroscopy, infrared properties, and radio SEDs of calibrators" Weng et al., MNRAS, 539, 1977 (2025)
- "Deep kiloparsec view of the molecular gas in a massive star-forming galaxy at cosmic noon" Arriagada-Neira et al., A&A, 696, A83 (2025)
- "ALMACAL: XIII. Evolution of the CO luminosity function and the molecular gas mass density out to z 6" Bollo et al., A&A, 695, A163 (2025)
- "Unveiling Cosmic Cold Gas: Insights from ALMACAL survey" Bollo et al., rcmi.conf, 20 (2024)

- “ALMACAL: XII. Data characterisation and products” Bollo et al., A&A, 690, A258 (2024)
- “Detailed study of a rare hyperluminous rotating disk in an Einstein ring 10 billion years ago” Liu et al., NatAs, 8, 1181 (2024)
- “Polarized thermal emission from dust in a galaxy at redshift 2.6” Geach et al. (4th co-author) Nature, 621, 483 (2023)
- “An escaping outflow in a galaxy with an intermediate-mass black hole” Zheng et al. MNRAS, 523, 3274 (2023)
- “VLA Legacy Survey of Molecular Gas in Massive Star-forming Galaxies at High Redshift” Frias Castillo et al., ApJ, 945, 128 (2023)
- “The H I gas disc thickness of the ultra-diffuse galaxy AGC 242019” Li et al. (4th co-author) MNRAS, 516, 4220 (2022)
- “ALMACAL: Surveying the Universe with ALMA Calibrator Observations” Zwaan et al. (4th co-author) The Messenger, 186, 10 (2022)
- “The major mechanism to drive turbulence in star-forming galaxies” Yu et al. MNRAS, 505, 5075 (2021)
- “Probing possible effects of circumgalactic media on the metal content of galaxies through the mass-metallicity relationship” Zhai et al. (3th co-author) MNRAS, 504, 1959 (2021)
- “A Cuspy Dark Matter Halo” Shi, Zhang, Wang et al. (4th co-author) ApJ, 909, 20 (2021)
- “The impact of merging on the origin of kinematically misaligned and counter-rotating galaxies in MaNGA” Li et al. (8th co-author) MNRAS, 501, 14 (2021)
- “Host galaxy properties of changing-look AGNs revealed in the MaNGA survey” Yu et al. (4th co-author) MNRAS, 498, 3985 (2020)
- “What drives the velocity dispersion of ionized gas in star-forming galaxies?” Yu et al. MNRAS, 486, 4463 (2019)
- “An early-type galaxy with an inner star-forming disc” Li et al. MNRAS, 480, 1705 (2018)