

Wenyu Jiao

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Research Interests

- Interferometric observations toward the cradle of high-mass stars
- Magnetic fields and dust polarization in star-forming regions
- Fragmentation and chemical evolution in infrared dark clouds
- Multi-scale gas flows associated with star formation activities

Education

- 2018 – now **Peking University (PKU)**
Ph.D. candidate in Astrophysic. Supervisor: Prof. Ke Wang
Thesis: Exploring the initial conditions in high-mass star formation: magnetic fields, fragmentation, and deuteration
- 2014 – 2018 **Peking University (PKU)**
B.S. in Astronomy. Supervisor: Prof. Ran Wang
Thesis: Submillimeter Study of A Giant Protocluster at $z=5.7$

Research Experience

- 2023 – now **Guest Researcher**
Max Planck Institute for Astronomy (MPIA). Supervisor: Prof. Henrik Beuther
Investigating the role of magnetic fields in high-mass star formation using ALMA high-resolution dust polarization data.
- 2022 – 2023 **Visitor**
Yunnan University (YNU). Collaborator: Prof. Hongli Liu, Prof. Guangxing Li

Mentoring Experience

- 2021 Co-mentor of National Talent Program for high school student (Xie, Jiahe): “Exploring the relation between $^{13}\text{CO}/\text{C}^{18}\text{O}$ and H_2 in the galactic plane”
Co-mentor of undergraduate project (Huang, Haomiao): “The initial stage of star formation: Observational study of dense cloud cores with extremely low luminosity/mass ratio”
- 2020 Co-mentor of a visiting student (Huang, Bo): “High-mass Starless Clumps: Dynamical State and Correlation between Physical Parameters”

Honors and Awards

- 2022 **China Scholarship Council fellowship**, China
- 2021 **Excellent Research Award**, Peking University

Honors and Awards (continued)

2019 **Principal's Scholarship**, Peking University
 Canon Scholarship, Peking University
 Merit Student, Peking University

Telescope Observing Projects

- “Probing the Initial conditions of extremely cold and low luminosity-to-mass ratio high-mass starless clumps within 3.5 kpc”, SMA, 2021B-So32, **PI**, 3 tracks allocated, 2 tracks observed.
- “Magnetic Fields in Massive Collapsing Clumps”, ALMA, 2023.1.01606.S, PI: Lei Zhu, Co-I
- “Tracing the core mass growth in filaments”, NOEMA, PI: Shanghuo Li, Co-I
- “How really massive are protostellar cores? Determining the cm SED by ATCA”, ATCA, PI: Fengwei Xu, Co-I
- “Magnetic Fields in Massive Star-Forming Regions (MagMaR)”, ALMA, 2017.1.00101.S, PI: Patricio Sanhueza
- “The Initial Conditions for Massive Star Formation in inner and outer Galaxy (Vella)”, ALMA, 2022.1.01203.S, PI: Diego Mardones
- “Nature of the warmest high-mass starless clump candidates in the Milky Way”, NOEMA, W21AX, PI: Siju Zhang & Annie Zavagno

Selected Talks

2022 **Academic Symposium on Molecular Clouds and Star Formation** (remote)
 “Are There High-mass Prestellar Cores in Orion?”

CASSACA ALMA user meeting (remote)
 “Exploring the Initial Conditions in High-Mass Star Formation Using ALMA Data”

2020 **Annual Meeting of the Chinese Astronomical Society** (remote)
 “Testing New Methods of Probing Magnetic Field in Different Scales in Molecular Cloud”

Services

2021 Organizer of PKU Undergraduate Astronomy Symposium
 Teaching assistant of Modern Astronomy Course

2020 Teaching assistant of ALMA Data Reduction Workshop
 Operating staff for “Official WeChat Public Account of Peking University Astronomy”

Other Experiences

2019-2022 Advisor of the 2019 DoA undergraduate class

Skills

Software CASA, RADMC-3D, RADEX, GILDAS, *getsf*, DS9.
Analysis ALMA, IRAM 30m, SMA, JCMT, APEX, Herschel, Planck

References

Prof. Ke Wang

The Kavli Institute for Astronomy and Astrophysics at Peking University
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Prof. Henrik Beuther

Max Planck Institute for Astronomy
Email: beuther@mpia.de

Prof. Marco Padovani

INAF-Osservatorio Astrofisico di Arcetri
Email: marco.padovani@inaf.it

Publications

Referred Publications

- **Jiao, W.**; Wang, K.; Pillai, T. G.; and 3 coauthors, “Fragmentation of the High-mass ‘Starless’ Core G10.21-0.31: A Coherent Evolutionary Picture for Star Formation”, 2023, ApJ, 945, 81
- Huang, B.; Wang, K.; Girart, J. M.; **Jiao, W.**, and 2 coauthors, “High-mass Starless Clumps: Dynamical State and Correlation between Physical Parameters”, 2023, ApJ, 949, 46
- Xu, F.; Wang, K.; Liu, T.; and 40 coauthors including **Jiao, W.**, “The ALMA Survey of Star Formation and Evolution in Massive Protoclusters with Blue Profiles (ASSEMBLE): Core Growth, Cluster Contraction, and Primordial Mass Segregation”, 2024, ApJS, 270, 9
- Xu, F.; Wang, K.; Liu, T.; and 37 coauthors including **Jiao, W.**, “ATOMS: ALMA Three-millimeter Observations of Massive Star-forming regions - XV. Steady accretion from global collapse to core feeding in massive hub-filament system SDC335”, 2023, MNRAS, 520, 3259
- Zhang, S.; Wang, K.; Liu, T.; and 16 coauthors including **Jiao, W.**, “ATOMS: ALMA three-millimeter observations of massive star-forming regions - XIII. Ongoing triggered star formation within clump-fed scenario found in the massive ($1500 M_{\odot}$) clump”, 2023, MNRAS, 520, 322
- Mai, X.; Liu, T., Liu, X., and 31 coauthors including **Jiao, W.**, “The ALMA-QUARKS survey: Detection of two extremely dense substructures in a massive prestellar core”, 2024, accepted for publication in ApJL

Publications submitted or in preparation

- **Jiao, W.** et al., “Relative alignment between gas structures and magnetic field in Orion A at different scales using different gas tracers”, submitted
- **Jiao, W.** et al., “Are There High-mass Prestellar Cores in Orion?”, in prep.
- **Jiao, W.** et al., “Magnetic Fields in Massive Star-forming Regions (MagMaR). V. Gravitational Shaping of Magnetic Fields and their Interplay with Gas Streamers in G335.579-0.292”, in prep.