

Junhao Liu

East Asian Observatory
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Research Interests

- Magnetic field and dust polarization in star-forming region.
- Jets and outflows associated with star formation activities.

Education

Sep 2015 - **Ph.D. in Astrophysics**, School of Astronomy & Space Science, Nanjing University, Nanjing, China.
Mar 2021
Supervisor: Prof. Keping Qiu

Sep 2011 - **B.S. in Astronomy**, School of Astronomy & Space Science, Nanjing University, Nanjing, China.
Jun 2015

Research Experience

Aug 2018 - **Pre-doctoral Fellow**, Center for Astrophysics | Harvard & Smithsonian, Cambridge, US.
May 2021
Supervisor: Dr. Qizhou Zhang

Working Experience

Jul 2021 - Jul 2023 **Postdoctoral Fellow**, East Asian Observatory, Hilo, HI, US.

Technical Skills

Skilled Python

Working Experience CASA, MIRIAD, MIR, POLARIS, RADEX, GILDAS, STARLINK

Approved PI Proposals

- 2021 SMA 2021A: 2021A-S008; continuation; 3 B tracks allocated. "A pilot dust polarization survey of massive dense cores in Cygnus-X"
- 2021 ALMA Cycle 8: 2021.1.01083; Grade-C; 16.1 hours allocated. "A dust polarization survey of dense cores in IRDC G28.34: are magnetic fields aligned with outflows?"
- 2021 ALMA Cycle 8: 2021.1.01091.S; Re-submission; Grade-C; 14.5 hours allocated. "A dust polarization survey of dense cores in IRDC G28.34: are magnetic fields aligned with outflows?"
- 2019 SMA 2019B: 2019B-S028; 3 A tracks allocated but partially observed. "A pilot dust polarization survey of massive dense cores in Cygnus-X"
- 2020 JCMT 2020B: M20BP040; Tier 1; 14 hours allocated. "Are sub-virial clumps in IRDC G28.34 supported by magnetic fields?"
- 2020 JCMT 2020B: M20BP029; continuation; Tier 1; 19 hours allocated. "Dust polarization survey of massive dense cores in Cygnus-X"

- 2019 JCMT 2020A: M20AP048; continuation; Tier 1; 12 hours allocated and successfully observed. "Dust polarization survey of massive dense cores in Cygnus-X"
- 2019 JCMT 2019B: M19BP037; re-submission; Tier 1; 4.6 hours allocated and successfully observed. "Dust polarization survey of massive dense cores in Cygnus-X"
- 2018 JCMT 2018B: M18BP047; Tier 2; 10 hours allocated but partially observed. "Dust polarization survey of massive dense cores in Cygnus-X"

Approved Co-I Proposals

- 2020 SMA 2020A: 2020A-S020; PI: Xing Lu. "Magnetic fields in supercritical massive filamentary clouds"
- 2019 SMA 2019A: 2019A-S064; PI: Keping Qiu. "Continuum emission from massive starless cores"
- 2016 SMA 2016A: 2016A-S021; PI: Keping Qiu. "Completing the SMA survey of massive cores in Cygnus X"
- 2020 JCMT 2020B: M20AP025; PI: Xing Lu; Tier 1; 75 hours allocated. "Gas infall in massive filaments (synergy with SMA observations)"
- 2020 JCMT 2020B: M20AP009; PI: Xing Lu; Tier 1; 17.31 hours allocated. "Does Magnetic Field Suppress Star Formation in Galactic Center Massive Clouds?"
- 2019 JCMT 2020A: M20AP024; PI: Xing Lu; Tier 1; 8.4 hours allocated. "Are supercritical filaments supported by magnetic fields?"
- 2019 JCMT 2020A: M20AP023; PI: Xing Lu; Tier 1; 10 hours allocated. "Does Magnetic Field Suppress Star Formation in Galactic Center Massive Clouds?"
- 2019 JCMT 2019A: M19AP029; PI: Bo Hu. "DR21 south filament"
- 2016 JCMT 2016B: M16BP040; PI: Keping Qiu. "SMA and JCMT CO 2-1 Survey of Massive Outflows in Cygnus-X"

Observation Experience

- Feb 2018 Tianma-65m on-site observation. 5 days. Shanghai, China
- Sep 2017 JCMT on-site observation. 7 nights. Mauna Kea, HI, US
- Jun 2015 CSO remote observation. 5 days.

Talks & Posters

- Jul 2021 Seminar Talk. "Magnetic fields in early stages of star formation revealed by dust polarization observations". EAO Science Seminar, Remote
- Jun 2021 Conference Talk. "Calibrating the DCF method with numerical simulations". SOFIA/JCMT Magnetic Fields and the Structure of the Filamentary Interstellar Medium Online Workshop, Remote
- Mar 2021 1-min Flash Talk. "Calibrating the DCF method with numerical simulations". IAU Symposium 360 Astronomical Polarimetry 2020, Remote
- Nov 2019 Introductory Talk. "ALMA Insight into Magnetic Fields In IRDC G28.34+0.06 & Test DCF method with simulations of massive star formation". Harvard-Heidelberg Workshop on Star Formation in Cambridge, USA
- May 2019 Poster. "ALMA Insight into Magnetic Fields In IRDC G28.34+0.06". Workshop on Polarization in Protoplanetary Disks and Jets in San Cugat, Spain
- Aug 2018 Conference Talk. "Magnetic fields in Ophiuchus C". Molecular Clouds and Star Formation Colloquium in Lhasa, China

- Nov 2017 Conference Talk. "An Isothermal Outflow in High-mass Star-forming Region G240.31+0.07". Molecular Clouds and Star Formation Colloquium in Yichang, China
- Aug 2017 Conference Talk. "First results of BISTRO: Ophiuchus C". Chinese Astronomical Society Meeting in Urumqi, China

Publications ([ADS link](#))

First Author Papers

- 2020 "Magnetic Fields in the Early Stages of Massive Star Formation as Revealed by ALMA ", **Junhao Liu**, Qizhou Zhang, Keping Qiu, and 5 coauthors, ApJ, 895, 142
- 2019 "The JCMT BISTRO Survey: The Magnetic Field in the Starless Core ρ Ophiuchus C", **Junhao Liu**, Keping Qiu, and 129 coauthors, ApJ, 877, 43
- 2018 "An Isothermal Outflow in High-mass Star-forming Region G240.31+0.07", **Junhao Liu**, Keping Qiu, Friedrich Wyrowski, Karl Menten, Rolf Güsten, Yue Cao, and Yuwei wang, ApJ, 860, 106

Co-Author Papers

- 2021 "The JCMT BISTRO Survey: Revealing the Diverse Magnetic Field Morphologies in Taurus Dense Cores with Sensitive Submillimeter Polarimetry", Eswaraiah, Chakali; and 144 co-authors, ApJ, 912, L27
- 2021 "Does the Magnetic Field Suppress Fragmentation in Massive Dense Cores?", Palau, Aina; Zhang, Qizhou; Girart, Josep M.; **Liu, Junhao**; and 14 co-authors, ApJ, 912, 159
- 2021 "DR 21 South Filament: A Parsec-sized Dense Gas Accretion Flow onto the DR 21 Massive Young Cluster", Hu, Bo; Qiu, Keping; Cao, Yue; **Liu, Junhao**; Wang, Yuwei; Li, Guangxing; Shen, Zhiqiang; Li, Juan; Wang, Junzhi; Li, Bin, and Dong, Jian, ApJ, 908, 70
- 2021 "Observations of Magnetic Fields Surrounding LkH α 101 Taken by the BISTRO Survey with JCMT-POL-2", Ngoc, Nguyen Bich, and 148 co-authors, ApJ, 908, 10
- 2020 "The JCMT BISTRO Survey: Magnetic Fields Associated with a Network of Filaments in NGC 1333", Doi, Yasuo, and 137 co-authors, ApJ, 899, 28
- 2019 "Magnetic fields in the infrared dark cloud G34.43+0.24", Soam, Archana; Liu, Tie; Andersson, B-G; Lee, Chang Won; **Liu, Junhao**; and 9 co-authors, ApJ, 883, 1
- 2019 "The JCMT BISTRO Survey: The Magnetic Field of the Barnard 1 Star-forming Region", Coude, Simon, and 121 coauthors, ApJ, 877, 88
- 2019 "JCMT BISTRO Survey: Magnetic Fields within the Hub-filament Structure in IC 5146", Wang, Jia-Wei, and 132 coauthors, ApJ, 876, 42
- 2019 "Surveys of Clumps, Cores, and Condensations in Cygnus X. I. A New Catalog of ~ 0.1 pc Massive Dense Cores", Cao, Yue; Qiu, Keping; Zhang, Qizhou; Wang, Yuwei; Hu, Bo; and **Liu, Junhao**, ApJS, 241, 1
- 2018 "Magnetic Fields toward Ophiuchus-B Derived from SCUBA-2 Polarization Measurements", Soam, Archana, and 123 coauthors, ApJ, 861, 65
- 2018 "A First Look at BISTRO Observations of the ρ Oph-A core", Kwon, Jungmi, and 121 coauthors, ApJ, 859, 4
- 2017 "First Results from BISTRO: A SCUBA-2 Polarimeter Survey of the Gould Belt", Ward-Thompson, Derek, and 113 coauthors, 2017, ApJ, 842, 66