

Xing Lu

PhD candidate, expected to graduate in June 2016

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Research Interests

Fragmentation and gas accretion in high-mass star forming regions, dynamics and evolution of filaments, star formation in the Central Molecular Zone of the Galaxy.

Education

Sep. 2010–Present PhD candidate astronomy, School of Astronomy & Space Science, Nanjing University.

Advisors: Drs. Qizhou Zhang and Qiusheng Gu.

Research: dense cores in star forming regions; high-mass star formation in Infrared Dark Clouds; star formation in the Galactic Center clouds.

Curriculum: radiation processes in astrophysics, stellar formation and evolution, magnetohydrodynamics, introduction to general relativity, radio astronomy, physics of neutron stars.

Sep. 2006–Jun. 2010 B. S. Physics, Kuang Yaming Honor School, Nanjing University.
GPA: 4.37/5.00 Major GPA: 4.45/5.00

Professional Experience

Mar. 2012–Aug. 2015 The Submillimeter Array (SMA) pre-doctoral fellow at Harvard-Smithsonian Center for Astrophysics (advisor: Dr. Qizhou Zhang).

May 2011–Present Administrator and contributor of *Astroleaks*, an on-line platform for professional discussion and experience-sharing.

Mar. 2010–Jun. 2010 Undergraduate research intern at Nanjing University (advisor: Dr. Yang Chen), data reduction and analysis of the CO(1–0) observations taken with the KOSMA telescope toward the supernova remnant W41.

Sep. 2009–Feb. 2010 Associate editor of the journal *College Natural Science*, a nationwide students' self-managed publication.

Teaching and Mentoring

Jun. 2013–Aug. 2015 Mentors of summer interns at Harvard-Smithsonian Center for Astrophysics. Worked with 4 interns from colleges and high schools to develop short-term research projects from interferometric imaging to Python programming.

Sep. 2011–Jan. 2012 Teaching assistant for undergraduate course *Observational Astronomy* at Nanjing University (professor: Dr. Junzhi Wang).

Programming Skills

Mastered in Python and IDL programming languages. Created **three Python applications** for data analysis and visualization. Skillful in Mathematica and Javascript.

Successful PI Observation Proposals

- 2015 SMA, “High-mass Star Formation in Dense Cores Embedded in Filaments”.
- 2015 SMA, “Deeply Embedded Protostars in the Central Molecular Zone”.
- 2014 IRAM 30m, “Filamentary Structure, Infall Convergent Flow and Massive Star Formation”.
- 2014 SMA, “Massive Star Formation in Progress in Filamentary Clouds”.
- 2013 SMA, “Sgr B2: A Star-forming Cloud in the Central Molecular Zone”.
- 2013 SMA, “Gas Kinematics in Filamentary Infrared Dark Clouds”.
- 2013 SMA, “High-mass Clouds in the Central Molecular Zone”.
- 2012 SMA, “Gas Kinematics and Condensations in Filamentary Infrared Dark Clouds”.

Participated Large Scale Proposals

- 2015–2017 The Submillimeter Telescope (SMT), PI: K. Wang, “ESO-ARO Public Survey on Planck All-Sky Cold Clumps”.
- 2014–2016 SMA, PIs: C. Battersby & E. Keto, “The SMA Legacy Survey of the Central Molecular Zone”.

Observing Experience

- Nov. 2015 SMT, remote observing, 2 nights, Nanjing, China.
- Sep. 2014 SMA, on-site observing, 5 nights, Mauna Kea, HI, USA.
- Apr. 2014 Caltech Submillimeter Observatory (CSO), remote observing, 3 nights, Cambridge, MA, USA.
- Jun. 2012 Combined Array for Research in Millimeter-wave Astronomy (CARMA), on-site observing during CARMA summer school, 2 nights, Big Pine, CA, USA.
- May 2012 SMA, on-site observing, 5 nights, Mauna Kea, HI, USA.
- Jan. 2012 DLH 13.7m telescope, on-site observing, 5 nights, Delingha, Qinghai, China.

Honors

- 2015 Program A for outstanding PhD candidates of Nanjing University.
- 2012 The SMA pre-doctoral fellowship.
- 2011 Nanjing University Zhengzhiwei enterprise scholarship.
- 2009 Nanjing University social activity scholarship, second prize.
- 2008 Nanjing University people’s scholarship, second prize.
- 2007 Nanjing University people’s scholarship, second prize.

List of Publications

Publications in Refereed Journals

1. “Deeply Embedded Protostellar Population in the 20 km s⁻¹ Cloud of the Central Molecular Zone”,
Lu, X., Zhang, Q., Kauffmann, J., Pillai, T., Longmore, S. N., Kruijssen, J. M. D., Battersby, C., & Gu, Q. 2015, *ApJL*, **814**, L18.
2. “Initial Fragmentation in the Infrared Dark Cloud G28.53-0.25”,
Lu, X., Zhang, Q., Wang, K., & Gu, Q. 2015, *ApJ*, **805**, 171.
3. “Fragmentation of Molecular Clumps and Formation of Protocluster”,
Zhang, Q., Wang, K., **Lu, X.**, & Jiménez-Serra, I. 2015, *ApJ*, **804**, 141.
4. “VLA Observations of Ammonia in High-mass Star Formation Regions”,
Lu, X., Zhang, Q., Liu, H. B., Wang, J., & Gu, Q. 2014, *ApJ*, **790**, 84.

Conference Contributions

1. Intro talk & poster, “An SMA/VLA Mini-survey of Six Massive CMZ Clouds: Searching for ‘Hidden’ Protostellar Population”,
Lu, X., Zhang, Q., Kauffmann, J., & Pillai, T. 2015, *Harvard-Heidelberg Star Formation Workshops*.
2. Talk, “SMA and VLA Observations of Dense Cores at Different Evolutionary Phases in Filamentary IRDCs”,
Lu, X. & Zhang, Q. 2014, *Workshop on Dense Cores: Origin, Evolution, and Collapse, AAS Topical Conference Series*.
3. Talk, “Molecular Spectral Lines in Filamentary Infrared Dark Clouds”,
Lu, X., Zhang, Q., & Liu, H. B. 2014, *69th International Symposium on Molecular Spectroscopy*.
4. Poster, “Revealing Initial Conditions of High-mass Star Formation in IRDCs with the SMA”,
Lu, X., Zhang, Q., & Liu, H. B. 2014, *The Submillimeter Array: First Decade of Discovery*.
5. Talk, “Gas Kinematics in Filamentary Infrared Dark Clouds”,
Lu, X., Zhang, Q., & Liu, H. B. 2014, *American Astronomical Society, AAS Meeting #224*.
6. Poster, “SMA Observations towards Massive Clouds in the Central Molecular Zone”,
Lu, X., Zhang, Q., Kauffmann, J., & Pillai, T. 2013, *International Astronomical Union Symposium 303: The Galactic Center: Feeding and feedback in a normal galactic nucleus*.