Xing Lu

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Research Interests

Sub-pc scale physical conditions in high-mass star forming regions, kinematics and evolution of filaments, star formation in the Galactic Center molecular clouds.

Education

Sep. 2010–Present	PhD Candidate Astronomy, School of Astronomy & Space Science, Nanjing University
Advisors:	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

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.
Mar. 2012–Aug. 2015	The SMA Pre-doctoral Fellow at Harvard-Smithsonian Center for Astrophysics (Advisor: Qizhou Zhang).
Sep. 2011–Jan. 2012	Teaching Assistant for Undergraduate Course *Observational Astronomy* at Nanjing University (Professor: Junzhi Wang).
May 2011–Present	Administrator and contributor of *Astroleaks*, an on-line platform for professional discussion and experience-sharing.
Mar. 2010–Jun. 2010	Undergraduate Research Participator at Nanjing University (Advisor: 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.

Programming Skills

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

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, submitted to ApJ Letters.
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.

Papers in Preparation

1. "Gas Kinematics, Thermology, and Star Formation Potential of the 20 km s^{-1} Cloud",
   Lu, X. et al., to be submitted to ApJ.

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.

Successful PI Observation Proposals

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

2014–2015 SMA, PIs: C. Battersby & E. Keto, "The SMA Legacy Survey of the Central Molecular Zone".

Observing Experience

2014 SMA, on-site observing, Mauna Kea, HI, USA.
2014 CSO, remote observing, Cambridge, MA, USA.
2012 CARMA, on-site observing, Big Pine, CA, USA (during CARMA summer school).
2012 SMA, on-site observing, Mauna Kea, HI, USA.
2012 DLH 13.7m telescope, on-site observing, Delingha, Qinghai, China.

Honors

2015 Nanjing University Excellent PhD Candidates Innovation Program, Plan A.
2012 The Submillimeter Array (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.