Yan Gong

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Research Interests

- Large-scale structure and kinematics of molecular clouds
- Star formation
- Circumstellar envelop of late type stars
- Astrochemistry
- Radio interferometry

Education

09/2009–07/2016 Ph.D. in Astrophysics, Purple Mountain Observatory
Thesis: *"A search for triggered star formation and a 1.3 cm spectral line survey"*
Advisors: Prof. Dr. Rui-qing Mao & Dr. Christian Henkel
09/2005–07/2009 B.Sc. in Astronomy, Central China Normal University

Publications (Refereed)

4. **Gong,** Y.; Mao, R. Q.; Fang, M.; Zhang, S. B.; Su, Y.; Yang, J.; Jiang, Z. B.; Xu, Y.; Wang, M.; Wang, Y.; Lu, D. R.; Sun, J. X., 2016, A&A, 588, A104, *"Molecular clouds and star formation toward the Galactic plane within 216.25° ≤ l ≤218.75° and 0.75° ≤ b ≤1.25°"*

3. Zhang, C. P.; Li, G. X.; Wyrowski, F.; Wang, J. J.; Yuan, J. H.; Xu, J. L.; **Gong,** Y.; Yeh, Cosmos C.; Menten, K. M., 2016, A&A, 585, A117, *"N131: A dust bubble born from the disruption of a gas filament"*

2. **Gong,** Y.; Henkel, C.; Thorwirth, S.; Spezzano, S.; Menten, K. M.;Walmsley, C. M.; Wyrowski, F.; Mao, R. Q.; Klein, B, 2015, A&A, 581, A48, *"A 1.3 cm line survey toward Orion KL"*

1. **Gong,** Y.; Henkel, C.; Spezzano, S.; Thorwirth, S.; Menten, K. M.; Wyrowski, F.; Mao, R. Q.; Klein, B, 2015, A&A, 574, A56, *"A 1.3 cm line survey toward IRC +10216"*

Publications (Proceedings)

2. **Gong,** Y., Mao, R. Q.; Henkel, C.; Urquhart, J.; Wang, Y.; Zhang, Z. Y.; Wyrowski, F., 2013b, in Protostars and Planets VI Posters, 11, *"Triggered Star Formation at the End of the Galactic Bar?"*

1. **Gong,** Y., Mao, R., Fang, M., Sun, J., & Lu, D. 2013a, in IAU Symposium, Vol. 292, IAU Symposium, ed. T. Wong & J. Ott, 43–43, *"Molecular gas around infrared dust bubbles"*

Honors and Awards

2012-2015 MPG-CAS Joint Doctoral Promotion Program
2011-2012 Merit Student, University of Chinese Academy of Sciences

Accepted Observing Proposals (PI)

Date	Facility	Time	Goals and Status
2016B	JCMT-15 m	10 hours	*Multi-J CO transitions toward the bubble N36* *Observations scheduled.*
2016B	JVLA	9.24 hours	*Studying the SiS masers in IRC +10216* *rating results: C*
2015A	IRAM-30 m	21.5 hours	*On the thermal state of a dense layer enclosing a bubble HII region* *Observations partly finished.*
2015B	Effelsberg-100 m	22 hours	*The driving sources of molecular supershells: new supernova remnants?* *Observations scheduled.*
2015A	Effelsberg-100 m	24 hours	*A 1.3 cm line survey toward L1157-B1* *Observations scheduled.*
2014A	IRAM-30 m	23 hours	*On the thermal state of a dense layer enclosing a bubble HII region* *Observations partly finished.*
2013A	IRAM-30 m	18 hours	*Triggered star formation at the end of the Galactic bar?* *Observations finished.*
2013A	APEX-12 m	8 hours	*Interstellar bubbles: how do they trigger massive star formation?* *Observations finished.*
2012	PMO-13.7 m	66 hours	*Studying the interaction between HII regions and ambient molecular clouds* *Observations finished.*
2012	PMO-13.7 m	6 hours	*The large-scale molecular gas structure of the high-mass star-forming region* *Observations finished.*

Presentations

- 04/2016: JCMT PI Science, Mitaka, Japan, (talk)
"Studying the thermal state of dense gas with JCMT"

- 08/2015: Zhangheng academic seminar, Delingha, (talk)
"Molecular clouds and star formation toward the Galactic plane within 216.25° ≤ l ≤218.75° and 0.75° ≤ b ≤1.25°"

- 08/2015: Scientific talk at XAO, Urumqi, (talk)
"A 1.3 cm line survey toward Orion KL"

• 08/2014: MPIFR group meeting, Bonn, (talk)
"A 1.3 cm line survey toward IRC +10216"

• 07/2013: Protostars & Planets VI, Heidelberg, (poster)
"Triggered Star Formation at the End of the Galactic Bar?"

• 08/2012: The 28th IAU, Beijing, (poster)
"Molecular gas around infrared dust bubbles"

Research Experience

09/2009 – present *Graduate studies* **Purple Mountain Observatory, CAS**

• Conducted CO line mapping toward a sample of infrared bubbles which are candidates for triggered massive star formation. The purpose is to search for the kinematics feature of triggered star formation. We found that associated molecular clouds were likely to expand, which is a clue of the interaction between HII regions and their surrounding molecular clouds.

• Conducted a new large-scale survey toward molecular clouds near S287 (within $216.25^\circ \leq l \leq 218.75^\circ$ and $0.75^\circ \leq b \leq 1.25^\circ$, a region of 3.75 square degrees) in the $J = 1 - 0$ transitions of three main CO isotopologues (^{12}CO, ^{13}CO, and C^{18}O). This is in attempt to study large-scale properties and kinematics of molecular clouds and their associated star-forming activities in this region. We first detected three large expanding molecular shells in the 50 km s^{-1} cloud that is located at the Outer arm. Benefit from the first C^{18}O (1–0) mapping, we found 7 massive star-forming clumps. Using infrared color-color diagrams, we found 56 Class I and 107 Class II young stellar object (YSO) candidates.

• Participate in the Milky Way Imaging Scroll Painting (MWISP) project which is led by Prof. Dr. Ji Yang and Prof. Dr. Zhibo Jiang. MWISP is a new large-scale survey of molecular gas in ^{12}CO(1–0),^{13}CO(1–0), and C^{18}O(1–0). The goal of MWISP is to develop our knowledge on the precise content and distribution of molecular gas in Milky Way, the physical and chemical processes involved in the conversion from tenuous interstellar gas to dense molecular gas, and the rules governing the formation of stars from molecular clouds.

• Participate in the project led by Prof. Rui-qing Mao with the aim to study the large-scale properties of molecular clouds around S76E. With the CO line maps, the molecular shell around S76E is well constrained.

12/2012 – 03/2015 *Joint Doctoral Promotion Programme* **Max-Planck Institut für Radioastronomie**

• Conducted a 1.3 cm line survey toward prototypical astronomical sources with the Effelsberg-100 m telescope. The project is led by Dr. Sven Thorwirth and Dr. Christian Henkel. This project will provide unbiased spectroscopic information on the selected prototypical astronomical sources including IRC +10216, Orion KL, Sgr B2(N), Orion Bar, CRL 618, and NGC 7027.

• Obtained the emission spectroscopy of HAT-P-36b in 2012 using the LBT/Lucifer in the HK band (PI: R. van Boekel) after Lucifer was recovered from severe instrumental failures. Data contaminated by systematics. Derived a featureless differential emission spectrum. Proposed new strategies for improving future Lucifer transit observations (10"-slits installation; Finer flexure correction).

• Started several projects in 2010 (PI or Co-I with R. van Boekel) to secure the emission or transmission spectroscopy of WASP-4b/-18b/-19b and GJ 1214b using the VLT/Xshooter based on the novel (but now debating) self-coherent calibration method of Swain et al. (2010).

Skills of Note

• Advanced: GILDAS, IDL

• Experienced: CASA, DS9, LaTeX, KARMA, MONTAGE, PYTHON

• Operating systems: Linux, Mac OS, Windows

• Observing experience: two weeks, IRAM-30 m Telescope (on site); Several months, PMO-13.7 m Telescope (on site); Two weeks, Effelsberg-100 m (on site); 10 hours, SMT-10 m Telescope (remote)

• Speaking languages: Chinese (mother tongue), English (fluent), and German (only greeting)