WENJIN YANG

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I am now a postdoc in the Nanjing University. I mainly work on astronomical masers (CH_3OH, SiO, HCN, H_2O) in star formation regions, evolved stars and supernova remnants, as well as methanol absorption features in star formation regions.

Updated on March 4, 2025

RESEARCH INTERESTS

- **Astronomical masers**
- **Circumstellar envelopes of evolved stars**
- **Supernova remnants interacting with ISM**
- **Star formation**
- **Kinematics and dynamics of interstellar medium**

EDUCATION

- **Purple Mountain Observatory & University of science and technology of China** **2014.09–2020.07**
  Ph.D in Astrophysics
  Thesis: *Observational studies of class I methanol masers*
  Advisors: Prof. Dr. Ye Xu, Prof. Dr. Xi Chen
- **Wuhan University** **2010.09–2014.06**
  Bachelor of Engineering in Geographical Information System (GIS)

EMPLOYMENT

- **Nanjing University** **2023.09–present**
  Postdoc Researcher
- **Max-Planck-Institut für Radioastronomie** **2020.11–2023.06**
  Postdoc Researcher
  Scientific employee of SOFIA/GREAT, 2023.03–2023.06
  (Guest of Menten's group, 2023.07–2025.10)

PRESENTATIONS

- 2024.02 [contributed talk] The second Cross-Strait Workshop on Radio Astronomy, Shanghai, China, "*Methanol masers and absorption features in massive star formation regions*"
- 2023.10 [talk] Group meeting of Millimeter and Submillimeter Astronomy in MPIfR, Bonn, Germany, "*Maser Investigation toward Off-Plane Stars: detection of SiO masers in the Galactic thick disk and halo*"
- 2023.06 [talk] Nanjing University, Nanjing, China, "*Masers in star formation regions and evolved stars*"
- 2023.03 [poster+flash talk] IAU 380 Cosmic Masers, Kagoshima, Japan, "*ATLASGAL: Methanol masers at 3 mm*"
- 2022.06 [poster] The MPIfR's Scientific Advisory Committee (Fachbeirat), Bonn, Germany, "*Probing infall in high-mass star-forming regions from red-shifted absorption of CH3OH and HNCO*"
- 2022.03 [talk] Group meeting of Millimeter and Submillimeter Astronomy in MPIfR, Bonn, Germany, "*Methanol masers and absorption features at 3 mm toward ATLASGAL sources*"
- 2021.11 [invited-talk (on-line)] Guangzhou University, China, "*How to use RADEX code*"
- 2019.07 [contributed talk] Symposium on molecular clouds and star formation 2019, Altay, China, "*44 GHz Methanol Masers: Observations toward 95 GHz Methanol Masers*"
- 2017.10 [contributed talk] Symposium on molecular clouds and star formation 2017, Yichang, China, "*The new catalog of 95 GHz methanol maser*"

- 2016.11 [contributed talk] The Chinese Annual Astronomy/Astrophysics Meeting, Wuhan, China, "*The Current Status of 95 GHz methanol masers observations*"

ACCEPTED PROPOSALS

PI Proposals

- The Karl G. Jansky Very Large Array (JVLA)
  (24A-198: 9 h; 24B-109: 3.5 h)
- The Australia Telescope Compact Array (ATCA)
  (C3471: 9.5 h)
- The Atacama Pathfinder EXperiment (APEX)
  (M9509B_111: 20 h)
- The IRAM-30m telescope (IRAM-30m)
  (141-22: 29 h, 112-23)
- The Effelsberg-100 m
  (17-21: 22 h, 65-17: 29 h)
- The Very Long Baseline Array (VLBA)
  (17A-112: 24 h)
- The PMO-13.7 m
  (20A-007: 147 h, 18A-001: 57 h, 17A-007: 130 h)

Co-I. Proposals (> 1000 hours)
ALMA (2023.1.01576.S), VLA (23A-136), VLBA (20B-107), ATCA (C3457), EAVN (EAVN 2024A 378)
APEX-12 m (M9519A_109, M9505B_113, M9509C_113), Effelsberg-100 m (92-20, 13-21, 92-21, 95-21, 100-21, 34-22, 75-22, 12-23, 14-23, 111-24, 112-24), IRAM-30 m (028-21, 137-24), KVN (KVN-16B-SD-03), Yebes-40 m (23A009, 25A024), ARO-12 m (Gong_25a_1)

PROFESSIONAL SERVICE

2024.03 – 2024.07	Coordinator and host of the (weekly) MARTES Talk in School of Astronomy and Space Science @NJU

FUNDING

2025.01 – 2027.12	National Natural Science Foundation of China (12403027; ¥ 300,000) *"Exploring the physical environment in star-forming regions and near supernova remnants through multiple maser lines"*
2024.09 – 2026.09	China Postdoctoral Science Foundation (2024M751376; ¥ 80,000)
2023.09 – 2025.09	Jiangsu Funding Programme for Excellent Postdoctoral Talent (2024ZB347; ¥ 300,000)

HONOR AND AWARDS

- 2020 Outstanding graduate, University of science and technology of China
- 2017 National scholarship for master student, University of science and technology of China
- 2014-2015 Merit student, University of Chinese Academy of Sciences

SKILLS OF NOTE

Software/Language	GILDAS, python, CASA, MIRIAD (basic), html/css (basic), markdown
Radiative transfer code	RADEX/myRadex, molpop-cep, Cassis (basic)
Observing experience	Effelsberg-100m (remote), IRAM-30m (remote), APEX-12m (remote), ATCA (remote), PMO-13.7m (on site)

REFERENCES

Dr. Ping Zhou (Nanjing University, China)
E-mail: pingzhou@nju.edu.cn

Prof. Dr. Karl M. Menten[†] (Max-Planck-Institut für Radioastronomie, Germany)

Dr. Christian Henkel (Max-Planck-Institut für Radioastronomie, Germany)
E-mail: chenkel@mpifr-bonn.mpg.de

Prof. Dr. Ye Xu (Purple Mountain Observatory, Chinese Academy of Science, China)
E-mail: xuye@pmo.ac.cn

Prof. Dr. Xi Chen (Guangzhou University, China)
E-mail: chenxi@gzhu.edu.cn

REFEREED PUBLICATIONS

A full list via ADS

First authored Publications:

6. New submillimetre HCN lasers in carbon-rich evolved stars
W. Yang, K. T. Wong, H. Wiesemeyer, K. M. Menten, Y. Gong, J. Cernicharo, E. De Beck, B. Klein, C. A. Durán 2025, A&A, accepted
This work is dedicated to the memory of Karl M. Menten

5. Maser Investigation toward Off-Plane Stars (MIOPS): detection of SiO masers in the Galactic thick disk and halo
Wenjin Yang, Yuanwei Wu, Yan Gong, Nicolas Mauron, Bo Zhang, Karl M. Menten, Xiaofeng Mai, Dejian Liu, Juan Li, and Jingjing Li, 2024, ApJ, 961, 190

4. ATLASGAL: 3-mm class I methanol masers in high-mass star formation regions
W. Yang, Y. Gong, K. M. Menten, J. S. Urquhart, C. Henkel, F. Wyrowski, T. Csengeri, S. P. Ellingsen, A. R. Bemis, J. Jang, 2023, A&A, 675, A112

3. Redshifted methanol absorption tracing infall motions of high-mass star formation regions
W. J. Yang, K. M. Menten, A. Y. Yang, F. Wyrowski, Y. Gong, S. P. Ellingsen, C. Henkel, X. Chen, Y. Xu, 2022, A&A, 658, A192

2. 44GHz Methanol Masers: Observations toward 95GHz Methanol Masers
Wenjin Yang, Ye Xu, Yoon Kyung Choi, Simon P. Ellingsen, Andrej M. Sobolev, Xi Chen, Jingjing Li, Dengrong Lu, 2020, ApJS, 248, 18

1. A New 95 GHz Methanol Maser Catalog. I. Data
Wenjin Yang, Ye Xu, Xi Chen, Simon P. Ellingsen, Dengrong Lu, Binggang Ju, Yingjie Li, 2017, ApJS, 231, 20

Co-authored Publications:

15. Shock-induced $HCNH^+$ abundance enhancement in the heart of the starburst galaxy NGC 253 unveiled by ALCHEMI
Y. Gong, C. Henkel, C. T. Bop, J. G. Mangum, E. Behrens, F. J. Du, S. B. Zhang, S. Martin, K. M. Menten, N. Harada, M. Bouvier, X. D. Tang, K. Tanaka, S. Viti, Y. T. Yan, **W. Yang**, R. Q. Mao, D. H. Quan, 2025, A&A, Accepted

14. Molecular inventory of a young eruptive star's environment Case study of the classical FU Orionis star V1057 Cyg
Zs. M. Szabó, A. Belloche, K. M. Menten, Y. Gong, Á. Kóspál, P. Ábrahám, **W. Yang**, C. J. Cyganowski, F. Wyrowski, 2025, A&A, 694, A392

13. Hyperfine structure of methanol molecule as traced by Class I methanol masers
I. I. Agafonova, O. S. Bayandina, Y. Gong, C. Henkel, Kee-Tae Kim, M. G. Kozlov, B. Lankhaar, S. A. Levshakov, K. M. Menten, W. Ubachs, I. E. Val'tts, **W. Yang** (alphabetical), 2024, MNRAS, 533, 1714

12. First detection of the $J_{-1}-(J-1)_0\ -\ E$ methanol maser transitions at J = 7 and 10
Pedro K. Humire, Gisela Ortiz-León, Antonio Hernández-Gómez, **Wenjin Yang**, Christian Henkel, Sergio Martín, 2024, A&A, 688, L1

[†]Prof. Dr. Karl Martin Menten passed away in 2024 at the age of 67. We miss him very much and look back with gratitude on the time we spent together.

11. Discovery of widespread non-metastable ammonia masers in the Milky Way
Y. T. Yan, C. Henkel, K. M. Menten, T. L. Wilson, A. Wootten, Y. Gong, F. Wyrowski, **W. Yang**, A. Brunthaler, A. Kraus, B. Winkel, 2024, A&A, 686, A205

10. Molecular Bubble and Outflow in S Mon Revealed by Multi-band Datasets
Dejian Liu, Ye Xu, YingJie Li, Zehao Lin, Chaojie Hao, **Wenjin Yang**, Jingjing Li, Xinrong Liu, Yiwei Dong, Shuaibo Bian, Deyun Kong, 2024, ApJ, 964, 93

9. Sulfur Isotope Ratios in the Large Magellanic Cloud
Y. Gong, C. Henkel, K. M. Menten, C.-H. R. Chen, Z. Y. Zhang, Y. T. Yan, A. Weiss, N. Langer, J. Z. Wang, R. Q. Mao, X. D. Tang, **W. Yang**, Y. P. Ao, M. Wang, 2023, A&A, 679, L6

8. Protonated hydrogen cyanide as a tracer of pristine molecular gas
Y. Gong, F. J. Du, C. Henkel, A. M. Jacob, A. Belloche, J. Z. Wang, K. M. Menten, **W. Yang**, D. H. Quan, C. T. Bop, G. N. Ortiz-León, X. D. Tang, M. R. Rugel, S. Liu, 2023, A&A, 679, A39

7. The Effelsberg survey of FU Orionis and EX Lupi objects II. H_2O maser observations
Zs. M. Szabó, Y. Gong, **W. Yang**, K. M. Menten, O. S. Bayandina, C. J. Cyganowski, Á. Kóspál, P. Ábrahám, A. Belloche, F. Wyrowski, 2023, A&A, 674, A202

6. The Effelsberg survey of FU Orionis and EX Lupi objects. I. Host environments of FUors and EXors traced by NH_3
Zs. M. Szabó, Y. Gong, K. M. Menten, **W. Yang**, C. J. Cyganowski, Á. Kóspál, P. Ábrahám, A. Belloche, F. Wyrowski, 2023, A&A, 672, A158

5. Widespread subsonic turbulence in Ophiuchus North 1
Yan Gong, Shu Liu, Junzhi Wang, Weishan Zhu, Guang-Xing Li, **Wenjin Yang**, Jixian Sun, 2022, A&A, 663, A82

4. Light Deflection under the Gravitational Field of Jupiter-Testing General Relativity
Yingjie Li, Ye Xu, JingJing Li, Yuanwei Wu , Shaibo Bian, ZeHao Lin, **Wenjin Yang**, Chaojie Hao, DeJian Liu, 2022, ApJ, 925, 47

3. Probing the electron-to-proton mass ratio gradient in the Milky Way with Class I methanol masers
S. A. Levshakov, I. I. Agafonova, C. Henkel, Kee-Tae Kim, M. G. Kozlov, B. Lankhaar, **W. Yang**, 2022, MNRAS, 511, 413

2. Searching for further evidence for cloud-cloud collisions in L1188
Y. Gong, X. D. Tang, C. Henkel, K. M. Menten, R. Q. Mao, Y. Wang, M.-Y. Lee, W. S. Zhu, Y. Lin, S. B. Zhang, X. P. Chen, **W. J. Yang**, 2019, A&A, 632, A115

1. Molecular Gas toward the Gemini OB1 Molecular Cloud Complex. II. CO Outflow Candidates with Possible WISE Associations
Yingjie Li, Fa-Cheng Li, Ye Xu, Chen Wang, Xin-Yu Du, **Wenjin Yang**, Ji Yang, 2018, ApJS, 235, 15

PROCEEDINGS

4. The molecular inventory of a young eruptive star's environment: Case study of the classical FU Orionis star, V1057 Cyg
Zsófia Marianna Szabó, Arnaud Belloche, Karl M. Menten, Yan Gong, **Wenjin Yang**, Ágnes Kóspál, Péter Ábrahám, Friedrich Wyrowski, Claudia J. Cyganowski, 2024, EAS, 398

3. ATLASGAL: methanol masers at 3 mm
W. Yang, Y. Gong, K. M. Menten, F. Wyrowski, J. S. Urquhart, C. Henkel, T. Csengeri, S. P. Ellingsen, A. R. Bemis, J. Jang, 2024, IAU, 380, 266

2. H_2O masers and host environments of FU Orionis and EX Lupi type low-mass eruptive YSOs
Zsófia Marianna Szabó, Yan Gong, **Wenjin Yang**, Karl M. Menten, Olga S. Bayandina, Claudia J. Cyganowski, Ágnes Kóspál, Péter Ábrahám, Arnaud Belloche, Friedrich Wyrowski, 2024, IAU, 380, 246

1. Searching masers from the Sagittarius stellar stream
Yuanwei Wu, Bo Zhang, Yan Gong, **Wenjin Yang**, Nicolas Mauron, 2024, IAU, 380, 128