Curriculum Vitae
Dr. Yaoting Yan (闫耀庭)

Ph.D. in Astronomy & Astrophysics
Millimeter and Submillimeter Astronomy Department,
Max-Planck-Institut für Radioastronomie

Office Address:	Auf dem Hügel 69, 53121 Bonn, Germany
Email:	yyan@mpifr-bonn.mpg.de, astrotingyan@gmail.com
Telephone:	+49 015256043266; +86 13824465597
Date of Birth:	December 14, 1993
Place of Birth:	Yuncheng/Shanxi, China
Homepage:	https://yaotingyan.github.io/
Orcid:	0000-0001-5574-0549

Research Interests

★ High-mass star-forming regions ★ Astronomical masers ★ Isotope abundance ratios ★ Molecular outflows ★ Magnetic fields ★ Hot molecular cores ★ Origin of elements ★ Nucleosynthesis ★ Galactic chemical-evolution model ★ Astrochemistry ★ NGC 253

Education

Oct. 22, 2024	Dr. rer. nat., University of Bonn
Thesis	The Influence of Stellar Objects onto the Interstellar Medium: Isotopic Compositions and Maser Lines
	Magna cum laude
Supervisors	Dr. Christian Henkel, Prof. Dr. Karl M. Menten
2016-2019	M.S. in Astronomy, Guangzhou University (GZHU)
Thesis	A Systematic TMRT Observational Study of Galactic $^{12}C/^{13}C$ Ratios from Formaldehyde
	Excellent graduate student
Supervisor	Prof. Dr. Jiangshui Zhang
2012-2016	B.S. in Optical Information Science and Technology, GZHU

Professional Experience

Since Nov. 2024	Postdoctoral researcher, Max-Planck-Institut für Radioastronomie (MPIfR)
Since Sept. 2023	Referee of The Astrophysical Journal
2019-2024	Research for Ph.D. thesis at the MPIfR
2016-2019	Research for M.S. thesis at the Center for Astronomy, GZHU

Honors & Awards

2022.09-2023.03	Ph.D. scholarship from the MPIfR
2019.09-2022.09	Ph.D. scholarship from the China Scholarship Council (CSC)
2019	Excellent Graduate Student Award from the GZHU
2017, 2018	Annual College scholarship from the GZHU
2016	Annual Graduate Student Entrance scholarship from the GZHU
2015	The 13th Challenge Cup of Guangdong Undergraduate Students Extracurricular Academic Science and Technology Competition Second Prize
2014	The 14th Guangzhou University Challenge Cup Competition First Prize
2013, 2014	Annual College scholarship from the GZHU
2013, 2014	Outstanding Student Leader Award from the GZHU

Publications

In total: 21 refereed papers and 1 non-refereed paper.
A complete list of publications can be found via ADS
First-author (five refereed papers):

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

2. **Yan, Y. T.**; Henkel, C.; Kobayashi, C.; Menten, K. M.; Gong, Y.; Zhang, J. S.; Yu, H. Z.; Yang, K.; Xie, J. J.; Wang, Y. X.; *Direct measurements of carbon and sulfur isotope ratios in the Milky Way*, 2023, A&A, 670, A98

3. **Yan, Y. T.**; Henkel, C.; Menten, K. M.; Gong, Y.; Nguyen, H.; Ott, J.; Ginsburg A., Wilson, T. L.; Brunthaler, A.; Belloche, A.; Zhang, J. S.; Budaiev, N.; Jeff, D.; *Discovery of non-metastable ammonia masers in Sagittarius B2*, 2022, A&A, 666, L15

4. **Yan, Y. T.**; Henkel, C.; Menten, K. M.; Gong, Y.; Ott, J.; Wilson, T. L.; Wootten, A.; Brunthaler, A.; Zhang, J. S.; Chen, J. L.; Yang, K.; *Discovery of ammonia (9,6) masers in two high-mass star-forming regions*, 2022, A&A, 659, A5

5. **Yan, Y. T.**; Zhang, J. S.; Henkel, C.; Mufakharov, T.; Jia, L. W.; Tang, X. D.; Wu, Y. J.; Li, J.; Zeng, Z. A.; Wang, Y. X.; Li, Y. Q.; Huang, J.; Jian, J. M.; *A Systematic TMRT Observational Study of Galactic* $^{12}C/^{13}C$ *Ratios from Formaldehyde*, 2019, ApJ, 877, 154

Co-author (16 refereed papers and 1 non-refereed paper):

1. Chen, J. L.; Zhang, J. S.; Henkel, C.; **Yan, Y. T.**; Yu, H. Z.; Wang, Y. X.; Zou, Y. P.; Zhao, J. Y.; Wang, X. Y.; *Interstellar Nitrogen Isotope Ratios: Measurements on tracers of C* ^{14}N *and C* ^{15}N , 2024, ApJ, 971, 164

2. Bouvier, M.; Viti, S.; Behrens, E.; Butterworth, J.; Huang, K. -Y.; Mangum, J. G.; Harada, N.; Martín, S.; Rivilla, V. M.; Muller, S.; Sakamoto, K.; Yoshimura, Y.; Tanaka, K.; Nakanishi, K.; Herrero-Illana, R.; Colzi, L.; Gorski, M. D.; Henkel, C.; Humire, P. K.; Meier, D. S.; van der Werf, P. P.; **Yan, Y. T.** *An ALCHEMI inspection of sulphur-bearing species towards the central molecular zone of NGC 253*, 2024, A&A, 689, A64

3. Butterworth, J.; Viti, S.; Van der Werf, P. P.; Mangum, J. G.; Martín, S.; Harada, N.; Emig, K. L.; Muller, S.; Sakamoto, K.; Yoshimura, Y.; Tanaka, K.; Herrero-Illana, R.; Colzi, L.; Rivilla, V. M.; Huang, K. Y.; Bouvier, M.; Behrens, E.; Henkel, C.; **Yan, Y. T.**; Meier, D. S.; Zhou, D.; *Molecular isotopologue measurements toward super star clusters and the relation to their ages in NGC253 with ALCHEMI*, 2024, A&A, 686, A31

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

5. Zou, Y. P.; Zhang, J. S.; Henkel, C.; Romano, D.; Liu, W.; Zheng, Y. H.; **Yan, Y. T.**; Chen, J. L.; Wang, Y. X.; Zhao, J. Y.; *A Systematic Observational Study on Galactic Interstellar Ratio* $^{18}O/^{17}O$*. II.* $C^{18}O$ *and* $C^{17}O$ *J = 2-1 Data Analysis*, 2023, ApJS, 268, 56

6. Zhu, Feng-Yao; Wang, Junzhi; **Yan, Yaoting**; Zhu, Qing-Feng; Li, Juan; *Origins of the shocks in high-mass starless clump candidates*, 2023, MNRAS, 523, 2770Z

7. Zhao, J. Y.; Zhang, J. S.; Wang, Y. X.; Qiu, J. J.; **Yan, Y. T.**; Yu, H. Z.; Chen, J. L.; Zou, Y. P.; *A Multitransition Methanol Survey toward a Large Sample of High-mass Star-forming Regions*, 2023, ApJS, 266, 29

8. Zhu, Feng-Yao; Wang, Junzhi; **Yan, Yaoting**; Zhu, Qing-Feng; Li, Juan; *Spatial distributions and kinematics of shocked and ionized gas in M17*, 2023, MNRAS, 522, 503Z

9. Wang, Y. X.; Zhang, J. S.; Yu, H. Z.; Wang, Y.; **Yan, Y. T.**; Chen, J. L.; Zhao, J. Y.; Zou, Y. P.; *A Possible Chemical Clock in High-mass Star-forming Regions: $N(HC_3N)/N(N_2H^+)$?*, 2023, ApJS, 264, 48

10. Qiu, Jian-Jie; Zhang, Yong; Nakashima, Jun-ichi; Zhang, Jiang-Shui; Koning, Nico; Tang, Xin-Di; **Yan, Yao-Ting**; Feng, Huan-Xue; *Molecules in the peculiar age-defying source IRAS 19312+1950*, 2023, A&A, 669, A121

11. Wang, Y. X.; Zhang, J. S.; **Yan, Y. T.**; Qiu, J. J.; Chen, J. L.; Zhao, J. Y.; Zou, Y. P.; Wu, X. C.; He, X. L.; Gong, Y. B.; Cai, J. H.; *Cyanopolyyne line survey towards high-mass star-forming regions with TMRT*, 2022, A&A, 663, A177

12. Chen, J. L.; Zhang, J. S.; Henkel, C.; **Yan, Y. T.**; Yu, H. Z.; Qiu, J. J.; Tang, X. D.; Wang, J.; Liu, W.; Wang, Y. X.; Zheng, Y. H.; Zhao, J.; *Interstellar Nitrogen Isotope Ratios: New NH_3 Data from the Galactic Center out to the Perseus Arm*, 2021, ApJS, 257, 39

13. Martín, S.; Mangum, J. G.; Harada, N.; Costagliola, F.; Sakamoto, K.; Muller, S.; Aladro, R.; Tanaka, K.; Yoshimura, Y.; Nakanishi, K.; Herrero-Illana, R.; Mühle, S.; Aalto, S.; Behrens, E.; Colzi, L.; Emig, K. L.; Fuller, G. A.; García-Burillo, S.; Greve, T. R.; Henkel, C.; Holdship, J.; Humire, P.; Hunt, L.; Izumi, T.; Kohno, K.; König, S.; Meier, D. S.; Nakajima, T.; Nishimura, Y.; Padovani, M.; Rivilla, V. M.; Takano, S.; van der Werf, P. P.; Viti, S.; **Yan, Y. T.**; *ALCHEMI: an ALMA Comprehensive High-resolution Extragalactic Molecular Inventory. Survey presentation and first results from the ACA array*, 2021, A&A, 656, A46

14. Xie, Jin-Jin; Wu, Jing-Wen; Fuller, Gary A.; Peretto, Nicolas; Ren, Zhi-Yuan; Chen, Long-Fei; **Yan, Yao-Ting**; Li, Guo-Dong; Duan, Yan; Xia, Ji-Feng; Wang, Yong-Xiong; Li, Di.; *Studying infall in infrared dark clouds with multiple HCO^+ transitions*, 2021, RAA, 21, 208

15. Yu, H. Z.; Zhang, J. S.; Henkel, C.; **Yan, Y. T.**; Liu, W.; Tang, X. D.; Langer, N.; Luan, T. C.; Chen, J. L.; Wang, Y. X.; Deng, G. G.; Zou, Y. P.; *Galactic Interstellar Sulfur Isotopes: A Radial $^{32}S/^{34}S$ Gradient?*, 2020, ApJ, 899, 145

16. Zhang, J. S.; Liu, W.; **Yan, Y. T.**; Yu, H. Z.; Liu, J. T.; Zheng, Y. H.; Romano, D.; Zhang, Z. -Y.; Wang, J. Z.; Chen, J. L.; Wang, Y. X.; Zhang, W. J.; Lu, H. H.; Chen, L. S.; Zou, Y. P.; Yang, H. Q.; Wen, T.; Lu, F. S.; *A Systematic Observational Study on Galactic Interstellar Ratio $^{18}O/^{17}O$. I. $C^{18}O$ and $C^{17}O$ J = 1-0 Data Analysis*, 2020, ApJS, 249, 6

17. Zhang, J. S.; **Yan, Y. T.**; Liu, W.; Yu, H. Z.; Chen, J. L.; Henkel, C.; *Systematic observations on Galactic Interstellar isotope ratios*, 2020, IAUGA, 30, 278

Accepted Observation Proposals as PI

In total: 1740.5 hours

▶ The 100-m Effelsberg Radio Telescope, **158.3** hours
→ project IDs: *13-20, 91-20, 30-22, 34-22, 68-22.*
▶ The IRAM 30-m Telescope, **272.7** hours
→ project IDs: *004-20, 117-20, 125-20, 031-21, 033-21, 047-21, 063-22, 103-23.*
▶ The Karl G. Jansky Very Large Array, **8.5** hours
→ project IDs: *VLA/21A-157, VLA/22A-106, VLA/24B-174.*
▶ NASA/JPL Deep Space Network DSS-43 70-m Telescope, **45.0** hours
▶ The Atacama Pathfinder Experiment (APEX), **24.0** hours
→ project ID: *M9509C_113.*
▶ The ARO 12-M Telescope, **470.0** hours
→ project IDs: *Yan-2016B, 2017B, 2018B, 2019A, 2020A.*

▶ The James Clerk Maxwell Telescope, **165.0** hours
→ project IDs: *M16BP037, M16XP019, M19AP021.*
▶ The Shanghai Tianma 65m Radio Telescope, **400.0** hours
▶ The Sub-Millimeter Radio Telescope, **197.0** hours
→ project IDs: *Yan-2016A, 2017B.*

Presentations

★*Non-metastable ammonia masers in the high-mass star-forming regions.*
@ Heritage of SOFIA, University of Stuttgart, Germany (poster) April 2024
★*The isotopic abundance ratios of carbon and sulfur in the Milky Way and ammonia masers.*
@ Chongqing University, Chongqing, China (**invited**) October 2023
★*Ammonia masers in the Milky Way.*
@ Zhejiag Lab, Hangzhou, China September 2023
★*Carbon and sulfur isotope ratios in the Milky Way.*
@ Astrochemistry conference, XAO, Xinjiang, China August 2023
★*Carbon isotope ratios in the Milky Way.*
@ TMRT 10th anniversary, Shanghai, China (**invited**, online) November 2022
★*Ammonia masers in the Milky Way.*
@ MPIfR group meeting, Bonn, Germany September 2022
★*Discovery of ammonia (9,6) masers in Cep A and G34.26+0.15.*
@ 12th IMPRS conference, Bonn, Germany May 2022
★*Discovery of ammonia (9,6) masers in two high-mass star-forming regions.*
@ PoSTER 2022 (poster) May 2022
★*Direct measurements of carbon and sulfur isotope ratios in the Milky Way.*
@ 50th YERAC (poster) August 2021
★*C, N, O, S isotope ratios in the Milky Way.*
@ 8th IMPRS conference, Bonn, Germany July 2021
★*Carbon and Sulfur isotope ratios in our Galaxy and NGC 253.*
@ MPIfR group meeting, Bonn, Germany July 2020
★*A Systematic TMRT Observational Study of Galactic* $^{12}C/^{13}C$ *Ratios from Formaldehyde.*
@ 2019 Symposium on Molecular Cloud and Star Formation, Xinjiang, China July 2019

Experience

♡ Observation experience > **2000.0 hours** (on-site + remote) with the Effelsberg 100-m, the IRAM 30-m, the TMRT 65-m, the Arecibo 305-m, the ARO 12-m, and the SMT 10-m. 2016 – 2023
♡ Teaching data reduction during Radio Astronomy Summer School at Shanghai Astronomical Observatory (SHAO) July 9-July 14, 2017
♡ Two weeks IRAM EMIR Pool observations (**volunteer**) April 06–13, May 25–June 01, 2021
♡ 10th IRAM 30-meter School on Millimeter Astronomy November 15–23, 2021
♡ The scientific writing workshop (online), Bonn, Germany June 8–11, 2020
♡ 2018 FAST Radio Astronomy Summer School July 8–13, 2018
♡ 2016 Annual Meeting of the Chinese Astronomical Society November 01–03, 2016
♡ JCMT Data Reductions and Analysis Workshop at SHAO October 16, 2016
♡ 2015 Radio Astronomy Summer School at SHAO July 19–25, 2015

Professional References

Dr. Christian Henkel
Staff of Department Millimeter and Submillimeter Astronomy
Max-Planck-Institut für Radioastronomie
D-53121 Bonn, Germany
Phone:(0049)228 525 305
chenkel@mpifr-bonn.mpg.de

Prof. Dr. Alwyn Wootten
ALMA-NRAO Deputy Project Scientist
National Radio Astronomy Observatory
Charlottesville VA 22903, USA
Phone:(001)434 296 0329
awootten@nrao.edu

Dr. Thomas L. Wilson
Staff of Department Millimeter and Submillimeter Astronomy
Max-Planck-Institut für Radioastronomie
D-53121 Bonn, Germany
Phone:(0049)228 525 303
thomaswilson1b@gmail.com