Chentao YANG (杨辰涛)*

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ORCID: 0000-0002-8117-9991

Personal Information Current status: Postdoctoral Researcher

Gender: Male Year of birth: 1988 Citizenship: P.R. China

Chinese (native proficiency), Languages:

English (full professional proficiency), French (elementary proficiency)

Employment

Postdoc, Chalmers University of Technology, Göteborg, Sweden 2021.11 - present European Southern Observatory (ESO) Fellow, Santiago, Chile 2017.11 - 2021.10

(50% independent research + 50% ALMA duty)

Education

Institut d'Astrophysique Spatiale, Université Paris-Saclay, France 2014.11 - 2017.10

(Co-tutelle) PhD degree in Astrophysics, Diploma awarded in January, 2018

Supervisor: Alain Omont, Alexandre Beelen

Purple Mountain Observatory, Chinese Academy of Sciences, P.R. China 2013.09 - 2017.10

(Co-tutelle) PhD degree in Astrophysics, Diploma awarded in January, 2018

Supervisor: Yu Gao

Astronomy Department, Beijing Normal University, P.R. China 2010.09 - 2013.06

Master's degree in Astrophysics, Diploma awarded in July, 2013

Supervisor: Yu Gao, Biwei Jiang

Astronomy Department, Beijing Normal University, P.R. China 2006.09 - 2010.07

Bachelor's degree in Astronomy, Diploma awarded in July, 2010

Computer Skills

Languages: IDL, FORTRAN, Matlab, MTxX, Python, Julia

Operating systems: GNU/Linux (CentOS, openSUSE, etc.), MacOS, Windows

GILDAS, Starlink, DS9, CASA, HIPE, TOPCAT Software:

Research interests

• Obscured galaxy nuclei near and far

Current • Submillimeter water maser in high-redshift galaxies Current

• Observations of the interstellar medium in submillimeter galaxies Current

• Millimeter and submillimeter spectral line surveys at high redshift Current

• SUNRISE - Submillimeter molecUlar liNe suRveys in dIstant duSty galaxiEs

• Submillimeter H₂O lines as the ISM tracers in dusty galaxies near and far Current

Ph.D. Thesis • Physical conditions of the interstellar medium in high-redshift submillimetre

bright galaxies (ADS record)

2013-2017 Master Thesis • Water vapor in galaxies near and far 2011-2013

Bachelor Thesis • Cold dust in nearby galaxies 2009-2010

References (alphabetical order) • Aalto, Susanne: Professor, Chalmers University of Technology, Sweden

• Beelen, Alexandre: Associate Astronomer, Laboratoire d'Astrophysique de Marseille, France

• Cox, Pierre: Senior Scientist, Institut d'Astrophysique de Paris, France

• Gao, Yu: Professor, Xiamen University, China

• González-Alfonso, Eduardo: Professor, University of Alcalá, Spain

• Impellizzeri, Violette: Program manager, Allegro ARC, Leiden Observatory, Netherlands

• Omont, Alain: Emeritus Senior Scientist, Institut d'Astrophysique de Paris, France

Accepted PI **Proposals** 477 h in total (A/B: A/B-rated)

- The Atacama Large Mm/submm Array (ALMA), 7 proposals, 62 h^{12m} + 50 h^{7m}. since 2017
 - 2017.A.00053.S (ACA observatory filler program, 50 h);
 - 2018.1.00861.S^B(EU, **10.4 h**), 2018.1.00797.S^B(EU, **6.6 h**), 2018.1.01710.S(EU, **9.1 h**);
 - 2019.1.00205.S^B(EU, **23.2 h**), 2019.1.00533.S^B(EU, **4.8 h**), 2019.1.00310.S(EU, **8.0 h**);
- The NOrthern Extended Millimeter Array (NOEMA), 12 proposals, 138 h. since 2013
 - W0B3^B, S14CT^B, S15CT^B, W15EQ^B, S16CG^B, S16CF^B, S16BT^B, W16DQ^B, W16DO^B, S18DC^A, S18CT^A, W18EB^A;
- The IRAM-30m telescope (IRAM-30m), 3 proposals, 76 h.

since 2015

- 079-15^A, 196-15^B, 076-16^A;
- The Karl G. Jansky Very Large Array (JVLA/NRAO), 3 proposals, 47 h.

since 2014

since 2016

since 2020

- 14B-259^B, 15B-177, 18B-190;
- The Atacama Pathfinder EXperiment (APEX/ESO) telescope, 2 proposal, 55 h.
 - 097.B-0914^B (SEPIA-5), 103.B-0471^A (SEPIA-9);
- The Green Bank Telescope (GBT/GBO) telescope, 1 proposal, 49 h.
- 21A-093^A (W-band);

Accepted proposals as a co-I: 88 approved proposals including:

ALMA (25 proposals, 5 A + 7 B + 13 C), NOEMA (42, including 1 large program, z-GAL), JVLA (4), GTC(1), Spitzer (1), VLT (2, KMOS), IRAM-30m (6), APEX (2), JCMT (7, including 4 large programs, JINGLE, MALATANG, AWESOME and RAGERS) and GMRT (1 proposal).

Observing **Experience**

- The IRAM 30m telescope (IRAM30/IRAM), 2013–2016: > 100 h;
- The James Clerk Maxwell Telescope (JCMT/EAO), 2016: > 100 h;
- The ALMA Observatory (ALMA/JAO), 2018-present: (AoD) > 1000 h.

Professional Service

- Referee for scientific journals: *ApJ*;
- HST Expert external proposal reviewer;
- Individual reviewer for the Astronomy Grants Panel of STFC;
- Member of the ESO (Chile) Fellowship Selection Committee (2019–2020);
- Member of the ALMA (JAO) Post-Doctoral Fellow Selection Committee (2019);
- Technical Secretary of the ALMA Proposal Review meeting, 2018 (Cycle 6) 2021 (Cycle 8);
- Co-organiser of the ALMA proposal workshop at ESO (2018, 2021);

Teaching Mentorship

• Malte Brinch (PhD student), Cosmic Dawn Center (DAWN) DTU-space, The excitation of [C I] lines in high-redshift dusty galaxies:

2021/2022

- Nina Grant (Undergraduate student), Princeton International Internship program, Complete the rotation curve of NGC 7528 with neutral carbon emission; June-August 2019
- Lecture, Advance topics of astrophysics and astrobiology, Universidad Andrés Bello, Chile; The ISM in high-redshift dusty star-forming galaxies. 2nd Semester 2019

Refereed **Publications**

NASA/ADS Library link 8 publications as the first/second author; 546 citations in total, including 175 citations of the first-author papers; Metrics: (NASA/ADS) h-index = 14, h-index/(years since PhD defence) = 3.5, m-index (since 2017) = 2.2

(†: $1^{st}/2^{nd}$ author) 31. The ramp-up of interstellar medium enrichment at z > 4; (ESO Press Release, ALMA Press Release, Phys.org News, Dailymail news)

M. Franco, K. E. K. Coppin, J. E. Geach, C. Kobayashi, S. C. Chapman, C. Yang, E. González-Alfonso, J. S. Spilker, A. Cooray, M. J. Michałowski 2021, Nature Astronomy;

- 30. An ACA 1mm survey of HzRGs in the ELAIS-S1: survey description and first results; Hugo G. Messias, Evanthia Hatziminaoglou, Pascale Hibon, Israel Matute, Tony Mroczkowski, José M. Afonso, Edward Fomalont, ..., Chentao Yang 2021, MNRAS accepted;
- 29. Close-up view of a luminous star-forming galaxy at z = 2.95; S. Berta, A. J. Young, P. Cox, R. Neri, B. M. Jones, A. J. Baker, A. Omont, ..., C. Yang, D. A. Riechers, H. Dannerbauer, I. Perez-Fournon, P. van der Werf et al. 2021, A&A, 646, A122;
- 28. A proto-pseudobulge in ESO 320-G030 fed by a massive molecular inflow driven by

^{*}In Chinese, 辰 - 涛 (chen-tao) can mean star-waves, in which 辰 (chen) means stars and 涛 (tao) means waves.

- a nuclear bar; (Harvard CfA Press Release, Phys.org News)
- E. González-Alfonso, M. Pereira-Santaella, J. Fischer, S. García-Burillo, C. Yang, A. Alonso-Herrero, L. Colina, M. L. N. Ashby, H. A. Smith et al. 2021, A&A, 645, A49;
- 27. Planck's Dusty GEMS. VIII. Dense gas reservoirs in the most active dusty starbursts at $z \sim 3$;
 - R. Cañameras, N. P. H. Nesvadba, R. Kneissl, S. König, C. Yang, A. Beelen, R. Hill, E. Le Floc'h and D. Scott 2021, A&A, 645, A45;
- 26. ALMA [NII] 205 μ m imaging spectroscopy of the lensed submillimeter galaxy ID 141 at redshift 4.24:
 - Cheng Cheng, Xiaoyue Cao, Nanyao Lu, Chentao Yang, Dimitra Rigopoulou, Vassilis Charmandaris et al. 2020, ApJ, 898, 33;
- [†]25. Etching glass in the early Universe: Luminous HF and H₂O emission in a QSO-SMG pair at z = 4.7;
 - M. D. Lehnert, C. Yang, B.H.C. Emonts, A. Omont, E. Falgarone, P. Cox, and P. Guillard 2020, A&A, 641, A124;
- 24. The MALATANG Survey: Dense Gas and Star Formation from High Transition HCN and HCO⁺ maps of NGC 253;
 - Xuejian Jiang, Thomas R. Greve, Yu Gao, Zhi-Yu Zhang, ..., Chentao Yang, Qian Jiao, Aeree Chung et al. 2020, MNRAS, 494, 1276;
- [†]23. The first detection of the 448 GHz ortho- H_2O line at high redshift: probing the structure of a starburst nucleus at $z \sim 3.63$
 - C. Yang, E. González-Alfonso, A. Omont, M. Pereira-Santaella, J. Fisher, A. Beelen, R. Gavazzi 2020, A&A, 634, L3;
- 22. A declining starburst at z = 4.72 lensed by a merging pair of massive galaxies at z = 1.48; L. Ciesla, M. Béthermin, E. Daddi, J. Richard, T. Diaz-Santos, M. Sargent, D. Elbaz, M. Boquien, T. Wang, C. Schreiber, C. Yang, J. Zabl et al. 2020, A&A, 635, A27;
- 21. NOEMA Redshift Measurements of Bright Herschel Galaxies; R. Neri, P. Cox, A. Omont, A. Beelen, S. Berta, T. Bakx, M. Lehnert, ..., C. Yang and A.J. Young 2020, A&A, 635, A7;
- **20.** A SCUBA-2 Selected Herschel-SPIRE Dropout and the Nature of this Population; J. Greenslade, E. Aguilar, D. L. Clements, H. Dannerbauer, T. Cheng, G. Petitpas, C. Yang, H. Messias et al. 2019, MNRAS, 490, 5317;
- 19. JINGLE V: Dust properties of nearby galaxies derived from hierarchical Bayesian SED fitting;
 - Isabella Lamperti, Amélie Saintonge, Ilse De Looze, Gioacchino Accurso, Christopher J. R. Clark, Matthew W. L. Smith, Christine D. Wilson, ..., Chentao Yang 2019, MNRAS, 489, 4389;
- 18. JINGLE, a JCMT legacy survey of dust and gas for galaxy evolution studies: II. SCUBA-2 850 μ m data reduction and dust flux density catalogues; Matthew W. L. Smith, Christopher J. R. Clark, Ilse De Looze, Isabella Lamperti, Amélie Sain-
 - Matthew W. L. Smith, Christopher J. R. Clark, Ilse De Looze, Isabella Lamperti, Amelie Saintonge, Christine D. Wilson, ..., Chentao Yang and Ming Zhu 2019, MNRAS, 486, 4166;
- 17. The molecular-gas properties in the gravitationally lensed merger HATLAS J142935.3-002836;
 - Hugo Messias, Neil Nagar, Zhi-Yu Zhang, Iván Oteo, Simon Dye, Nicholas Timmons, Eduardo Ibar, ..., and Chentao Yang 2019, MNRAS, 486, 2366;
- [†]16. CO, H₂O, H₂O⁺ line and dust emission in a z = 3.63 strongly lensed starburst merger at sub-kiloparsec scales;
 - C. Yang, R. Gavazzi, A. Beelen, P. Cox, A. Omont, M. Lehnert, Y. Gao, R. J. Ivison, A. M. Swinbank, L. Barcos-Műnoz, R. Neri, A Cooray, S. Dye, S. Eales et al. 2019, A&A, 624, A138;
- 15. Planck's Dusty GEMS. VII. Atomic carbon and molecular gas in dusty starburst galaxies at z = 2 to 4;
 - N. P. H. Nesvadba, R. Cañameras, R. Kneissl, S. Koenig, C. Yang, E. Le Floc'h, A. Omont and D. Scott 2019, A&A, 624, A23;
- 14. VALES V: A kinematic analysis of the molecular gas content in H-ATLAS galaxies at $z \sim 0.03$ -0.35 using ALMA;
 - J. Molina, E. Ibar, V. Villanueva, A. Escala, C. Cheng, M. Baes, H. Messias, C. Yang, F.E. Bauer,

- P. P. Van der Werf, R. Leiton, M. Aravena, ..., S. Eales & L. Dunne 2019, MNRAS, 482, 1499;
- †13. Planck's Dusty GEMS. VI. Multi-J CO excitation and interstellar medium conditions in dusty starburst galaxies at z = 2-4; (IRAM Press Release, CEA Press Release)
 R. Cañameras, C. Yang, N. P. H. Nesvadba, A. Beelen, R. Kneissl, S. Koenig, E. Le Floc'h, M. Limousin, S. Malhotra, A. Omont, D. Scott 2018, A&A, 620, A61;
- 12. JINGLE, a JCMT legacy survey of dust and gas for galaxy evolution studies: I. Survey overview and first results;
 - Amélie Saintonge, Christine D. Wilson, Ting Xiao, Lihwai Lin, Ho Seong Hwang, Tomoka Tosaki, ..., Chentao Yang, Ming Zhu et al. 2018, MNRAS, 481, 3497;
- 11. Far-infrared *Herschel* SPIRE spectroscopy of lensed starbursts reveals physical conditions of ionised gas;
 - Zhi-Yu Zhang, R. J. Ivison, R. D. George, Yinghe Zhao, L. Dunne, ..., Chentao Yang, Stephen Eales, Ros Hopwood, Steve Maddox, Alain Omont et al. 2018, MNRAS, 481, 59;
- 10. Extreme conditions in the molecular gas of lensed star-forming galaxies at $z \sim 3$; Paola Andreani, Edwin Retana-Montenegro, Zhi-Yu Zhang, Padelis Papadopoulos, Chentao Yang, Simona Vegetti 2018, A&A, 615, A142;
- 9. The MALATANG Survey: the $L_{\rm gas}-L_{\rm IR}$ correlation on sub-kiloparsec scale in six nearby star-forming galaxies as traced by HCN J=4-3 and HCO⁺ J=4-3; Qing-Hua Tan, Yu Gao, Zhi-Yu Zhang, Thomas Greve, Xue-Jian Jiang, Christine Wilson, Chen-Tao Yang, Ashley Bemis, Aeree Chung et al. 2018, ApJ, 860, 165;
- 8. VALES: IV. Exploring the transition of star formation efficiencies between normal and starburst galaxies using APEX/SEPIA and ALMA at low redshift; C. Cheng, E. Ibar, T. M. Hughes, V. Villanueva, R. Leiton, G. Orellana, A. Munoz-Arancibia, N. Lu, C. K. Xu, C. N. A. Willmer, J. Huang, T. Cao, C. Yang et al. 2018, MNRAS, 475, 248;
- 7. The Herschel Bright Sources (HerBS): Sample definition and SCUBA-2 observations; Tom J. L. C. Bakx, S. A. Eales, M. Negrello, M. W. L. Smith, E. Valiante, W. S. Holland, M. Baes, N. Bourne, D. L. Clements, ..., P. van der Werf, C. Yang, 2018, MNRAS, 273, 1751;
- High dense gas fraction in intensely star forming dusty galaxies;
 Oteo, Z-Y. Zhang, C. Yang, R. J. Ivison, A. Omont, M. Bremer, S. Bussmann, A. Cooray, P. Cox, H. Dannerbauer, L. Dunne, S. Eales, ..., and P. Van der Werf 2017, ApJ, 850, 170;
- †5. Molecular gas in the *Herschel*-selected strongly lensed submillimeter galaxies at $z \sim 2$ -4 as probed by multi-J CO lines; C. Yang, A. Omont, A. Beelen, Y. Gao, P. van der Werf, R. Gavazzi, Z.-Y. Zhang, R. Ivison, M. Lehnert, D. Liu, I. Oteo, E. González-Alfonso et al. 2017, A&A, 608, A144;
- †4. Submillimeter H₂O and H₂O⁺ emission in lensed ultra- and hyper-luminous infrared galaxies at z ~ 2-4;
 C. Yang, A. Omont, A. Beelen, E. González-Alfonso, R. Neri, Y. Gao, P. van der Werf, A. Weiß,
 - C. Yang, A. Omont, A. Beelen, E. González-Alfonso, R. Neri, Y. Gao, P. van der Werf, A. Weiß R. Gavazzi, N. Falstad, A. J. Baker, R. S. Bussmann, A. Cooray et al. 2016, A&A, 595, A80;
- 3. High-J CO Versus far-infrared relations in normal and starburst galaxies; Daizhong Liu, Yu Gao, Kate Isaak, Emanuele Daddi, Chentao Yang, Nanyao Lu and Paul van der Werf 2015, ApJ, 810, L14;
- [†]2. Water vapor in nearby infrared galaxies as probed by *Herschel*; Chentao Yang, Yu Gao, A. Omont, Daizhong Liu, K. G. Isaak, D. Downes, P. P. van der Werf and Nanyao Lu 2013, ApJ, 771, L24;
- [†]1. H₂O emission in high-z ultra-luminous infrared galaxies; (A&A Highlight) A. Omont, C. Yang, P. Cox, R. Neri, A. Beelen, R. S. Bussmann, R. Gavazzi, P. van der Werf, D. Riechers, D. Downes and 40 other authors 2013, A&A, 551, A115;
- Submitted Publications & Reviews In prep.
- Bright Extragalactic ALMA Redshift Survey (BEARS) I: redshifts of bright gravitationally-lensed galaxies from the Herschel ATLAS
 S. A. Urquhart, G. J. Bendo, S. Serjeant, T. Bakx, M. Hagimoto, P. Cox, R. Neri, M. Lehnert, ..., C. Yang, A.J. Young, submitted to MNRAS;
- Serendipitous Discovery of an Optically-Dark Hyper-Luminous Infrared Galaxy at z = 3.4
 - Natsuki H. Hayatsu, Zhi-Yu Zhang, R.J. Ivison, Chao-wei Tsai, ..., Chentao Yang, ... and Jun-

feng Wang, submitted to MNRAS

Massive molecular gas reservoir in a luminous sub-millimeter galaxy during cosmic

Bin Liu, N. Chartab, H. Nayyeri, A. Cooray, C. Yang, ... and P. van der Werf, submitted to ApJ

• Dense Gas and Star Formation in Nearby Infrared Bright Galaxies: APEX survey of HCN and HCO⁺ $J=2\rightarrow 1$

Jing Zhou, Zhi-Yu Zhang, Yu Gao, Junzhi Wang, Yong Shi, Qiusheng Gu, Fei Li, Chentao Yang, Tao Wang and Qing-hua Tan, submitted to ApJ

Invited Review • Extragalactic water new and far

Chentao Yang, Eduardo González-Alfonso & Alain Omont, to be submitted to Royal Society Open Science (RSOS)

Presentations

2015-2021, ordered by category:

2 invited conference talks, 6 contributed talks, and 12 (incl. invited) seminar/colloquium talks

Invited review talk • "Water in the Universe" Symposium, ACS Fall 2019 National Meeting & Exposition, San Diego, California, USA August 25-29, 2019

Water vapor in galaxies at high redshift

Invited talk • The ALMA Quest for Our Cosmic Origins, Joint ALMA Observatory (JAO), Vitacura, Santiago, March 27, 2018

Physical conditions of the ISM in high-redshift lensed submillimeter galaxies

Contributed talk • Multi-line Diagnostics of the Interstellar Medium, Nice, France April, 2022 The rich molecular inventory of two dusty galaxies twelve billion years ago (postponed due to COVID-19)

Contributed talk • KIAA forum on gas in galaxies: Multiple-phase Interstellar medium - Probing the Activities and Power Engines from Local to Distant Universe, Beijing, China September 9-13, 2019 The interstellar medium in high-redshift strongly gravitational lensed galaxies

Contributed talk • Views on the Interstellar Medium in galaxies in the ALMA era, Bologna, Emilia-Romagna, September 2-6, 2019 Italv

Studying the ISM in high-redshift strongly lensed galaxies in the ALMA era

Contributed talk • The Laws of Star Formation: From the Cosmic Dawn to the Present Universe, Cambridge University, UK July 2-6, 2018 Molecular gas in high-redshift strongly lensed dusty starbursts as traced by multi-J **CO** lines

Contributed talk • The Eighth Sino-French "LIA-origins" Workshop: Probing Baryons in the Universe, Sèvres, Hauts-de-Seine, France November 14-18, 2016

 H_2O and H_2O^+ emission in lensed hyper/ultra-luminous infrared galaxies at $z\sim 2-4$

Contributed talk • Water in the Universe: From Clouds to Oceans, European Space Agency (ESA/ESTEC), Noordwijk, Netherland April 11-15, 2016 H₂O Emission in Ultra-luminous Infrared Galaxies at High-z

Colloquium talk • (invited) University of Massachusetts Amherst and the Five College Astronomy Department, Massachusetts, USA February 25, 2021

Physical conditions of the ISM in dusty star-forming galaxies in the early universe

Colloquium talk • European Southern Observatory (ESO Santiago), Chile

November 21, 2019

Water vapor in galaxies near and far

Seminar talk • (invited) The Dominion Radio Astrophysical Observatory (DRAO), Victoria, BC, Canada October 7, 2020

Extragalactic water across cosmic time

Seminar talk • (invited) CAS South America Center for Astronomy, Santiago, Chile Water vapor in galaxies near and far

January 8, 2020

Seminar talk • (invited) Astronomy Department, Beijing Normal University, China

September 9, 2019

Water vapor in galaxies near and far

Seminar talk •	• (invited) The Cosmic Dawn Center, DTU-Space division, Denmark December 12, 2018 Physical conditions of the ISM in strongly lensed dusty star-forming galaxies in the early universe
Seminar talk	Centre for Extragalactic Astronomy, Durham University, UK June 29, 2018 Physical conditions of the interstellar medium in strongly lensed submillimeter galaxies at high-redshift
Seminar talk •	Department of Physics, Oxford University, UK Physical conditions of the ISM in high-redshift strongly lensed dusty star-forming galaxies June 28, 2018
Seminar talk •	Instituto de Física y Astronomía, Universidad de Valparaíso, Chile January 18, 2018 Physical conditions of the ISM in high-redshift lensed submillimeter galaxies
Seminar talk •	Institute of Astrophysics, PUC de Chile, Santiago, Chile Physical conditions of the interstellar medium in high-redshift lensed submillimeter galaxies December 20, 2017
Seminar talk •	CAS South America Center for Astronomy, Santiago, Chile Tracing the physical conditions of the interstellar medium in high-redshift lensed submillimeter galaxies December 11, 2017
Seminar talk	Astronomy Department, Beijing Normal University, China December 23, 2016 Physical conditions of the ISM in high-redshift submillimeter galaxies
Poster •	IAU Symposium 352: Uncovering early galaxy evolution in the ALMA and JWST era, Viana do Castelo, Portugal June 3–7, 2019 CO, H_2O , H_2O^+ line and dust emission in a z = 3.63 strongly lensed starburst merger at sub-kiloparsec scales
Poster •	o Journées Nationales PNCG 2015, Nice, France December 15–16, 2015 Submillimeter H_2O line emission in the lensed ultra-luminous infrared galaxies at $z \sim 2-4$
Poster •	XXIX IAU-GA IAUS315: From interstellar clouds to star-forming galaxies: universal processes? Honolulu, Hawaii, USA August 03-07, 2015 Submillimeter H ₂ O emission in infrared bright galaxies near and far
Poster •	XXIX IAU-GA FM15: Search for Water and Life's Building Blocks in the Universe, Honolulu, Hawaii, USA August 03–05, 2015 Water vapor emission in ultra-luminous infrared galaxies at $z\sim$ 2–4
	ESO Science Support Discretionary Fund (SSDF) - 9,000 EUR 2020-2021
Awards	Student mentoring project (on extragalactic [CI]) at European Southern Observatory IAP Visitorship Grant - 700 EUR/week Institut d'Astrophysique de Paris, France March, 2020; May, 2019; July, 2018
•	ESO Fellowship European Southern Observatory, Chile
•	International Astronomical Union (IAU) Travel Grant - 1,100 USD August 3-14, 2015 XXIX IAU General Assembly, Honolulu, Hawaii, USA
•	The LIA-Origins Short Visit Program Grant - 3,000 EUR Institut d'Astrophysique de Paris & Institut d'Astrophysique Spatiale, France
•	Graduate with distinguished honour All the universities in Beijing
•	Graduate with distinguished honour Beijing Normal University 2010
•	National Astronomical Observatories Scholarship National Astronomical Observatory of China
•	National Undergraduate Innovative Test Program Grant - 10,000 CNY 2008 National grant for the project: Design of the experiments for the course "Radio Astronomy"

Outreach Experiences

• Core member of the Astronomy Club Beijing Normal University 2007-2009

• Authors of outreach articles (6 in total)
The "Amateur Astronomer" magazine

2014-2017

(sponsored by Chinese Astronomical Society & Beijing Planetarium)

• ALMA virtual tour guider
Virtual guided tour of the ESO sites (for ESO Studentship candidates)

November 5, 2020

(Last update: November, 2021. Contents in green and purple are clickable links.)