

Chentao YANG (杨辰涛)*

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Personal Information

Current status: ESO Fellow in Chile (with duties at ALMA/JAO)
Gender: Male
Year of birth: 1988
Citizenship: P.R. China
Languages: Chinese (native proficiency),
English (full professional proficiency),
French (elementary proficiency)

Employment

European Southern Observatory (ESO) Fellow, Santiago, Chile 2017.11 – present
(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, ~~LaTeX~~ Python, Julia
Operating systems: GNU/Linux (CentOS, openSUSE, etc.), MacOS, Windows
Software: GILDAS, Starlink, DS9, CASA, HIPE, TOPCAT

Research interests

- Submillimeter water maser in high-redshift galaxies Current
- Observations of the interstellar medium in submillimeter galaxies Current
- Millimeter and submillimeter 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

- **Alain Omont**, Emeritus Senior Scientist, Institut d'Astrophysique de Paris, France
- **Yu Gao**, Professor, Xiamen University, China
- **Alexandre Beelen**, Associate Astronomer, Laboratoire d'Astrophysique de Marseille, France
- **Eduardo González-Alfonso**, Professor, University of Alcalá, Spain
- **Pierre Cox**, Senior Scientist, Institut d'Astrophysique de Paris, France
- **Violette Impellizzeri**, Program manager, Allegro ARC, Leiden Observatory, Netherlands

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

**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 NOthern 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
 - 14B-259^B, 15B-177, 18B-190;
- The Atacama Pathfinder EXperiment (**APEX/ESO**) telescope, **2 proposal, 55 h**. since 2016
 - 097.B-0914^B (SEPIA-5), 103.B-0471^A (SEPIA-9);
- The Green Bank Telescope (**GBT/GBO**) telescope, **1 proposal, 49 h**. since 2020
 - 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**

- **Nina Grant**, 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**
(†: 1st/2nd author)
**NASA/ADS
Library link**

8 publications as the first/second author; 524 citations in total, including 170 citations of the first-author papers;
Metrics: (NASA/ADS) *h*-index = 13, *h*-index/(years since PhD defence) = 3.2

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 a nuclear bar**
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 [N II] 205 μm 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-H₂O 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 μm data reduction and dust flux density catalogues**
Matthew W. L. Smith, Christopher J. R. Clark, Ilse De Looze, Isabella Lamperti, Amélie 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-Muñoz, 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 $z = 2-4$**
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](#); ([IRAM Press Release](#))

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 $L_{\text{gas}}-L_{\text{IR}}$ 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;
6. **High dense gas fraction in intensely star forming dusty galaxies;**
I. 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 H $_2$ O and H $_2$ O $^+$ emission in lensed ultra- and hyper-luminous infrared galaxies at $z \sim 2-4$;**
[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. **H $_2$ O emission in high- z ultra-luminous infrared galaxies;**
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; ([A&A Highlight](#))

Submitted
Publications
&
Reviews
In prep.

- **The ramp-up of interstellar medium enrichment at $z > 4$**
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, submitted to *Nature Astronomy*;
- **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*;
- **Discovery of a new galaxy ‘Darth Vader’ 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 noon**

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, ..., Maud Galametz and Chentao Yang, 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, Chile 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 TBD, 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, Italy September 2–6, 2019

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-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

H₂O and H₂O⁺ 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, Netherlands 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 January 8, 2020

Water vapor in galaxies near and far

- 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 June 28, 2018
Physical conditions of the ISM in high-redshift strongly lensed dusty star-forming galaxies
- 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 December 20, 2017
Physical conditions of the interstellar medium in high-redshift lensed submillimeter galaxies
- Seminar talk* • CAS South America Center for Astronomy, Santiago, Chile December 11, 2017
Tracing the physical conditions of the interstellar medium in high-redshift lensed submillimeter galaxies
- 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, H₂O, H₂O⁺ line and dust emission in a $z = 3.63$ strongly lensed starburst merger at sub-kiloparsec scales
- Poster* • Journées Nationales PNCG 2015, Nice, France December 15–16, 2015
Submillimeter H₂O 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 H₂O 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 $z \sim 2-4$

- Grants & Awards**
- **ESO Science Support Discretionary Fund (SSDF) - 9,000 EUR** 2020-2021
Student mentoring project (on extragalactic [C I]) at European Southern Observatory
 - **IAP Visitorship Grant - 700 EUR/week** March, 2020; May, 2019; July, 2018
Institut d'Astrophysique de Paris, France
 - **ESO Fellowship** 2017-2021
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** 2012, 2013
Institut d'Astrophysique de Paris & Institut d'Astrophysique Spatiale, France
 - **Graduate with distinguished honour** 2010
All the universities in Beijing
 - **Graduate with distinguished honour** 2010
Beijing Normal University
 - **National Astronomical Observatories Scholarship** 2009
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** 2007-2009
Beijing Normal University
- **Authors of outreach articles (6 in total)** 2014-2017
The "Amateur Astronomer" magazine
(sponsored by Chinese Astronomical Society & Beijing Planetarium)
- **ALMA virtual tour guider** November 5, 2020
Virtual guided tour of the ESO sites (for ESO Studentship candidates)

(Last update: August, 2021. Contents in [green](#) and [purple](#) are clickable links.)