

# Chentao YANG (杨辰涛)

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## Personal Information

Current status: Postdoctoral Researcher  
Gender: Male  
Year of birth: 1988  
Citizenship: P.R. China  
Languages: Chinese (native), 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 – 2017  
(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 – 2017  
(Co-tutelle) PhD degree in Astrophysics, *Diploma awarded in January 2018*  
*Supervisor:* Yu Gao
- Astronomy Department, Beijing Normal University, P.R. China 2010 – 2013  
Master's degree in Astrophysics, *Diploma awarded in July 2013*  
*Supervisor:* Yu Gao, Biwei Jiang
- Astronomy Department, Beijing Normal University, P.R. China 2006 – 2010  
Bachelor's degree in Astronomy, *Diploma awarded in July 2010*

## Computer Skills

Languages: Shell (Unix/Linux), Python (NumPy, Pandas, Matplotlib, etc.), Julia, IDL, FORTRAN, MATLAB  
Operating systems: GNU/Linux (CentOS, openSUSE, Ubuntu, etc.), macOS, Windows  
Astronomy Softwares: GILDAS, Starlink, CARTA, CASA, HIPE, TOPCAT, DS9

## 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 H<sub>2</sub>O 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, the Netherlands
- **Omont, Alain:** Emeritus Senior Scientist, Institut d'Astrophysique de Paris, France

\*Professor Yu Gao sadly [passed away](#) in 2022 at the age of 59.

**31 accepted  
PI Proposals  
531 h in total**  
(<sup>A/B</sup>: A/B-rated)

- The Atacama Large Mm/submm Array (**ALMA**), **7 proposals, 63.9 h<sup>12m</sup> + 50 h<sup>7m</sup>**. since 2017
  - 2017.A.00053.S (ACA observatory filler program, **50 h**);
  - 2018.1.00861.S<sup>B</sup>(EU, **10.4 h**), 2018.1.00797.S<sup>B</sup>(EU, **6.6 h**), 2018.1.01710.S(EU, **9.1 h**);
  - 2019.1.00205.S<sup>B</sup>(EU, **23.2 h**), 2019.1.00533.S<sup>B</sup>(EU, **4.8 h**), 2019.1.00310.S(EU, **8.0 h**);
  - 2022.1.00172.S(EU, **31.8 h**);
- The NOthern Extended Millimeter Array (**NOEMA**), **12 proposals, 138 h**. since 2013
  - W0B3<sup>B</sup>, S14CT<sup>B</sup>, S15CT<sup>B</sup>, W15EQ<sup>B</sup>, S16CG<sup>B</sup>, S16CF<sup>B</sup>, S16BT<sup>B</sup>, W16DQ<sup>B</sup>, W16DO<sup>B</sup>, S18DC<sup>A</sup>, S18CT<sup>A</sup>, W18EB<sup>A</sup>, W22DT<sup>B</sup>;
- The IRAM-30m telescope (**IRAM-30m**), **3 proposals, 76 h**. since 2015
  - 079-15<sup>A</sup>, 196-15<sup>B</sup>, 076-16<sup>A</sup>;
- The Karl G. Jansky Very Large Array (**JVLA/NRAO**), **3 proposals, 47 h**. since 2014
  - 14B-259<sup>B</sup>, 15B-177, 18B-190;
- The Atacama Pathfinder EXperiment (**APEX/ESO**) telescope, **2 proposal, 55 h**. since 2016
  - 097.B-0914<sup>B</sup> (SEPIA-5), 103.B-0471<sup>A</sup> (SEPIA-9);
- The Green Bank Telescope (**GBT/GBO**) telescope, **2 proposal, 63 h**. since 2020
  - 21A-093<sup>A</sup> (W-band); 22B-020<sup>A</sup> (W-band)

**> 120 accepted proposals as a co-I, including:**

ALMA (40 proposals, 7 A + 13 B + 20 C), NOEMA (51, including 1 large program, **z-GAL**), JVLA (7: 15B-320, 17A-151, 18A-340, 18B-190, 22A-211, 23A-030, and one large program **23B-169**), GTC(1), Spitzer (1), VLT (2, KMOS), IRAM-30m (6), APEX (2), JCMT (7, including 4 large programs, **JIN-GLE**, **MALATANG**, **AWESOME** and **RAGERS**), EVN(1) and GMRT (1 proposal).

**Observing  
Experience**  
(**> 1200 h**)

- 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), 2018–2021: (AoD) > 1000 h.

**Professional  
Service**

- Referee for scientific journals: *ApJ*, *A&A*, *PASJ*;
- *JCMT* expert external proposal reviewer;
- *HST* expert external proposal reviewer;
- Individual reviewer for the Science and Technology Facilities Council (STFC, UK);
- 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);
- Organisers of the **CONquest 2023 workshop** (2023)

**Teaching  
&  
Mentorship**

- **Daysi Quinatoa** (PhD student), Universidad de Valparaiso (Chile),  
APEX observation of the submillimeter H<sub>2</sub>O emission in nearby galaxies; 2021–present
- **Malte Brinch** (PhD student), Cosmic Dawn Center (DAWN) DTU-space (Denmark),  
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. 2<sup>nd</sup> Semester 2019

**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”

**Refereed  
Publications  
in Journals**  
(†: 1<sup>st</sup>/2<sup>nd</sup> author)  
*NASA/ADS Lib.*

*NASA/ADS citation metrics: 893 citations in total, including 253 citations of the 1<sup>st</sup>-author papers;  
The most-cited 1<sup>st</sup>-author paper has 93 citations; h-index = 18, h-index/(years since PhD defence) = 3.1*

45. **z-GAL – A NOEMA spectroscopic redshift survey of bright Herschel galaxies:**  
[III] **Physical properties**  
S. Berta, F. Stanley, D. Ismail, P. Cox, R. Neri, [C. Yang](#), A. J. Young, S. Jin et al., [A&A accepted \(arXiv: 2307.15748\)](#);
44. **z-GAL – A NOEMA spectroscopic redshift survey of bright Herschel galaxies:**  
[II] **Dust properties**  
D. Ismail, A. Beelen, V. Buat, S. Berta, P. Cox, F. Stanley, ..., [C. Yang](#), A. J. Baker et al., [A&A accepted \(arXiv: 2307.15747\)](#);
43. **z-GAL – A NOEMA spectroscopic redshift survey of bright Herschel galaxies:**  
[I] **Overview**  
P. Cox, R. Neri, S. Berta, D. Ismail, F. Stanley, A. Young, ..., and [C. Yang](#), [A&A accepted \(arXiv: 2307.15732\)](#);
42. **Discovery of a radio jet in the Cloverleaf Quasar at  $z = 2.56$**   
Lei Zhang, Zhi-Yu Zhang, James. W. Nightingale, Ze-Cheng Zou, Xiaoyue Cao, Chao-Wei Tsai, [Chentao Yang](#), Yong Shi, Junzhi Wang et al., [MNRAS](#), 524, 3671;
41. **Bright Extragalactic ALMA Redshift Survey (BEARS) III: Detailed study of emission lines from 71 *Herschel* targets**  
M. Hagimoto, T. J. L. C. Bakx, S. Serjeant, G. J. Bendo, S. A. Urquhart, S. Eales, ..., [C. Yang](#), et al., 2023, [MNRAS](#), 521, 5508
40. **The SCUBA-2 Large eXtragalactic Survey: 850  $\mu$ m map, catalogue and the bright-end number counts of the XMM-LSS field**  
T. K. Garratt, J. E. Geach, Y. Tamura, K. E. K. Coppin, M. Franco, Y. Ao, C. -C. Chen, C. Cheng, D. L. Clements, Y. S. Dai, ..., [C. Yang](#), 2023, [MNRAS](#), 520, 3669
39. **A survey of CO(1–0) emission in high- $z$  *Herschel* selected galaxies**  
F. Stanley, B. M. Jones, D. Riechers, [C. Yang](#), S. Berta, P. Cox, T.J.L.C. Bakx et al., 2023, [ApJ](#), 945, 24
38. **The Bright Extragalactic ALMA Redshift Survey (BEARS) II: Millimetre photometry of gravitational lens candidates**  
G. J. Bendo, S. A. Urquhart, S. Serjeant, T. Bakx, ..., [C. Yang](#), A. Young 2023, [MNRAS](#), 522, 2995
37. **The Opaque Heart of the Galaxy IC 860: Analogous Protostellar, Kinematics, Morphology, and Chemistry**  
M. D. Gorski, S. Aalto, S. König, C. Wethers, [C. Yang](#), S. Muller, S. Viti, J. H. Black, K. Onishi, M. Sato 2023, [A&A accepted](#), 670, 70
36. **The importance of radiative excitation on the H<sub>2</sub>O submillimeter emission lines in galaxies**  
E. González-Alfonso, Jacqueline Fischer, Javier R. Goicoechea, [Chentao Yang](#), Miguel Pereira-Santaella and Kenneth P. Stewart 2022, [A&A](#), 666, L3
35. **Gas properties in the Early Universe deciphered from spectral line surveys of high- $z$  objects: The Cloverleaf Quasar**  
Michel Guélin, Carsten Kramer, [Chentao Yang](#), Belen Tercero, and Jose Cernicharo 2022, [EPJ Web of Conferences](#) 265, 00024
34. **Dense Gas and Star Formation in Nearby Infrared Bright Galaxies: APEX survey of HCN and HCO<sup>+</sup>  $J = 2 \rightarrow 1$**   
Jing Zhou, Zhi-Yu Zhang, Yu Gao, Junzhi Wang, Yong Shi, Qiusheng Gu, Fei Li, [Chentao Yang](#), Tao Wang and Qing-hua Tan 2022, [ApJ](#), 936, 58;
33. **Massive molecular gas reservoir in a luminous sub-millimeter galaxy during cosmic noon**  
Bin Liu, N. Chartab, H. Nayyeri, A. Cooray, [C. Yang](#), D. A. Riechers, M. Gurwell, Zong-hong Zhu, ... and P. van der Werf 2022, [ApJ](#), 929, 41;

32. **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 2022, *MNRAS*, 551, 3017;
31. **The ramp-up of interstellar medium enrichment at  $z > 4$ ;** ([ESO Press Release](#), [ALMA Press Release](#), [Phys.org News](#), [Daily Mail news](#), [CNN 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*, 508, 5259;
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;** ([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 Floch and D. Scott 2021, *A&A*, 645, A45;
26. **ALMA [N II] 205  $\mu\text{m}$  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 H<sub>2</sub>O 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<sup>+</sup> 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<sub>2</sub>O 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. Díaz-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, ..., [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  $\mu\text{m}$  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, H<sub>2</sub>O, H<sub>2</sub>O<sup>+</sup> 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  $z = 2$ – $4$ ;** ([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  $L_{\text{gas}} - L_{\text{IR}}$  correlation on sub-kiloparsec scale in six nearby star-forming galaxies as traced by HCN  $J = 4 - 3$  and HCO<sup>+</sup>  $J = 4 - 3$ ;**  
 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;** ([Code on Github: radex\\_emcee](#))  
[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<sub>2</sub>O and H<sub>2</sub>O<sup>+</sup> 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<sub>2</sub>O 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  
Articles  
&  
Reviews  
In prep.**

- **The first ground-based detections of the 752 GHz water line in low redshift galaxies using APEX**  
Daysi Quinatao, [Chentao Yang](#), Edo Ibar, Elizabeth Humphreys, Susanne Aalto, Loreto Barcos-Muñoz et al., submitted to MNRAS (co-supervised project);
- **CONFIRM: A Spectacular Galactic Scale MHD-Powered Wind in ESO 320-G030**  
M. D. Gorski, S. Aalto, S. König, C. F. Wethers, [C. Yang](#), S. Muller, K. Onishi, M. Sato, N. Falstad et al., submitted to NatAstr;
- **SUNRISE: The rich molecular inventory of high-redshift dusty galaxies revealed by broadband spectral line surveys**  
[Chentao Yang](#), Alain Omont, Sergio Martín, Thomas G. Bisbas, Pierre Cox, Alexandre Beelen, Eduardo González-Alfonso, Raphaël Gavazzi, Susanne Aalto, Paola Andreani, Cecilia Ceccarelli, Yu Gao, Mark Gorski, Michel Guélin, Hai Fu, Rob J. Ivison, Kirsten K. Knudsen, Matthew Lehnert, Hugo Messias, Sebastien Muller, Roberto Neri, Dominik Riechers, Paul van der Werf, and Zhi-Yu Zhang, submitted to A&A; ([arXiv:2308.07368](#));
- **Probing the interstellar medium of the quasar BRI 0952-0115: An analysis to [C II], [C I], CO, OH and H<sub>2</sub>O**  
K. Kade, K.K. Knudsen, A. Bewketu Belete, [C. Yang](#), S. König, F. Stanley, and J. Scholtz, submitted to A&A;
- **Double, Double, Toil and Trouble: The tails, bubbles and knots of the local CON galaxy NGC 4418**  
C. F. Wethers, S. Aalto, G. C. Privon, F. Stanley, J. Gallagher, M. Gorski, S. König, K. Onishi, M. Sato, [C. Yang](#) et al., submitted to A&A;
- **Dust and Cold Gas Properties of Starburst HyLIRG-Quasars at  $z \sim 2.5$**   
Feng-Yuan Liu, Y. Sophia Dai, Alain Omont, ..., [Chentao Yang](#), Xue-Bing Wu, and Jia-Sheng Huang, submitted to ApJ;
- **A candidate dusty protocluster core surrounding a binary galaxy system**  
Tom J. L. C. Bakx, S. Berta, H. Dannerbauer, P. Cox, M. Hagimoto, D. H. Hughes, D. A. Riechers, P. P. van der Werf, [C. Yang](#), ..., A. Weiß, and 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 Junfeng Wang, submitted to MNRAS;
- **Property characterisations of Herschel-selected strong gravitational lensing systems candidates - I. The HST confirmed lenses**  
E. Borsato, L. Marchetti, M. Negrello, ..., [C. Yang](#) et al., submitted to MNRAS;
- Invited Review* • **Extragalactic water new and far**  
[Chentao Yang](#), Eduardo González-Alfonso & Alain Omont, to be submitted to Royal Society Open Science (RSOS);

**Presentations** 2015-2023, ordered by category: **2 invited** conference talks, **11 contributed** talks, and 14 (incl. 7 **invited**) seminar/colloquium talks

(<sup>†</sup>: invited)  
<sup>‡</sup>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**

<sup>‡</sup>Invited conference 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

- Galaxy Formation in Hangzhou: Observations and Physics of AGN Feedback (AGN Feedback 2023), Hangzhou, China October 9–13, 2023
- **5–12 pc resolution ALMA imaging of gas and dust in the obscured compact nucleus of IRAS 17578-0400**

Contributed talk

- Tuning to the High Frequency ALMA Universe, the Lorentz Center @Oort, Leiden, the Netherlands September 4–8, 2023
- **A Long Way Home: extragalactic submillimeter water lines from high-redshift to our local Universe**

- Contributed talk* • 2023 Kavli-IAU Astrochemistry Symposium: Astrochemistry VIII - From the First Galaxies to the Formation of Habitable Worlds, Traverse City, USA July 10–14, 2023  
**The rich molecular inventory of high-redshift dusty galaxies revealed by broadband spectral line surveys**
- Contributed talk* • Black hole winds at all scales, IAUS 378, Technion, Haifa, Israel March 12–16, 2023  
**5–12 pc resolution ALMA imaging of gas and dust in the obscured compact nucleus of IRAS 17578-0400**
- Contributed talk* • Behind a Curtain of Dust IV, Sexten Bozen, Italy July 11–15, 2022  
**The rich molecular inventory of dusty galaxies at high redshifts**
- Contributed talk* • Multi-line Diagnostics of the Interstellar Medium, Nice, France April 4–6, 2022  
**The rich molecular inventory of two dusty galaxies twelve billion years ago**
- 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-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<sub>2</sub>O and H<sub>2</sub>O<sup>+</sup> 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  
**H<sub>2</sub>O Emission in Ultra-luminous Infrared Galaxies at High- $z$**
- <sup>‡</sup>*Colloquium talk* • University of Massachusetts Amherst & 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**
- <sup>‡</sup>*Seminar talk* • South-Western Institute For Astronomy Research (SWIFR), China (online) Oct 12, 2022  
**The dusty ISM in high-redshift strongly lensed submillimeter galaxies**
- <sup>‡</sup>*Seminar talk* • Ecole Normale Supérieure (ENS), Paris, France (online) May 19, 2022  
**The dusty ISM in high-redshift strongly lensed submillimeter galaxies**
- <sup>‡</sup>*Seminar talk* • The Dominion Radio Astrophysical Observatory (DRAO), Kaleden, British Columbia, Canada (online) October 7, 2020  
**Extragalactic water across cosmic time**
- <sup>‡</sup>*Seminar talk* • CAS South America Center for Astronomy, Santiago, Chile January 8, 2020  
**Water vapor in galaxies near and far**
- <sup>‡</sup>*Seminar talk* • Astronomy Department, Beijing Normal University, China September 9, 2019  
**Water vapor in galaxies near and far**
- <sup>‡</sup>*Seminar talk* • 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**

	<b>galaxies</b>	
<i>Seminar talk</i>	<ul style="list-style-type: none"> <li>• CAS South America Center for Astronomy, Santiago, Chile <b>Tracing the physical conditions of the interstellar medium in high-redshift lensed submillimeter galaxies</b></li> </ul>	December 11, 2017
<i>Seminar talk</i>	<ul style="list-style-type: none"> <li>• Astronomy Department, Beijing Normal University, China <b>Physical conditions of the ISM in high-redshift submillimeter galaxies</b></li> </ul>	December 23, 2016
<i>Poster</i>	<ul style="list-style-type: none"> <li>• From Stars to Galaxies II: Connecting our understanding of star and galaxy formation, Gothenburg, Sweden <b>Probing the structure of the ISM in the high-redshift dusty starbursts with submillimeter H<sub>2</sub>O lines</b></li> </ul>	June 20–24, 2022
<i>Poster</i>	<ul style="list-style-type: none"> <li>• IAU Symposium 352: Uncovering early galaxy evolution in the ALMA and JWST era, Viana do Castelo, Portugal <b>CO, H<sub>2</sub>O, H<sub>2</sub>O<sup>+</sup> line and dust emission in a <math>z = 3.63</math> strongly lensed starburst merger at sub-kiloparsec scales</b></li> </ul>	June 3–7, 2019
<i>Poster</i>	<ul style="list-style-type: none"> <li>• Journées Nationales PNCG 2015, Nice, France <b>Submillimeter H<sub>2</sub>O line emission in the lensed ultra-luminous infrared galaxies at <math>z \sim 2-4</math></b></li> </ul>	December 15–16, 2015
<i>Poster</i>	<ul style="list-style-type: none"> <li>• XXIX IAU-GA IAUS315: From interstellar clouds to star-forming galaxies: universal processes? Honolulu, Hawaii, USA <b>Submillimeter H<sub>2</sub>O emission in infrared bright galaxies near and far</b></li> </ul>	August 03–07, 2015
<i>Poster</i>	<ul style="list-style-type: none"> <li>• XXIX IAU-GA FM15: Search for Water and Life's Building Blocks in the Universe, Honolulu, Hawaii, USA <b>Water vapor emission in ultra-luminous infrared galaxies at <math>z \sim 2-4</math></b></li> </ul>	August 03–05, 2015
<b>Outreach Experiences</b>	<ul style="list-style-type: none"> <li>• <b>Core member of the Astronomy Club</b> Beijing Normal University</li> <li>• <b>Authors of outreach articles (6 in total)</b> The “Amateur Astronomer” magazine (sponsored by Chinese Astronomical Society &amp; Beijing Planetarium)</li> <li>• <b>ALMA virtual tour guider</b> Virtual guided tour of the ESO sites (for ESO Studentship candidates)</li> </ul>	2007-2009  2014-2017  November 5, 2020

(Last update: August, 2023. Contents in *green* and *purple* are clickable links.)