

Curriculum Vitae

Personal Information

Name **Thomas G. Bisbas** (or Bismpas)
Date of Birth *July 30th, 1982*
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Education

25/05/2010 **Ph.D. in Astrophysics**
Title: "Smoothed Particle Hydrodynamics simulations of expanding HII regions"
School of Physics and Astronomy. Cardiff University. United Kingdom
Supervisor: Professor Anthony Whitworth
2000-2004 **Degree of Physics ('Ptychio')**. Aristotle University of Thessaloniki. Greece

Current position

12/2019 – present **Senior Scientist (DFG Fellow)**. University of Cologne, Germany

Professional appointments

06/2019 – 12/2019 **Postdoctoral Researcher**. National Observatory of Athens, Greece
Group leader Assistant Professor Kalliopi Dasyra
09/2018 – 03/2019 **Postdoctoral Researcher**. University of Cologne, Germany
Group leader Professor Stefanie Walch-Gassner
10/2018 **Tenure-track**. Nicolaus Copernicus University. Torun, Poland (declined)
01/2018 – 07/2018 **Postdoctoral Researcher**. University of Virginia, Charlottesville, USA
Group leader: Professor Jonathan Tan
07/2016 – 01/2018 **Postdoctoral Researcher**. University of Florida, Gainesville, USA
Group leader: Professor Jonathan Tan
07/2015 – 07/2016 **Postdoctoral Researcher**. Max-Planck-Institut für extraterrestrische Physik. Garching.
Group leader: Professor Ewine van Dishoeck
03/2012 – 06/2012 **Visiting Researcher** Harvard-Smithsonian Centre for Astrophysics. Boston, USA
Collaboration with Dr. Jeremy Drake
10/2010 – 07/2015 **Postdoctoral Researcher**. University College London. London, UK
Group leader: Professor Serena Viti
10/2009 – 09/2010 **Postdoctoral Researcher**. Czech Academy of Sciences. Prague, Czech Republic
Group leader: Professor Jan Palouš

Publications

35 peer-reviewed articles (12 as first-author). 1 book (Springer Briefs in Astronomy). Total citations: >1550. h-index >22. See separate Publication List for details.

Funding awarded

- 03/2019 Deutsche Forschungsgemeinschaft (DFG) – 287,000 Euros
- 03/2019 *Chandra* proposal [20610387](#) – 66,270\$

Distinctions

- 03/2019 Seal of Excellence. Horizon 2020. European Commission
- 03/2018 Seal of Excellence. Horizon 2020. European Commission

Teaching activities

- 09/2014 – 01/2015 Lecturer of the Astronomy Diploma Course “Interstellar Medium”. University College London, UK

(Co-)Supervision of students and mentoring

Dr. Gioacchino Accurso (PhD co-supervision, UCL; 2013-2016), Dr. Thomas Haworth (mentoring, University of Exeter & Cambridge University; 2013-2015), Mr. Lars Langen (MSc supervision, University of Cologne; 2020), Ms. Marta Oboletseva (graduate thesis supervision, Saint Petersburg University; 2020-present), Dr. Luo Gan (mentoring, University of Nanjing; 2020-present)

Principal investigator (PI)

- 2019 ALMA proposal [2019.1.00862.S](#) – 16.3 hours. “Two birds with one stone: CO rotation curves of two main-sequence galaxies at $z = 1.5$ and 2.2 ”
- 2018 *Chandra* proposal [20610387](#) – 80ks. “Testing Cosmic Ray vs X-ray Driven Chemistry in Extreme Star-Forming Conditions”
- 2017 A-ranked ALMA proposal [2017.1.01020.S](#) – 13.1 hours. “Deep [CI] observations in the high-redshift Universe: studying the distribution of Dark Matter in galaxies”
- 2012 1.1 million CPU hours for DiRAC II project grand [ACOP26](#). “Modelling the Physics and Chemistry of expanding nebulae”

Co-investigator (Co-I)

- NOEMA [W15DW](#) (PI: Greve, T) “Tracing the molecular gas in strongly lensed starburst galaxies at $z \sim 2.5$ using CI”; [W15EB](#) and [W14EL](#) (PI: Emonts, B) “CI in the cold molecular halo of a $z = 2.6$ radio galaxy”
- SOFIA [05_0176](#) (PI: Sahai, R) “Shocked and scorched: A GREAT investigation of [CII] and [OI] emission from free-floating Evaporating Gas Globules in Massive Star Forming regions”; [06_0150](#) (PI: Tan, JC) “The Inception of Star Cluster Formation”

- NASA [N7-ADAP17-0093](#) (PI: Sahai, R) "Free-floating Evaporating Gaseous Globules: A New Astrophysical Laboratory for Investigating Star-Formation and Chemistry in Irradiated Environments"
- JWST [#2004](#) (PI: Dasyra, K.) "Pressure gradients of the molecular gas and their role in cloud stability in massive outflows driven by black hole jets"
- ALMA [2015.1.01133.S](#) (PI: Greve, T) "Harnessing the power of CI as a tracer of H₂ in starburst galaxies"; [2015.1.01191.S](#) (PI: Zhang, Z-Y) "A new molecular gas mass tracer in galaxies: a first test in the local Universe"; [2017.1.00291.S](#) (PI: Zhang, Z-Y) "Probing excitation structure of ISM in a sub-millimeter galaxy with water lines"; [2017.1.00607.S](#) (PI: Haikala, L) "Rosette Globulets"; [2017.1.00856.S](#) (PI: Bothwell, M) "[CI] as a gas tracer in main sequence star-forming galaxies at $z \sim 2$ "; [2017.1.01499.S](#) (PI: Fu, X) "LiH - a probe of Galactic Li evolution and the lithium problems"; [2018.1.00528.S](#) (PI: Zhang, Z-Y) "Searching for CO-dark H₂ gas in radio jets"; [2019.1.00205.S](#) (PI: Yang, C.) "Physical conditions and chemical processes of the ISM at high redshift: a line survey towards BR1202-0725; [2019.1.00533.S](#) (PI: Yang, C.) "Constrain the ISM conditions and ionization states at high redshift with multi-transitions of the H₂O⁺ and H₂O lines; [2019.1.00526.S](#) (PI: Zhang, Z-Y) "A new molecular gas mass tracer in galaxies: a first test in the local Universe"; [2019.1.00421.S](#) (PI: Zhang, Z-Y) "Searching for CO-dark H₂ gas in radio jets"; [2019.1.00907.S](#) (PI: Cicone, C.) "Searching for hidden CO-poor molecular gas reservoir linked to the feedback processes"; [2019.1.01030.S](#) (PI: Haikala, L.) "Deep CO(3-2) and continuum survey of Rosette Nebula globulets"; [2021.1.01081.S](#) (PI: Luo, Y) "LiH"; [2021.1.01611.S](#) (PI: Paraschos, G. F.) "CI and high-J CO emission from jet-impacted clouds in IC5063: cosmic ray vs. shock heating and their impact on X_{CO} "

Commissions of trust

- 2017 External Reviewer for ERC Advanced Grants 2018
- 2017, 2019 Reviewer for FONDECYT Regular Grant competition (Chilean public funds)
- 2010 – present Referee for Nature Astronomy, ApJ, MNRAS, A&A, PASA, ASCOM, IAUS

Organization of international conferences

- 2018 "The Olympian Symposium on Gas and Stars from milli- to mega- parsecs". Principal Organizer. SOC co-chair. 159 participants. Organized under the auspices of UNESCO. Paralia Katerini, Greece (28/05/2018 - 01/06/2018). (olympiansymposium.org)
- 2015 "The Olympian Symposium on Cosmology and the Epoch of Reionization". Principal Organizer. 120 participants. Paralia Katerini, Greece (18/05/2015 - 22/05/2015)
- 2014 "The Olympian Symposium on Star Formation". Principal Organizer. 191 participants. Paralia Katerini, Greece (26/05/2014 - 30/05/2014)
- 2012 "The Labyrinth of Star Formation". Member of organizing committee. 127 participants. Crete, Greece (18/06/2012 - 22/06/2012)

Organization of workshops and summer schools

- 2016 "The ISM-SPP Olympian School of Astrophysics 2016". 28 students. Paralia Katerini, Greece (03/10/2016 - 07/10/2016)

- 2014 "StarBench-II" workshop. Member of the Scientific Advisory Committee. Bonn, Germany (01/09/2014 - 05/09/2014)
- 2013 "StarBench-I" workshop. Member of the Organizing and Scientific Advisory Committee. Exeter, UK (08/04/2013 - 11/04/2013)

Presentations and Talks

Presentations in international conferences (since 2017 and including future)

- 06/2022 From Stars to Galaxies II, Connecting our understanding of star and galaxy formation. **Invited talk**
- 04/2022 IRAM Conference, Multi-line Diagnostics of the Interstellar Medium. **Oral presentation**. "*A new tool to estimate the atomic and molecular ISM content using probability distributions*". Nice, France
- 07/2021 Hellenic Astronomical Society Conference. **Two oral presentations**. "[CII] synthetic observations of dwarf galaxy mergers" and "Photodissociation Region diagnostics across galactic environments" (Virtual)
- 09/2020 Annual Meeting of the Astronomische Gesellschaft 2020 **Oral presentation** "*PDR diagnostics across galactic environments*". (Virtual)
- 06/2020 Astrochemical Frontiers. **Oral presentation** "*A new algorithm to estimate the atomic and molecular ISM content using probability distributions*". (Virtual)
- 07/2019 14th Hellenic Astronomical Conference. **Oral presentation**. "*Cosmic-ray induced destruction of CO in star-forming galaxies*". Volos, Greece
- 06/2019 From Stars to Planets II. **Poster presentation**. "*How do the observables of molecular clouds depend on the ISM environmental parameters?*". Gothenburg, Sweden.
- 07/2018 Astrochemistry: past, present & future (a meeting in celebration of Ewine van Dishoeck). **Oral presentation**. "*How do cosmic-rays affect the traceability of molecular gas in galaxies?*". Caltech, Pasadena, USA
- 05/2018 Cosmic rays, the salt of the star formation recipe. **Oral presentation**. "*Cosmic-ray induced destruction of CO in star-forming galaxies and implications for tracing H₂ gas*". Florence, Italy
- 02/2017 The Physics of ISM. 6 Years of ISM-SPP 1573: What have we learned? **Oral presentation**. "*Observing molecular gas in extreme ISM environments*". University of Cologne, Germany

Invited presentations, seminars, workshops (since 2017)

- 12/2021 Hellenic Astronomical Society Colloquium. **Colloquium**. "The carbon cycle emission as a diagnostic tool for the interstellar medium state" (Virtual)
- 03/2021 "Astrochemical Discussions". **Invited presentation**. "Photodissociation Region diagnostics across galactic environments" (Webinar)
- 12/2020 University of Cologne, Germany. **Workshop**. "*Photodissociation region diagnostics across galactic environments*" (Virtual)
- 09/2020 Chalmers University of Technology, Sweden. **Colloquium**. "*PDR diagnostics across galactic environments*" (Virtual)

- 04/2020 Nanjing University, China. **Colloquium**. "*Cosmic-ray induced destruction of CO in star-forming galaxies*" (Virtual)
- 11/2019 National Observatory of Athens, Greece. **Colloquium**. "*Photodissociation and cosmic-ray dominated regions from local infrared dark clouds to distant star-forming galaxies*"
- 11/2018 Aristotle University of Thessaloniki, Greece. **Colloquium**. "*Studying the properties of the interstellar medium in galaxies near and far*"
- 07/2018 Jet Propulsion Laboratory, NASA. **Invited talk**. "*The inception of star cluster formation revealed by [CII] emission around an Infrared Dark Cloud*"
- 05/2018 University of Crete, Greece. **Invited talk**. "*Cosmic-ray induced destruction of CO in star-forming galaxies. Implications for tracing H₂ gas*"
- 04/2018 National Radioastronomy Observatory (NRAO, VLA). Socorro, New Mexico, USA. **Invited talk**. "*Cosmic-ray induced destruction of CO in star-forming galaxies. Implications for tracing H₂ gas*"
- 02/2018 Harvard-Smithsonian Centre for Astrophysics (ITC seminars). **Invited talk**. "*Selecting the best H₂ tracer for molecular gas studies in galaxies*"
- 01/2017 Imperial College London. **Invited talk**. "*The effect of cosmic-rays on the observability of H₂ gas in the Universe*"

Scientific societies

- 2020 – present Member of the International Astronomical Union
 - 2015 Founder of the **Olympian Centre for Astrophysics**, a non-profit company established in Greece which aims at bringing the international astrophysical research with the respective Greek one (olympiancfa.org)
- 2007 – present Member of the Hellenic Astronomical Society. Greece
- 2006 – 2010 Member of the Institute of Physics. UK

Public events

- 12/2019 – present Organization of the **Magic University** which aims to help kids identify their talents according to the "Theory of Multiple Intelligences" (Gardner, 1983). Total audience exceeding 250 pupils (7-12 years old). Various additional outreach talks.
- 2015 – present **Outreach talks in schools** (Greece). Total audience exceeding 3,000 pupils (13-15 years old). **Outreach talks in public** and various appearances in media (Greece)
- 12/2014 Participation in a panel of public outreach event followed by an open discussion on Science and Education. **Embassy of Greece in Brussels**. Invited by a Member of the European Parliament. The event was covered by media
- 2014 – present Organization of 5 major public events at the start of each Olympian Symposium and other scientific events (audience exceeding 300 people in each event)