

# Tommaso Ronconi, Ph.D.

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## Curriculum Vitæ

July, 2026

INAF - Institute of Radioastronomy  
Italian ALMA Regional Center  
Via Gobetti 101  
40139 Bologna, Italy

phone: +39 340 3675048 – mobile  
email: [tommaso.ronconi@inaf.it](mailto:tommaso.ronconi@inaf.it)  
GitHub: [TommasoRonconi](https://github.com/TommasoRonconi)  
WebSite: [tommasoronconi.github.io](https://tommasoronconi.github.io)

Born: May 30, 1989 — Jesi, Italy  
Nationality: Italian

*Interests:* Galaxy formation and evolution · panchromatic SED modelling · Bayesian inference · full-sky mock light-cones · radio continuum and HI surveys (SKAO) · optical/NIR surveys (Euclid) · LSS cosmology · scientific software development (Python/C++)

*A full list of publications and contributions is available at the end of this document.*

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## Research

### Fixed-Term Researcher

10/2025  
PRESENT

*Duties:* ALMA Regional Center: HPC expert  
INAF-Institute of Radio-Astronomy, Via Gobetti 101, Bologna, Italy

### Postdoctoral position

05/2023  
09/2025

*Focus:* Software research and development  
ICSC, Via Magnanelli 2, Bologna, Italy  
International School for Advanced Studies (SISSA), Trieste, Italy

### Visiting researcher

02/2023  
05/2023

*Project:* Development of empirical simulations of the radio sky. Software assistance.  
*Principal Investigator:* Dr. Anna Bonaldi  
SKAO Global Headquarters, Manchester, United Kingdom

### Postdoctoral position

11/2020  
04/2023

*Project:* Development of high-performance software tools for studying the spectral energy distribution of galaxies. *Principal Investigator:* Prof. Andrea Lapi  
International School for Advanced Studies (SISSA), Trieste, Italy

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## Education

### Ph.D in Astrophysics & Cosmology

10/2020

*Thesis title:* "From cosmic voids to collapsed structures: HPC methods for Astrophysics and Cosmology" *Supervisors:* Prof. Andrea Lapi & Prof. Matteo Viel  
International School for Advanced Studies (SISSA), Trieste, Italy

**Master in High Performance Computing**

12/2019 *Final project:* Rebuild & optimization of a library for mock-galaxy catalogue building.  
*Supervisors:* Dr. Alberto Sartori, Prof. Andrea Lapi & Prof. Matteo Viel  
 ICTP, Trieste, Italy; SISSA, Trieste, Italy

**MS.c. in Astrophysics & Cosmology**

07/2016 *Master Thesis:* “Modelling the size distribution of cosmic voids”  
*Supervisors:* Prof. Lauro Moscardini, Dr. Federico Marulli & Dr. Marco Baldi  
 Università di Bologna, Bologna, Italy; DiFA, Bologna, Italy

**Bachelor in Astronomy**

03/2013 Università di Bologna, Bologna, Italy; DiFA, Bologna, Italy

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 National and International Collaborations
 

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- 2026 **Work Package leader** - ESO ALMA Support Center  
 PRESENT *Development Plan:* “ALMA Science Platforms for Analysis and Calibration in Europe”  
*Focus:* WP3 - Science Platform prototype development
- 2025 **Lead author: HI Simulations for AASKAII**  
 2026 *Focus:* Contribution to the Advancing Astrophysics with the SKA - II Edition
- 2024 **Member of the SKAO Cosmology SWG**  
 PRESENT *Focus:* Simulations of Continuum and HI-galaxies
- 2023 **Member of ICSC - Spoke 3**  
 2025 *Focus:* Software development
- 2017 **Member of the Euclid Collaboration**  
 2025 *Focus:* Cosmic Voids, Galaxy Formation & Evolution

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 Teaching & Mentoring
 

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- 2026 **Tutorial:** the GalaPy SED fitting tool  
 2 hrs hands-on lecture on Bayesian SED fitting  
 online material: [arc.ira.inaf.it/galapy-sed-fitting-tool-tutorial/](http://arc.ira.inaf.it/galapy-sed-fitting-tool-tutorial/)
- 2026 **Tutorial:** ALMA Web-based Observer’s Tool  
 2 hrs hands-on lecture on submitting an ALMA proposal  
 online material: [tommasoronconi.github.io/alma-ot-tutorial](https://tommasoronconi.github.io/alma-ot-tutorial)
- 2025 **Lecturer** for the seminar course: “Metodi computazionali di base per la fisica” for stu-  
 PRESENT dents from Bachelor to Ph.D. at the University of Cagliari (24 hours, 3 credits)
- 2023 **Lecturer** for the course: “Python programming in Astrophysics & cosmology” for 1st  
 PRESENT year Ph.D. students at SISSA (8 hrs, 1 credit, second term mandatory course for As-  
 trophysics & Cosmology PhD students)  
 online material: [github.com/py\\_programming\\_APC](https://github.com/py_programming_APC)
- 2023 **Lecturer** for the course: “Crash Python Course” for 1st year Ph.D. students at SISSA  
 PRESENT (10 hrs, 1.5 credits, mandatory 1st term course for Astrophysics & Cosmology PhD  
 students)  
 online material: [github.com/crash\\_python\\_course](https://github.com/crash_python_course)

2021 **Lecturer** for the course: “Hitchhikers Guide to the Terminal: a primer to \*nix file-  
2022 systems, collaborative development and parallel computing” for first year Ph.D. students  
at SISSA (6 hrs, mandatory course for Astrophysics & Cosmology PhD students)  
online material: [github.com/hitchhikers\\_guide](https://github.com/hitchhikers_guide)

2018 **Supervisor and Co-Supervisor** of 2 Master students + 1 Ph.D. student:  
2022

- **Ongoing** project. Topic: emission line impact on the spectral energy distribution of star forming galaxies. **Enrico Veraldi**, SISSA, Trieste, 2025 - Now
- “*Numerical and Scientific validation of GalaPy, the Galactic spectral modelling tool for Python*”, **Martina Torsello**, UniTS, Università di Trieste, 2021/22
- “*Cosmological exploitation of the size function of cosmic voids identified in the distribution of biased tracers*”, **Sofia Contarini**, Alma Mater Studiorum, Università di Bologna, 2018

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## Reviewer

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|------|------------------------------------------------------------|------------------------------|
| 2026 | Advancing Astrophysics with the SKA Observatory            | <b>Proceedings</b>           |
| 2025 | Astronomy & Computing                                      | <b>International journal</b> |
| 2024 | Astronomy & Astrophysics                                   | <b>International journal</b> |
| 2022 | PRELUDIUM-21, National Centre for Nuclear Research, Poland | <b>Grant</b>                 |
| 2020 | Monthly Notices of the Royal Astronomical Society          | <b>International journal</b> |

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## Technical skills

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**OS:** GNU/Linux (Debian & CentOS), intermediate knowledge of Unix & Windows

**LANGUAGES:** C/C++, Python, CPython, Fortran, Bash, AWK

**LIBRARIES:** MPI, OpenMP, MKL, GSL, FFTW, FFTLog, C++ STL, Boost, CuDA, SKLearn, TensorFlow, Keras, PyTorch, Pandas, HDF5, FITS

**SOFTWARE:** GaDGET( $\geq v3$ ), VIDE, ZOBOV, Emcee, Dynesty, TopCat

**SIMULATIONS:** Illustris, Illustris-TNG, DEMNUni

**HPC ENV.:** Strong knowledge of HPC architectures, accelerators, NUMA parallel systems, batch systems

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## Outreach and other Community Activities

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2024 **Directive Board Member:** IDeAS (Incontri di Divulgazione e Astrofisica in Sardegna)  
PRESENT outreach association: merging theatre, music and discussion panels to bring back science to the people.

>10 **public events organised**, direct interaction with school students, general public and audience with diverse accessibility needs.

2024 **Representative** of the Astrophysics & Cosmology Sector’s Post-Docs in SISSA  
2025

2018 **Maintainer** of the software environment for running GaDGET N-body simulations on  
2025 the Ulysses Cluster, SISSA

2015 **Author** of the unofficial notes for the Cosmology Course  
MSc in Astrophysics & Cosmology, Alma Mater Studiorum, Università di Bologna

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## Publication List

**29 scientific publications** (23 published in international refereed journals/books, the others are: software/data releases, under-review or in-production)

***h*-index = 14** (source: NASA-ADS)

Complete list of publications and metrics: [NASA-ADS library](#)

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### First Author

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- 2026     **Ronconi, T.**; De Lucia, G.; Spinelli, M. and others  
*HI Simulations for Cosmology with the SKA Observatory*  
[Published in AASKAII - The Cosmos Section](#)
- 2026     **Ronconi, T.** and Lapi, A.  
*GalaPy — Implementation strategies of the spectral modelling tool for galaxies in Python*  
[Astronomy & Computing, Volume 55, April 2026](#)
- 2026     **Ronconi, T.**; Bonaldi, A.; Spinelli, M. and others  
*Painting a full radio sky — Empirical mock catalogues with multiple source populations for future radio surveys*  
[Submitted to A&A](#)
- 2024     **Ronconi, T.**; Lapi, A.; Torsello, M. and others  
*GalaPy: A highly optimised C++/Python spectral modelling tool for galaxies — I. Library presentation and photometric fitting*  
[A&A Volume 685, May 2024](#)
- 2020     **Ronconi, T.**; Lapi, A.; Viel, M.; Sartori, A.  
*SCAMPy – A sub-halo clustering and abundance matching based python interface for painting galaxies on the dark matter halo/sub-halo hierarchy*  
[MNRAS, Volume 498, Issue 2, October 2020, Pages 2095–2113](#)
- 2019     **Ronconi, T.**; Contarini, S.; Marulli, F.; Baldi, M.; Moscardini, L.  
*Cosmic voids uncovered - first-order statistics of depressions in the biased density field*  
[Monthly Notices of the Royal Astronomical Society, Volume 488, Issue 4, Pages 5075–5084, August 2019](#)
- 2017     **Ronconi, T.** & Marulli, F.  
*Cosmological exploitation of cosmic void statistics. New numerical tools in the CosmoBolognaLib to extract cosmological constraints from the void size function*  
[Astronomy & Astrophysics, Volume 607, Number A24, November 2017](#)

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 Co-Authored
 

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**Highlighted in bold** the publications where my scientific contribution has been substantial.

- 2026      Authors in alphabetical order, including **Ronconi, T.**  
*Cosmology from Synergies Between SKAO Surveys and Gravitational Wave Observations*  
 Published in **AASKAII - The Cosmos Section**
- 2026      Dupletsa, U. and others, including **Ronconi, T.**  
*Radio sirens: inferring  $H_0$  with binary black holes and neutral hydrogen in the era of the Einstein Telescope and the SKA Observatory*  
 Submitted to **MNRAS**
- 2025      Humire, P. K.; Dey, S.; **Ronconi, T.** and others  
*Spatially-resolved spectro-photometric SED Modeling of NGC 253's Central Molecular Zone I. Studying the star formation in extragalactic giant molecular clouds*  
**A&A, Volume 699, July 2025**
- 2025      Gandolfi, G. and others, including **Ronconi, T.**  
*Ultra High-Redshift or Closer-by, Dust-Obscured Galaxies? Deciphering the Nature of Faint, Previously Missed F200W-Dropouts in CEERS*  
 Accepted for publication in **A&A**
- 2023      Lapi, A. and others, including **Ronconi, T.**  
*Little Ado about Everything:  $\eta$ CDM, a Cosmological Model with Fluctuation-driven Acceleration at Late Times*  
**The Astrophysical Journal, Volume 959, Issue 2, id.83, 21 pp, December 2023**
- 2023      Perrotta, F and others, including **Ronconi, T.**  
*The Way of Water: ALMA Resolves  $H_2O$  Emission Lines in a Strongly Lensed Dusty Star-forming Galaxy at  $z \sim 3.1$*   
**The Astrophysical Journal, Volume 952, Number 1, July 2023**
- 2023      Bonaldi, A.; Hartley, P.; **Ronconi, T.** and others  
*The tiered radio extragalactic continuum (T-RECS) simulation II: HI emission and continuum-HI cross-correlation*  
**MNRAS, Volume 524, Issue 1, September 2023, Pages 993–1007**
- 2023      Giulietti, M. and others, including **Ronconi, T.**  
*ALMA resolves the first strongly-lensed Optical/NIR-dark galaxy*  
**ApJ, 943, 151, February 2023**
- 2022      Lapi, A.; **Ronconi, T.**; Danese, L.  
*A Stochastic Theory of the Hierarchical Clustering III. The Non-universality and Non-stationarity of the Halo Mass Function*  
**The Astrophysical Journal, Volume 941, Issue 1, id.14, 11 pp., December 2022**

- 2022      **Gandolfi, G.; Lapi, A.; Ronconi, T.; Danese L.**  
*Astroparticle Constraints from the Cosmic Star Formation Rate Density at High Redshift: Current Status and Forecasts for JWST*  
[Universe 2022, 8\(11\), 589, November 2022](#)
- 2022      Contarini S. and the Euclid Cosmic Voids Group, including **Ronconi, T.**  
*Euclid: Cosmological forecasts from the void size function*  
[Astronomy & Astrophysics, Volume 667, A162, 20 pp., , November 2022](#)
- 2022      **Lapi, A.; Ronconi, T. and others**  
*Astroparticle Constraints from Cosmic Reionization and Primordial Galaxy Formation*  
[Universe 2022, 8\(9\), 476, September 2022](#)
- 2021      Bonavera, L. and others, including **Ronconi, T.**  
*Cosmology with the submillimetre galaxies magnification bias. Tomographic analysis*  
[Astronomy & Astrophysics, Volume 656, Number A99, December 2021](#)
- 2021      Pantoni, L. and others, including **Ronconi, T.**  
*An ALMA view of 11 dusty star-forming galaxies at the peak of cosmic star formation history*  
[Monthly Notices of the Royal Astronomical Society, Volume 507, Issue 3, Pages 3998–4015, November 2021](#)
- 2021      Capurri, G. and others, including **Ronconi, T.**  
*Intensity and anisotropies of the stochastic gravitational wave background from merging compact binaries in galaxies*  
[Journal of Cosmology and Astroparticle Physics, Volume 2021, Issue 11, id.032, November 2021](#)
- 2021      Pantoni, L. and others, including **Ronconi, T.**  
*Unveiling the nature of 11 dusty star-forming galaxies at the peak of cosmic star formation history*  
[Monthly Notices of the Royal Astronomical Society, Volume 504, Issue 1, Pages 928–950, June 2021](#)
- 2020      Bonavera, L. and others, including **Ronconi, T.**  
*Cosmology with the submillimetre galaxies magnification bias: Proof of Concept.*  
[Astronomy & Astrophysics, Volume 639, Number A128, July 2020](#)
- 2019      **Contarini, S.; Ronconi, T. and others**  
*Cosmological exploitation of the size function of cosmic voids identified in the distribution of biased tracers*  
[Monthly Notices of the Royal Astronomical Society, Volume 488, Issue 3, Pages 3526–3540, July 2019](#)

## Software

**Libraries** of which I am developer and/or maintainer.

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|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2024 | <b>GalaPy</b> — Spectral modelling tool for Galaxies in Python<br><i>Source:</i> <a href="#">PyPI:GalaPy</a> <i>Docs:</i> <a href="#">RTD:GalaPy</a>                                                                                                                    |
| 2023 | <b>TRECS</b> — The Tiered Radio Extragalactic Continuum Simulations<br><i>Source:</i> <a href="https://github.com/TRECS">github.com/TRECS</a>                                                                                                                           |
| 2020 | <b>SCAMPy</b> — A Python interface for Sub-halo Clustering and Abundance Matching<br><i>Source:</i> <a href="https://github.com/SCAMPy">github.com/SCAMPy</a> <i>Docs:</i> <a href="#">RTD:SCAMPy</a>                                                                   |
| 2017 | <b>CosmoBolognaLib</b> — Free software C++ libraries for cosmological calculations<br><i>Source:</i> <a href="https://github.com/CosmoBolognaLib">github.com/CosmoBolognaLib</a> <i>Docs:</i> <a href="https://GitHub.io/CosmoBolognaLib">GitHub.io/CosmoBolognaLib</a> |

## Conferences, Seminars and Meetings

*Invited contributions are highlighted*

*Group and Collaboration Meetings are not listed*

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|-----------------|--------------------------------------------------------------------------------------------------------------------------|
| 2018<br>PRESENT | ~ 30 <b>talks</b> + <b>posters</b> at international conferences, workshops, and institutions<br>(in presence and online) |
| 2022<br>PRESENT | among those: <b>7 invited talks/seminars</b> + <b>1 colloquium</b><br>(in presence and online)                           |

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|---------|---------------------------------------------------------------------------------------------|---------------------|
| 03/2026 | <i>Conference:</i> Cosmology in the Alps<br>Les Diablerets, Switzerland                     | <b>Talk</b>         |
| 06/2025 | <i>Conference:</i> SKAO: A New Era in Astrophysics<br>Goerlitz, Germany                     | <b>Talk</b>         |
| 06/2025 | <i>Conference:</i> Sixth Workshop on Millimetre Astronomy in Italy<br>Bologna, Italy        | <b>Poster</b>       |
| 04/2025 | Laboratoire Lagrange Group Seminar<br>Observatoire de la Côte d’Azur, Nice, France          | <b>Seminar</b>      |
| 11/2024 | SKA Cosmology Science Working Group Meeting<br>Observatoire de la Côte d’Azur, Nice, France | <b>Talk</b>         |
| 10/2024 | High Energy Physics Colloquia<br>Università di Cagliari - Cagliari, Italy                   | <b>Colloquium</b>   |
| 06/2024 | Group Seminar<br>INAF Arcetri - Firenze, Italy                                              | <b>Seminar</b>      |
| 05/2024 | Pan Survey SED Fitting Forum<br>on-line event                                               | <b>Invited talk</b> |

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|---------|---------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| 02/2024 | IRA Coffee Talk<br>INAF IRA - Bologna, Italy                                                                                                      | <b>Seminar</b>             |
| 02/2024 | MeerKLASS Simulations Telecon<br>on-line event                                                                                                    | <b>Talk</b>                |
| 02/2024 | <i>Conference:</i> UniVersum V<br>Università La Sapienza, Rome, Italy                                                                             | <b>Talk</b>                |
| 10/2023 | Séminaires de groupe ouvert à tous - DAp<br>CEA Saclay, Orme des Merisiers, Paris Saclay, France                                                  | <b>Seminar</b>             |
| 09/2023 | <i>Conference:</i> COSMO 23<br>Universidad Autónoma de Madrid, Madrid, Spain                                                                      | <b>Talk</b>                |
| 06/2023 | IFPU Journal Clubs<br>IFPU - Institute for the Fundamental Physics of the Universe, Trieste, Italy                                                | <b>Talk</b>                |
| 01/2023 | <i>Conference:</i> UniVersum IV<br>Università di Trento, Trento, Italy                                                                            | <b>Talk</b>                |
| 01/2023 | SKAO Cosmology SWG Meeting<br>Centro de Astrofísica da Universidade do Porto/Planetário do Porto, Porto, Portugal                                 | <b>Talk</b>                |
| 10/2022 | <i>Conference:</i> ARI-L final review meeting<br>on-line event                                                                                    | <b>Invited Talk</b>        |
| 06/2022 | <i>Conference:</i> The Nature of Dark Matter<br>IFPU - Institute for the Fundamental Physics of the Universe, Trieste, Italy                      | <b>Invited review talk</b> |
| 03/2022 | <i>Conference:</i> MAYA22 - Meeting for ALMA Young Astronomers<br>on-line event                                                                   | <b>Talk</b>                |
| 11/2021 | IFPU Journal Clubs<br>IFPU - Institute for the Fundamental Physics of the Universe, Trieste, Italy                                                | <b>Talk</b>                |
| 07/2020 | Euclid Machine Learning Group Monthly Meeting<br>on-line event                                                                                    | <b>Talk</b>                |
| 06/2019 | <i>Conference:</i> AICosmo19 - Artificial Intelligence in Cosmology<br>ETH Zürich - Congressi Stefano Francini, Monte Verità, Ascona, Switzerland | <b>Poster</b>              |
| 05/2018 | <i>Conference:</i> COSMO21 - Statistical challenges in 21st century cosmology<br>ADEIT, Universitat de València, València, Spain                  | <b>Poster</b>              |
| 09/2017 | <i>Conference:</i> AstroTS Conference<br>SISSA, Trieste, Italy                                                                                    | <b>Talk</b>                |

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