

# CURRICULUM VITAE OF ANDREA TONONI

## PERSONAL DATA

Name: Andrea Tononi  
Birth: 21 May 1994  
Nationality: Italian, Sammarinese  
Email: andrea.tononi@phd.unipd.it  
Site: [www.andreatononi.com](http://www.andreatononi.com)



## CURRENT POSITION

PhD student in Physics,  
University of Padova, Italy.  
Supervisor: Prof. Luca Salasnich.  
Topic: [Quantum statistical properties and BKT transition  
of two-dimensional shell-shaped superfluids](#)

10/2018 - 12/2021

## EDUCATION

Master of Science in Physics (110/110 L),  
University of Padova, Italy.  
Thesis: *Bose-Einstein condensation and Superfluidity in 3D and 2D bosons*  
Supervisor: Prof. Luca Salasnich.

10/2016 - 09/2018

Bachelor of Science in Physics (105/110),  
University of Padova, Italy.  
Thesis: *On the diffusive approximation of the Master Equation*  
Supervisors: Dr. Gianluigi Serianni, Dr. Fabio Sattin.

09/2013 - 07/2016

Scientific high school (100/100),  
Liceo "A. Einstein", Rimini, Italy.

09/2013 - 07/2016

## PUBLICATIONS AND PREPRINTS

9. A. Tononi, A. Pelster and L. Salasnich,  
*Topological superfluid transition in bubble-trapped condensates*,  
[arXiv:2104.04585](#)
8. K. Furutani, A. Tononi, and L. Salasnich,  
*Sound modes in collisional superfluid and normal Bose gases*,  
accepted on New Journal of Physics, [arXiv:2011.11352](#)
7. A. Tononi\*, A. Cappellaro\*, G. Bighin\*, and L. Salasnich,  
*Propagation of First and Second Sound in a Two-Dimensional Fermi Superfluid*,

arXiv:2009.06491

\*: equal contributions

6. A. Tononi, F. Toigo, S. Wimberger, A. Cappellaro, and L. Salasnich, *Dephasing-rephasing dynamics of one-dimensional tunneling quasicondensates*, *New Journal of Physics* **22**, 073020 (2020).
5. A. Tononi, F. Cinti, and L. Salasnich, *Quantum Bubbles in Microgravity*, *Physical Review Letters* **125**, 010402 (2020).
4. A. Tononi and L. Salasnich, *Bose-Einstein Condensation on the Surface of a Sphere*, *Physical Review Letters* **123**, 160403 (2019).
3. A. Tononi, Y. Wang, and L. Salasnich, *Quantum Solitons in Spin-Orbit Coupled Bose-Bose Mixtures*, *Physical Review A* **99**, 063618 (2019).
2. A. Tononi, *Zero-Temperature Equation of State of a Two-Dimensional Bosonic Quantum Fluid with Finite-Range Interaction*, *Condensed Matter* **4(1)**, 20 (2019).
1. A. Tononi, A. Cappellaro, and L. Salasnich, *Condensation and superfluidity of dilute Bose gases with finite-range interaction*, *New Journal of Physics* **20**, 125007 (2018).

## CONFERENCES AND TALKS

13. **APS March Meeting 2021**, (online conference, Mar 15-19 2021).  
Contributed talk (online): *Quantum Statistics of a Shell-Shaped Bose-Einstein Condensate*
12. **Kaiserslautern TU Theory Colloquium**, (Kaiserslautern, Germany, Feb 11 2021).  
Invited talk (online): *The physics of shell-shaped Bose-Einstein condensates*
11. **Exploring Quantum Many-Body Physics with Ultracold Atoms and Molecules**, (Bad Honnef, Germany, Dec 14-18 2020).  
Contributed talk (online): *Quantum statistical properties of shell-shaped Bose-Einstein condensates*
10. **SuperFluctuations 2020**, Fluctuations and Highly Non Linear Phenomena in Superfluids and Superconductors, (online conference, Jun 22-23 2020).  
Contributed talk (recorded): *Quantum bubbles in microgravity*.
9. **Spring online Workshop on Ultracold Quantum Matter**, (online conference, Jun 4 2020).  
Invited talk (online): *Quantum bubbles in microgravity*.
8. **BECCAL Brainstorming Workshop**, (Ulm, Germany, Dec 12-13 2019).
7. **QFC2019**, Quantum gases, fundamental interactions and cosmology, (Pisa, Italy, Oct 23-25 2019).  
Poster: *Condensation in 2D: from nonuniversal effects to bubble traps*.
6. **SuperFluctuations 2019**, Fluctuations and Highly Non Linear Phenomena in Superfluids and Superconductors, (Padova, Italy, Sep 2-4 2019).  
Poster: *Quantum solitons in one-dimensional spin-orbit coupled Bose-Bose mixtures*.
5. **Methods of Path Integration in Modern Physics**, Bad Honnef Physics School, (Bad Honnef, Germany, Aug 25 - 31 2019).

4. **Workshop on Quantum Mixtures**, (Trento, Italy, Jul 15-17 2019).  
Poster: *Condensation in 2D: from nonuniversal effects to bubble traps*.
3. **New Trends in Complex Quantum Systems Dynamics**, (Venezia, Italy, Apr 9-12 2019).  
Poster: *Beyond-mean-field functional integration for Bose-Einstein condensates*.
2. **Physics of Strongly Coupled Systems**, Bad Honnef Physics School, (Bad Honnef, Germany, Mar 31 - Apr 5 2018).  
Poster: *Beyond-mean-field functional integration for Bose-Einstein condensates*.
1. **SuperFluctuations 2018**, Fluctuations and Highly Non Linear Phenomena in Superfluids and Superconductors, (San Benedetto del Tronto, Italy, Sep 5-7 2018).  
Poster: *Low-temperature superfluid density expansion of three- and two- dimensional uniform Bose gases*.

## REFEREEING ACTIVITY

Physical Review A, New Journal of Physics, SciPost Physics, Journal of Magnetism and Magnetic Materials.

## COMPUTER SKILLS

- Advanced: Wolfram Mathematica, Gnuplot
- Intermediate: Fortran, C++, Bash, L<sup>A</sup>T<sub>E</sub>X, Linux
- Basic: HTML

## LANGUAGE SKILLS

- Italian: native speaker
- English: advanced
- French: basic

## SCIENCE POPULARIZATION

- Production of the video (italian version only) [https://mediaspace.unipd.it/media/1\\_u8rdbm2e?trk=organization-update-content\\_share-video-embed\\_share-article\\_title](https://mediaspace.unipd.it/media/1_u8rdbm2e?trk=organization-update-content_share-video-embed_share-article_title) to discuss my work on shell-shaped Bose-Einstein condensate (Jun 2020).
- Participation to Veneto night, the local edition of the European Researchers Night: <https://venetonightpadova.it/> (Nov 27 2020).  
Production of the video (italian version only) <https://youtu.be/C5wkHzR3Hsg> and discussion with the public of my research on Bose-Einstein condensates.

## PRIZES

- First place at “Meritamente” (edition of 2011), winner of a prize of 3000 euro.  
It was a competition with logical and mathematical tests, organized by the foundation “Fondazione San Marino” (<https://www.carisp.sm/>).

## OTHER

- 10/2018-09/2021: PhD students’ representative at the Department of Physics and Astronomy Council, University of Padova.
- 12/2019: Two guest lectures in the PhD course “Bose-Einstein condensation, Superfluidity, Superconductivity” held by Prof. Luca Salasnich at the University of Padova.