

# Angelo Bassi

## CV

### PERSONAL DETAILS

Family name, First name: Bassi, Angelo

ORCID: 0000-0001-7500-387X. Scopus Author ID: 7102527024.

Date of birth: 27 May 1973.

Nationality: Italian.

URL for web site: [www.qmts.it](http://www.qmts.it)

### • Education and key qualifications

2004-2006: Marie-Curie Fellow at the Mathematics Institute of the L.M.U., Munich (Germany)

2001-2004: Postdoctoral Fellow at The Abdus Salam ICTP, Trieste (Italy).

1999-2001: Ph.D. in Physics, University of Trieste (UniTs).

### • Current position

Since 2021: Full Professor, Department of Physics, University of Trieste.

### • Previous positions

2016-2021: Associate Professor, Department of Physics, University of Trieste.

2006-2016: Assistant Professor, Department of Physics, University of Trieste.

2010: Visiting Professor, U.N.A.M. Mexico City, Mexico, April 2010.

2011: Visiting Professor, Sharif University of Technology, Tehran, Iran, May 2011.

2002-2019: Short-Term Visiting Scientist, Institute for Advanced Study, Princeton.

### RESEARCH ACHIEVEMENTS AND PEER RECOGNITION

#### Research achievements

A. Bassi is author of 150+ publications, among which: 1 Science, 1 Nature, 3 Nature Physics, 11 Physical Review Letters, 1 Reviews of Modern Physics (1000+ citations), 1 Physics Reports (900+ citations). H-index: 42. (Data taken from Google Scholar).

His work has been highlighted by the most relevant scientific journals and magazines (Science, Scientific American, New Scientist, Physics World), with a cover story on Scientific American and on New Scientist, a dedicated profile on the New York Time Magazine and on the Italian newspaper La Repubblica, which now he is scientific commentator of.

#### Ten main publications from past 10 years, relevant to the proposal.

1. Carlesso M., Donadi S., Ferialdi L., Paternostro M., Ulbricht H. and Bassi, A. "Present status and future challenges of non-interferometric tests of collapse models", **Nature Physics** 18, 243 (2022).
2. Donadi, S., Piscicchia, K., Curceanu, C., Diósi, L., Laubenstein, M., Bassi, A. "Underground test of gravity-related wave function collapse" **Nature Physics** 17, 74 (2021). Top 10 news of the year 2020 according to Science.
3. Carlesso M., Bassi A., Paternostro M., Ulbricht H. "Testing the gravitational field generated by a quantum superposition", **New Journal of Physics** 21, 093052 (2019).
4. Bassi, A., Großardt, A., Ulbricht, H., "Gravitational decoherence" **Classical and Quantum Gravity** 34, 193002 (2017).
5. Vinante, A., Mezzena, R., Falferi, P., Carlesso, M., Bassi, A., "Improved Noninterferometric

Test of Collapse Models Using Ultracold Cantilevers” **Physical Review Letters** 119, 110401 (2017) + Editor’s suggestion.

6. Carlesso, M., Bassi, A., Falferi, P., Vinante, A. “Experimental bounds on collapse models from gravitational wave detectors” **Physical Review D** 94, 124036 (2016).
7. Vinante, A., Bahrami, M., Bassi, A., Usenko, O., Wijts, G., Oosterkamp, T.H., “Upper Bounds on Spontaneous Wave-Function Collapse Models Using Millikelvin-Cooled Nanocantilevers” **Physical Review Letters** 116, 090402 (2016).
8. Bahrami, M., Großardt, A., Donadi, S., Bassi, A., “The Schrödinger-Newton equation and its foundations”, **New Journal of Physics** 16, 115007 (2014).
9. Bahrami, M., Paternostro, M., Bassi, A., Ulbricht, H., “Proposal for a noninterferometric test of collapse models in optomechanical systems” **Physical Review Letters** 112, 210404 (2014) + highlighted on PRL.
10. Bassi, A., Lochan, K., Satin, S., Singh, T.P., Ulbricht, H., “Models of wave-function collapse, underlying theories, and experimental tests”, **Reviews of Modern Physics** 85, 471 (2013).

### **Fellowships and Awards**

2006: MarieCurie European Reintegration Grant MERG-CT-2006-044941.

2004: MarieCurie Intra-European Fellowship MEIF-CT-2003-500543.

2010: INFN-MIT "Bruno Rossi" Exchange Fellow.

### **Organization of scientific meetings**

Co-organizer of 30 international workshops/conferences, and 5 schools on Quantum Mechanics, over 9 countries (Italy, Malta, Germany, Israel, Morocco, India, Greece, France, The Netherlands).

### **Participation in international Conferences**

Invited speakers at 70+ international conferences on Quantum Mechanics and related topics. Lecturer at 11 international schools. Invited seminars at the most prestigious institutes worldwide, among which Columbia, Harvard, Imperial College, NYU, Weizmann Institute.

### **Research responsibilities**

2021-present: National coordinator of “BELL: Fundamental Problems in Quantum Physics”, within the Italian Institute for Nuclear Physics (INFN).

2022-2025 Chair of the Steering Committee of the EU funded project “QuCom: Quantum Control of Gravity with Levitated Mechanics”. [www.qucom.eu](http://www.qucom.eu)

2018-2022: Chair of the Steering Committee of the EU funded project “TEQ: Testing the Large-Scale limit of Quantum Mechanics”. [www.tequantum.eu](http://www.tequantum.eu)

2016-2021. Chair of the COST Action “QTSpace: Quantum Technologies in Space”. [www.qtspace.eu](http://www.qtspace.eu)

2011-2015: Chair of the COST Action “Fundamental Problems in Quantum Physics”.

Bassi is responsible for the Quantum Communication program in the Region Friuli Venezia Giulia, which started in 2020 and is funded by the regional government (projects “Quantum FVG” and “QuFree”). A Quantum Communication Lab has been installed at the University of Trieste, and a regional QKD network is under development. Within his role, in 2020 he co-organized the first Italian public demonstration of secure quantum communication, held in front of the Prime Minister of Italy, followed in 2021 by the first international demonstration of quantum communication involving three countries (Italy, Croatia and Slovenia), which was presented during the G20 meeting on “Innovation and Research”.

## **Member of Scientific Societies**

2014-2016: Council member of the International Society for Relativistic Quantum Information.

2018-present: Faculty member of The John Bell Institute for the Foundations of Physics.

## **Major collaborations**

535 co-authors (source: Scopus).

Member of the intl. collaborations: “AEDGE: Atomic Experiment for Dark Matter and Gravity Exploration in Space”, “SAGE: A proposal for a space atomic gravity explorer”, “MAQRO: Macroscopic Quantum Resonator”, “QUAPITAL: Quantum Photonic Intercity TrAnsmision Lattice”; member of the working groups for preparation of ESA’s “Roadmap for Fundamental Physics in Space”, and for the preparation of the ECFA (European Strategy for Particle Physics) “Detector R&D Roadmap activities”.

## **Major funding (Total: over 7 M€)**

EU funding:

- 1 EIC: “QuCoM: Quantum Control of Gravity with Levitated Mechanics” (local PI, 2022-25).
- 2 FETOPEN Projects: “TEQ - Testing the Large-Scale limit of Quantum Mechanics” (PI, 2018-21); “NANOQUESTFIT: Nanoparticles in Quantum Experiments: Exploring the scientific basis of future innovative quantum technologies” (local PI, 2013-15).
- 2 MarieCurie grants: Intra-European Fellowship (PI, 2004-05); Reintegration Grant (2006).
- 2 COST Actions: “QTSpace: Quantum Technologies in Space” (PI, 2016-21); “Fundamental Problems in Quantum Physics” (PI, 2011-15).

Other international funding:

- 1 FQXi Large grant: “Consciousness and wave function collapse” (PI, 2020-22); 5 small grants (PI).
- 1 grant from the J. Templeton Foundation: “Experimental and theoretical exploration of the fundamental limits of quantum mechanics” (as local PI 2013-17).

National funding: 5 projects: 4 as PI 1 as local PI.

## **Supervisor activity**

Bassi has established a distinguished school on the foundations of Quantum Mechanics, also through the supervision (to date) of 12 Postdoctoral Fellows, 16 Ph.D. students, 20 graduate students. Among his former postdocs, M. Bahrami is Lecturer in Chemistry at California State University, Long Beach (USA); A. Smirne is Associate Professor at the University of Milan (Italy); A. Grossardt was first von Humboldt Fellow at QUB Belfast, and now Junior Research Group Leader (‘Freigeist’ Fellowship der VolkswagenStiftung) at FSU Jena (Germany); G. Leon, is investigador universitario at the National University of la Plata.