

## Guglielmo Maria Lucio Tino

Tino graduated in Physics (110/110 cum laude) in 1987 at Università di Napoli "Federico II" and he received the PhD in Physics (70/70 cum laude) in 1992 at Scuola Normale Superiore di Pisa.

He was Researcher and then Associate Professor at Università di Napoli "Federico II".

Since 2001 he is Full Professor of Physics of Matter at Università di Firenze.

In Firenze, he is leading a research group at the Department of Physics, INFN, and LENS Laboratory.

He obtained funding as national and international PI for research projects from MIUR, INFN, EC, INFN, ASI, ESA, INGV, ENI, Tuscany Region, Ente Cassa di Risparmio di Firenze. Several R&D projects have been carried out with industrial partners and financing.

In 2015 he founded the start-up AtomSensors s.r.l., a Spin-off of the University of Florence.

Inventor for 3 patents.

### • PUBLICATIONS

Author of ~200 scientific articles, popular articles and contributions to encyclopaedias.

H-index: 50, total number of citations: 7840 (Google Scholar, January 2021)

H-index: 39, total number of citations: 4880 (Scopus, January 2021)

- Editor of "Quantum Technologies for Gravitational Physics" Topical Issue, The European Physical Journal D, 2020 (with [REDACTED]).

- Editor of the book "Atom Interferometry", SIF and IOS Press, 2014 (with [REDACTED]).

- Editor of "Gravitational Waves Detection with Atom Interferometry" Special Issue, General Relativity and Gravitation, 2011 (with [REDACTED]).

- Editor of the book "Spin-Statistics Connection and Commutation Relations: Experimental Tests and Theoretical Implications", American Institute of Physics, 2000 (with [REDACTED]).

### • INVITED TALKS

~100 invited talks in the last 10 years given at Conferences, Workshops, Colloquia, Seminars.

### • AWARDS

- Prize of the Italian Physical Society (1989)

- Prize of the Italian Physical Society (1994)

- European Optical Society Award, "EOS Prize 2009" (2009)

### • COORDINATION ROLES IN NATIONAL AND INTERNATIONAL PROJECTS (Selection)

- MIUR-PRIN2015: Interferometro Atomico Avanzato per Esperimenti su Gravità e Fisica Quantistica e Applicazioni alla Geofisica"(2017 -> 2019)

- MIUR-2013 Premiale Project: Atomic Interferometer.

- MIUR-2013 Premiale Project: LIFT - National optical link for time and frequency.

- MIUR-Premiale 2012 Project: LIFT - National optical link for time and frequency.

- MIUR-PRIN2002: Development of new techniques for experiments with cold atoms in space (2003-2004).

- MIUR-PRIN1998: Non-linear interactions between ultrashort laser pulses and atoms.

- MIUR-PRIN1996: Atomic Physics for Metrology.

- EC-FP7: PEOPLE-2013-ITN FACT project

- EC-FP7: SOC2-Towards neutral-atom space optical clock (2011-2015).

- EC-FP7: Isense- Integrated quantum sensors (2010-2014).

- EC-FP6 STREP / ADVENTURE: FINAQS: Future Inertial Atomic Quantum Sensors (2005-2007).

- INFN: OLAGS (2018-> )

- INFN: MAGIA-Advanced Experiment (2016->2018).

- INFN: MAGIA Experiment - Accurate Measurement of G by Atomic Interferometry (2003-2015).

- INFN-PAIS2000 advanced project: Optical confinement of Bose-Einstein condensates.

- INFN-PAIS99 Advanced Project: Optical manipulation of ultracold atoms.

- ENI: Design and development of an absolute gravity prototype (2009-2011).

- ESA: Space Optical Clocks (2007-2012).

- ESA: Space Atom Interferometers (2007-2013).

### • RESEARCH ACTIVITY

The research activity, mainly experimental in the field of atomic, molecular, optical and gravitational physics concerned the precision measurements both for fundamental physics tests, and for metrological, geophysical, space applications, and for the technology transfer.

In particular, the topics addressed by Tino in his research activity are:

- Atom interferometry for gravitational physics experiments.

- Frequency metrology and optical atomic clocks.

- Cooling and trapping of atoms with laser radiation, BEC, fermionic gases.

- Spin effects: search for spin-gravity couplings and test of the spin-statistics connection.

- Atomic and molecular spectroscopy with high resolution and sensitivity.

- Development of solid state laser sources for precision measurements.
- Development of quantum sensors for geophysical and space applications.

Recent results of particular relevance are the first precision measurement of the gravitational constant with an atom interferometry sensor, the first test of the Einstein equivalence principle for bosonic and fermionic isotopes of the Sr atom, the realization in Florence of the first optical atomic clock in Italy based on transitions of the Sr atom connected with INRIM by means of a fiber optic link.

Research periods abroad:

- (1988-89) JILA and National Institute of Standards and Technology, Boulder, Colorado - Visiting scientist in the groups of [REDACTED] (Nobel Prize for Physics 2005) and [REDACTED].
  - (1993-94) Ecole Normale Supérieure, Paris - Visiting scientist in the group directed by [REDACTED] (Nobel Prize for Physics 1997) and [REDACTED].
  - (1994) Ecole Normale Supérieure, Paris - Professeur invité.
  - (1996) JILA, National Institute of Standards and Technology and JILA, Boulder-Colorado - Visiting scientist in the group directed by [REDACTED] (Nobel Prize for Physics 2001).
  - (2006) Université Paul Sabatier, Toulouse - Professeur invité.
  - (2007) European Space Agency, Noordwijk, NL - Visiting scientist.
- Advisor for numerous Master and PhD thesis in Physics.

- ORGANIZATION OF CONFERENCES, WORKSHOPS, SCHOOLS (Selection)

- 13th European Conference on Atoms Molecules and Photons (ECAMP13), Florence 2019, Chair.
- Chair (2010-2014) of the EGAS Board and member of the AMOPD Board, steering committees of the Conferences of the European Physical Society EGAS (annual) and ECAMP (triennial).
- 22nd International Conference on Laser Spectroscopy (ICOLS 2015), Singapore 2015, member of the Program Committee.
- Les Houches International School "Ultracold Atoms and Precision Measurements", 2014, co-Director.
- International School of Physics "Enrico Fermi" of the SIF entitled Atom Interferometry, 2013, Director.
- 4th International Symposium on "Physical Sciences in Space", Bonn 2011, member of the Scientific Committee.
- International Workshop on "Gravitational Waves Detection with Atom Interferometry", Hangzhou, China 2010, co-Chair.
- International Workshop "Quantum to Cosmos", 2007-2012, member of the Advisory Committee.
- Workshop on "Modern Problems of Laser Metrology", Lercici 2009, member of the Organizing Committee.
- International Workshop on "Gravitational Waves Detection with Atom Interferometry", Galileo Galilei Institute for Theoretical Physics (GGI), Florence 2009, Organizer
- Workshop "Theoretical and experimental aspects of the spin-statistics connection and related symmetries", Trieste 2008, member of the International Advisory Committee.
- "Optical Clock Missions in ESA's Cosmic Vision Program", Düsseldorf 2007, Organizer
- Conference CLEO / Europe-IQEC 2007, member of the Program Committee.
- Siggrav School "Experimental Gravitation in Space", Florence 2006, Director.
- Workshop "Advances in precision tests and experimental gravitation in space", Florence 2006, Organizer.
- Fundamental Physics in Space Workshop, Frascati 2005, member of the Organizing Committee.
- INFN-Space / 2 workshop, Frascati 2005, member of the Organizing Committee.
- Symposium "HYPER, Fundamental Physics in Space", Paris 2002, member of the Program Committee.
- Conference "Spin-Statistics Connection and Commutation Relations: Experimental Tests and Theoretical Implications", Capri 2000, Organizer.

- MANAGEMENT EXPERIENCE (Selection)

- Member of the Academic Senate of the University of Florence (2016-2020).
- Member of the Research Commission of the University of Florence (2016-2020).
- Member of the Steering Committee of the Department of Physics of the University of Florence (2016-2019).
- Board Member of the Atomic Molecular Optical Physics Division (AMOPD) of the European Physical Society (2008-2019).
- Member of the Scientific and Technical Advisory Committee (STAC) of EGO (European Gravitational Observatory) (2013-2016).
- Delegate of the Rector of the University of Florence for the Coordination of decentralized teaching activities (2012-2015).
- Chair of the European Group for Atomic Systems (EGAS) of the European Physical Society (2010-2013).
- President of the Degree Course in "Optics and Optometry" of the University of Florence (2009-2013).
- Coordinator for the University of Florence of the Cultural and Scientific Collaboration Agreement with the National Institute of Metrology (NIM), China (2006-2011).
- Member of the Board of the Faculty of Sciences of the University of Florence (2009-2013).
- Member of the Board of the Department of Physics and Astronomy of the University of Florence (2012).