Curriculum vitae Giacomo Roati

PERSONAL INFORMATION

Roati Giacomo - ID ORCID: orcid.org/0000-0001-8749-5621

URL for web site: http://quantumgases.lens.unifi.it/exp/li

EDUCATION

2003 PhD in Physics (*cum laude*), Department of Physics University of Trento, Italy
1999 Master in Physics (*cum laude*), Department of Physics University of Milan, Italy

CURRENT POSITION(S)

2018 – Director of Research at CNR-INO, Italy
2018 – Visiting scientist at UNAM, Mexico City (Prof. J. H. Seman)
2005 – Visiting scientist at University of Sao Carlos, Brazil (Prof. V. Bagnato)

PREVIOUS POSITIONS

2010 – 2018 Senior Researcher at CNR-INO
2005 – 2010 Fixed-term Researcher, University of Florence and Centro INFM- BEC of Trento, Italy
2010 Visiting research fellow (February-June), MIT, Cambridge USA (Prof. M. Zwierlein)
2006 Visiting scientist (January-March), JILA, Boulder USA (Prof. E. Cornell)
2003 – 2005 Post-Doc at the European Laboratory for Non-Linear Spectroscopy (LENS), Florence, Italy

FELLOWSHIPS AND AWARDS

2010 – Associated Fellow to LENS, University of Florence, Italy
2014 – National Scientific Qualification for Full Professor position (Condensed Matter Physics)
2012 – 2017 ERC-Consolidator Grant QuFerm2D, Quantum Simulation of Two-Dimensional Fermionic Systems (ERC-2012-StG)
2002 Award as best oral contribution at the SIF (Italian Physics Society) Conference
2000 Award as young researcher at Italian National Institute of Physics of Matter Meeting

SCIENTIFIC INTEREST

My scientific interests regard quantum simulation with strongly-correlated atomic Fermi systems. As Research Director, I have however the ambition of fostering the cooperation of the different scientific areas of CNR-INO, supporting and conducting cross-fertilisation actions and projects.

During my **ERC Consolidator Grant** (2012-2017), I have set up a new experimental machine that produces ultracold Fermi gases of 6-Lithium atoms. I have developed new cooling techniques that allow an efficient production of Fermi superfluids and ultracold Fermi spin mixtures (Phys. Rev. A 90, 043408 (2014)), and this scheme is now replicated in many experiments worldwide. Our machine exploits the most advanced optical diagnostic and manipulation tools. In particular it features a large optical access to detect the atomic cloud with high resolution (below 1 μm). We can measure not only global but also local quantities and we can extract the properties of the many-body wave functions. At the same time, we have the possibility to image topological defects and their dynamics even in-situ (see Nature 600, 64, (2021)), which is a fundamental diagnostic tool for this proposal. My group is pioneering, first in Italy and among the first in Europe, the **manipulation of ultracold matter through arbitrarily tailored optical potentials**. These are created using dynamical devices such as digital micromirror devices (DMD) and they are imprinted with similar sub-micron resolution through the microscope objective. We can produce ordered and disordered structures, mesoscopic channels, barriers, with sizes comparable with the correlation lengths of our atomic gases (~500 nm). This feature allows for **studying the onset of quantum dynamics in the transport of superfluids or spin**. In the last years my research activity has been indeed focussed on the study of quantum transport phenomena in such strongly-

correlated Fermi systems. In particular, with my group I have investigated the Josephson dynamics both in the AC (Science, 350, 1505, (2015)) and DC regimes (Science 369, 84 (2020)), disclosing the **effects of dissipation in the superfluid dynamics** (Phys. Rev. Lett. 120, 025302 (2018) and Phys. Rev. Lett. 126, 055301 (2021)). At the same time, we have investigated **spin transport in repulsive Fermi gases**, attacking with new approaches the long-sought and still debated Stoner ferromagnetic instability (Nature Physics 13, 704709 (2017), Phys. Rev. Lett. 118, 083602 (2017), Phys. Rev. Lett. 121, 253602 (2018)).

Since the last year, my group is exploring **the dynamics of topological defects** quasi-two dimensional homogenous Fermi gases, to study new and exciting phenomena in disparate systems in nature. In particular, in such layered Fermi superfluids, we have very recently realised a programmable quantum vortex collider platform (Nature 600, 64 (2021) and Nature Physics (2024)). This experimental scheme is unique. It will allow the study of vortex dynamics with an unprecedented degree of controllability, giving the possibility of addressing collisions, trajectories and annihilation processes and vortex-sound interactions, comparing directly them with numeric.

Since 2005, I actively collaborate with **Prof. V. S. Bagnato** of the University of Sao Carlos (Brazil) in **studies of quantum turbulent regime** in atomic BEC. I have participated in the setting up of the experimental apparatus achieving the first Bose-Einstein condensate of Latin America. We have reported out the first observations of quantum turbulence phenomena in atomic Bose-Einstein condensates, which is considered a milestone in our field, followed by other publications in this topic.

I collaborate with Prof. Jorge Seman at the UNAM University in Mexico City. We have recently completed the realisation of the experimental apparatus, observing the first superfluid Fermi gas of Latin America. More recently, I have started a long-term collaboration with Prof. N. Navon at Yale University, USA, on the study of the out-of-equilibrium dynamics of homogeneous strongly-correlated Fermi systems.

I currently conduct individual research and lead an experimental group at CNR-INO laboratory at LENS, Florence. One of my main principles of team management is the development of the researchers' talents and the maximum valorisation of their contribution in the group's results. This has attracted in the past 10 years 2 Marie Skłodowska-Curie Fellows (F. Scazza, W.J. Kwon) and has lead three team members to obtain an ERC Starting Grant (W. Kwon, F. Scazza, M. Zaccanti).

Five selected publications:

1) D. Hernández-Rajkov, N. Grani, F. Scazza, G. Del Pace, W. J. Kwon, M. Inguscio, K. Xhani, C. Fort, M. Modugno, F. Marino and **G. Roati**, Nat. Phys.(2024). https://doi.org/10.1038/s41567-024-02466-4, *Connecting shear flow and vortex array instabilities in annular atomic superfluids*

2) G. Del Pace, K. Xhani, A. Muzi Falconi, M. Fedrizzi, N. Grani, D. Hernandez Rajkov, M. Inguscio, F. Scazza, W. J. Kwon and **G. Roati**, Phys. Rev. X 12, 041037 (2022), *Imprinting persistent currents in tunable fermionic rings*

3) W. J. Kwon, G. Del Pace, K. Xhani, L. Galantucci, A. Muzi Falconi, M. Inguscio, F. Scazza and **G. Roati**, Nature 600, 64 (2021)*, Sound emission and annihilations in a programmable quantum vortex collider*

4) G. Del Pace, W.J. Kwon, M. Zaccanti, **G. Roati**, and F. Scazza, Phys. Rev. Lett. 126, 055301 (2021), *Tunneling Transport of Unitary Fermions across the Superfluid Transition*

5) W. J. Kwon, G. Del Pace, R. Panza, M. Inguscio, W. Zwerger, M. Zaccanti, F. Scazza and **G. Roati**, Science 369, 84 (2020), *Strongly correlated superfluid order parameters from dc Josephson*

Curriculum Vitae Luca Tanzi

PERSONAL INFORMATION

Tanzi Luca – ORCID: 0000-0002-1933-5092 – Researcher ID: M-1809-2014

[redacted]

URL for web site: http://quantumgases.lens.unifi.it/exp/dy

CURRENT POSITION(S)

2023 – Senior Researcher (II livello) at CNR-INO

PREVIOUS POSITIONS

2019 – 2022 Researcher (III livello) at CNR-INO, Pisa Unit (Pisa, Italy)
2017 – 2019 Postdoc at Dipartimento di Fisica e Astronomia, Università di Firenze, Italy
2014 – 2017 Postdoc at ICFO – The Institute of Photonic Sciences, Barcelona, Spain
2014 Postdoc at Dipartimento di Fisica e Astronomia, Università di Firenze/LENS, Italy

EDUCATION

Early 2014 PhD in "Atomic and Molecular Spectroscopy"
Dipartimento di Fisica e Astronomia, Università di Firenze/LENS, Italy
Supervisor: Giovanni Modugno
Early 2010 Master in Physics (cum laude)
Dipartimento di Fisica e Astronomia, Università di Milano, Italia

FELLOWSHIPS AND AWARDS

2023 PRIN 2022 Italian Grant, Dipolar Quantum Simulator of Topological Phases (DiQuT)
2020 "Giovani Ricercatori 2020" Award, Gruppo 2003 per la Ricerca Scientifica, Italy
2017 – 2019 Postdoc fellowship at Università di Firenze, Italy
2014 – 2017 Postdoc fellowship at ICFO, Barcelona, Spain
2014 Postdoc fellowship at LENS, Università di Firenze, Italy
2013 EPL Presentation Award at the "Disorder in Condensed Matter and Ultracold Atoms" conference, Varenna, Italy

RESEARCH PROJECTS

1. **National Centre for HPC, Big Data and Quantum Computing (HPC)**
   Programme: PNRR, Jan 2024 – Dec 2025. Entity: CNR.
   Contribution: Responsible for the design and experimental setup for trapping Rydberg atoms in optical tweezers for quantum information (Spoke 10 'Quantum Computing').
2. **Dipolar Quantum Simulator of Topological Phases (DiQuT)**
   Program: PRIN 2022, 28/09/2023 – Oct 2025. Entity: CNR-INO.
   Contribution: Principal Investigator (PI) of the project.
3. **Magnetic Atoms Quantum Simulators (MAQS)**
   Program: QuantERA 2019, Jan 2020 – Dec 2022. PI: Giovanni Modugno.
   Contribution: Member of the CNR-INO node of the project.
4. **Exploring magnetic quantum phase transitions with ultra-cold Fermi gases (MAG-QUPT)**
   Program: Marie Curie Grant 2013, 01/06/2014 - 31/05/2018. Entity: ICFO. PI: Leticia Tarruell.
   Contribution: member of the research team.
5. **Quantum Insulators and Conductors (QUIC)**
   Program: FET Proactive 2014, 01/03/2015 - 28/02/2018. PI: Giovanni Modugno.
   Contribution: Member of the ICFO and LENS nodes of the project. Participant in the 2nd review meeting before the European Commission.
6. **Simulación cuántica con gases ultrafríos fuertemente correlacionados**
   Program: Plan Nacional MINECO, 01/01/2015 - 31/12/2017. Entity: ICFO. PI: Leticia Tarruell.
   Contribution: member of the research team.

7. **Disorder physics with ultracold quantum gases (DISQUA)**
Program: FP7-IDEAS-ERC. Entity: LENS, PI: Massimo Inguscio, 01/03/2010 - 28/02/2015.
Contribution: member of the research team.

RESEARCH INTERESTS

My research consists mainly of frontier experiments on quantum phenomena in ultracold gases. My current focus is twofold: the study of exotic quantum phases in dipolar systems and the realization of novel quantum computing schemes using Rydberg atoms in tweezer arrays.

Detailed research activities

2023 – present: **Quantum information with neutral atoms in optical tweezers**

I am currently leading a new research group that is building quantum hardware based on single-atom qubits trapped in strongly focused laser fields and interacting via Rydberg interactions for quantum information purposes. The experiment is located at the Università di Firenze/CNR-INO (Firenze Unit).

2017 – present: **Supersolids**

Since 2017, I have been working at CNR-INO (Pisa Unit) in the group of Prof. Giovanni Modugno (Università di Firenze). In 2019, I discovered a new quantum phase of matter in a quantum gas of strongly magnetic atoms: the supersolid [Phys. Rev. Lett. 122, 130405 (2019)]. This work has attracted considerable interest from the scientific community (see for example the commentaries Physics 12, 38, Nature 569, 494 and Nature Physics 15, 986) and has been successfully replicated by competing groups. More recently, I have characterized the supersolid phase by testing its exotic properties in several ways [Nature 574, 382-385 (2019); Science 371, 1162-1165 (2021); Phys. Rev. X 12, 021019 (2022); Nature 629, 773–777 (2024)]. Based on these results, I have been awarded the prestigious Italian "Giovani Ricercatori 2020" prize.

2014 – 2017: **Quantum liquids**

I did my first long-term postdoc at ICFO (Barcelona, Spain) in the ultracold quantum gases group of Prof. Leticia Tarruell. I played a crucial role in the discovery of a new phase of matter: a liquid quantum droplet stabilized by pure quantum many-body effects in a quantum mixture [Science 359, 301-304 (2018), Phys. Rev. Lett. 120, 135301 (2018)]. These experiments have opened a new exciting research topic on bulk systems stabilised by beyond mean field effects: our results have been highlighted in Science 359, 274-275 (2018), Nature Physics 14, 211-212 (2018) and Physics Today 72, 4, 46 (2019).

2010 – 2014: **Disordered quantum systems**

After graduating from the Università degli Studi di Milano (Italy), I did my Ph.D. in the "Quantum Gases" group at LENS (Firenze, Italy), in the group of Prof. Giovanni Modugno. I used a Bose-Einstein condensate with tunable interaction in a controllable disordered optical potential to study several key phenomena arising from the subtle interplay of disorder and interaction in quantum systems. My main results are the observation of interaction-induced anomalous diffusion in initially Anderson-localised wave packets [Phys. Rev. Lett. 106, 230403 (2011)] and the observation of a finite-temperature Bose-glass phase [Phys. Rev. Lett. 113, 095301 (2014), Phys. Rev. Lett. 111, 115301 (2013)].

Skills on quantum gases experiments

Since the beginning of my career, I have worked on three different cold atom experiments and contributed to the construction of two of them: the Bose mixing experiment of potassium atoms at ICFO Barcelona [Phys. Rev. A 98, 062712 (2018)], the dipolar dysprosium BEC experiment at CNR-INO Pisa [Phys. Rev. A 97, 060701(R) (2018)]. I have extensive experience in the construction of experimental apparatus to produce quantum degenerate gases of potassium and dysprosium isotopes. I have acquired skills in several topics: quantum gases, optical lattices, disordered systems, etc. on the scientific side, and optics, programming, electronics, etc. on the technical side.

PUBLICATION RECORD

Since 2011, I have co-authored 20 publications (7 as first author) in high-impact, peer-reviewed journals, including: 2 Nature, 2 Science, 1 Physical Review X, 6 Physical Review Letters.
Web of Science (January 2025): 1919 citations; H-index 16

Google Scholar (January 2025): 2929 citations, H-index 17

Publication list:

1. N. Preti, N. Antolini, G. Biagioni, A. Fioretti, G. Modugno, **L. Tanzi**, and Carlo Gabbanini, *A blue repulsive potential for dysprosium Bose-Einstein condensates,* Phys. Rev. A 110, 023307 (2024).
2. H. Yao, **L. Tanzi**, L. Sanchez-Palencia, T. Giamarchi, G. Modugno, and C. D'Errico, *Mott transition for a Lieb-Liniger gas in a shallow quasiperiodic potential: Delocalization induced by disorder,* Phys. Rev. Lett. 133, 123401 (2024).
3. G. Biagioni, N. Antolini, B. Donelli, L. Pezzè, A. Smerzi, M. Fattori, A. Fioretti, C. Gabbanini, M. Inguscio, **L. Tanzi**, G. Modugno, *Measurement of the superfluid fraction of a supersolid by Josephson effect*, Nature 629, 773–777 (2024).
4. G. Biagioni, N. Antolini, A. Alana, M. Modugno, A. Fioretti, C. Gabbanini, **L. Tanzi**, and G. Modugno, *Dimensional crossover in the superfluid-supersolid quantum phase transition*, Phys. Rev. X 12, 021019 (2022).
5. **L. Tanzi**, J. G. Maloberti, G. Biagioni, A. Fioretti, C. Gabbanini, and G. Modugno, *Evidence of superfluidity in a dipolar supersolid from non-classical rotational inertia*, Science 371, 1162-1165 (2021).
6. **L. Tanzi**, S. M. Roccuzzo, E. Lucioni, F. Famà, A. Fioretti, C. Gabbanini, G. Modugno, A. Recati, and S. Stringari, *Supersolid symmetry breaking from compressional oscillations in a dipolar quantum gas*, Nature 574, 382-385 (2019).
7. **L. Tanzi**, E. Lucioni, F. Famà, J. Catani, A. Fioretti, C. Gabbanini, and G. Modugno, *Observation of a Dipolar Quantum Gas with Metastable Supersolid Properties*, Phys. Rev. Lett. 122, 130405 (2019).
8. **L. Tanzi**, C. R. Cabrera, J. Sanz, P. Cheiney, M. Tomza, and L. Tarruell, *Feshbach resonances in potassium Bose-Bose mixtures*, Phys. Rev. A 98, 062712 (2018).
9. E. Lucioni, **L. Tanzi**, A. Fregosi, J. Catani, S. Gozzini, M. Inguscio, A. Fioretti, C. Gabbanini, and G. Modugno, *Dysprosium dipolar Bose-Einstein condensate with broad Feshbach resonances*, Phys. Rev. A 97, 060701(R) (2018).
10. P. Cheiney, C. R. Cabrera, J. Sanz, B. Naylor, **L. Tanzi**, and L. Tarruell, *Bright soliton to quantum droplet transition in a mixture of Bose-Einstein condensates*, Phys. Rev. Lett. 120, 135301 (2018)
11. C. R. Cabrera*, **L. Tanzi***, J. Sanz, B. Naylor, P. Thomas, P. Cheiney, L. Tarruell, *Quantum liquid droplets in a mixture of Bose-Einstein condensates*, Science 359, 301-304 (2018).
12. L. Gori, T. Barthel, A. Kumar, E. Lucioni, **L. Tanzi**, M. Inguscio, G. Modugno, T. Giamarchi, C. D'Errico, and G. Roux, Finite-temperature effects on interacting bosonic one-dimensional systems in disordered lattices, Phys. Rev. A 93, 033650 (2016).
13. G. Boeris, L. Gori, G. Carleo, M. D. Hoogerland, A. Kumar, E. Lucioni, **L. Tanzi**, C. D'Errico, M. Inguscio, G. Modugno, T. Giamarchi, and L. Sanchez-Palencia, *Mott transition for strongly-interacting 1D bosons in a shallow periodic potential*, Phys. Rev. A 93, 011601(R) (2016).
14. **L. Tanzi**, S. Scaffidi Abbate, F. Cataldini, L. Gori, E. Lucioni, C. D'Errico, M. Inguscio, and G. Modugno, *Velocity-dependent quantum phase slips in 1D atomic superfluids*, Scientific Reports 6 (2016).
15. C. D'Errico, E. Lucioni, **L. Tanzi**, L. Gori, G. Roux, I. P. McCulloch, T. Giamarchi, M. Inguscio, and G. Modugno, *Observation of a disordered bosonic insulator from weak to strong interactions*, Phys. Rev. Lett. 113, 095301 (2014).
16. **L. Tanzi**, E. Lucioni, S. Chaudhuri, L. Gori, A. Kumar, C. D'Errico, M. Inguscio, G. Modugno, *Transport of a Bose gas in 1D disordered lattices at the fluid-insulator transition,* Phys. Rev. Lett. 111, 115301 (2013).
17. E. Lucioni, **L. Tanzi**, C. D'Errico, M. Moratti, M. Inguscio, and G. Modugno, *Modeling the transport of interacting matter-waves in disorder by a non-linear diffusion equation*, Phys. Rev. E 87, 042922 (2013).
18. C. D'Errico, M. Moratti, E. Lucioni, **L. Tanzi**, B. Deissler, M. Inguscio, G. Modugno, M.B. Plenio, F. Caruso, *Quantum diffusion with disorder, noise and interaction*, New J. Phys. 15 045007 (2013).
19. E. Lucioni, B. Deissler, **L. Tanzi**, G. Roati, M. Modugno, M. Zaccanti, M. Inguscio, and G. Modugno, *Observation of Subdiffusion of a Disordered Interacting System,* Phys. Rev. Lett. 106, 230403 (2011).
20. B. Deissler, E. Lucioni, M. Modugno, G. Roati, **L. Tanzi**, M. Zaccanti, M. Inguscio, and G. Modugno, *Correlation Function of Weakly Interacting Bosons in a Disordered Lattice*, New J. Phys. 13, 023020 (2011).

REVIEWING ACTIVITY
Since 2018: reviewer for Nature Physics, Physical Review Letters, Physical Review A, Physical Review Research and New Journal of Physics

MAJOR COLLABORATION
Giacomo Cappellini, Leonardo Fallani and Francesco Cataliotti, quantum information with Rydberg atoms in tweezers arrays, CNR and Università di Firenze, Italy
Giovanni Modugno, dipolar quantum gases and disorder physics, Università di Firenze, Italy
Carlo Gabbanini and Andrea Fioretti, experiments on dipolar quantum gases, CNR, Pisa, Italy
Leticia Tarruell, Bose-Bose mixtures and quantum liquid droplets, ICFO, Spain
Sandro Stringari and Alessio Recati, theory of dipolar supersolids, Università di Trento, Italy
Luis Santos and Russell Bisset, theory of dipolar supersolids, University of Hannover, Germany and University of Innsbruck, Austria
Augusto Smerzi and Luca Pezzé, Josephson junctions and entanglement in dipolar supersolids, CNR and LENS, Firenze, Italy
Michele Modugno, numerical computation on dipolar quantum gases, Universidad del País Vasco UPV/EHU, Spain.

SUPERVISION OF STUDENTS AND POST-DOC FELLOW
2024 – present: PhD Students: Thomas Beller and Krishan Joshi, Università di Firenze, Italy
2017 – 2023: PhD Students: Giulio Biagioni and Nicolò Antolini, Università di Firenze, Italy
Master Students: Francesca Famà, Università di Pisa, Italy; Julian Maloberti, Università di Milano, Italy; Giulio Biagioni and Nicolò Antolini, Università di Firenze, Italy
2014 – 2017: PhD Students: Cesar Cabrera and Julio Sanz, ICFO, Spain
Master Students at ICFO: Philip Thomas, University of Hamburg, Germany; Vincent Brunaud, Ecole Polytechnique, France; Lisa Saemisch, University of Bonn, Germany
Summer Students: Alberto Muñoz and Iñigo Urtiaga, ICFO, Spain

INVITED TALKS AND SEMINARS
1. **Italian-German WE-Heraeus-Seminar on Quantum Simulation with Ultracold Atoms**
   Galileo Galilei Institute, Firenze (Italy), October 1, 2024
   Exploring the supersolid phase of matter with dipolar quantum gases
2. **Invited seminar at the University of Warsaw**
   Warsaw (Poland), November 16, 2023
   Exploring the supersolid phase of matter with dipolar quantum gases
3. **Invited seminar at the University of Oxford**
   Oxford (England), October 23, 2023
   Exploring the supersolid phase of matter with an atomic quantum simulator
4. **Strongly-correlated phenomena in ultracold gases: from superfluids and supersolids to ferromagnetic states of matter**
   Warsaw University of Technology, Warsaw (Poland), September 20-22, 2023
   Exploring the supersolid phase of matter with dipolar quantum gases
5. **Lights of Tuscany 2023**
   University of Pisa (Italy), April 28, 2023
   Exploring the supersolid phase of matter with an atomic quantum simulator
6. **Condensed Matter, Atomic Physics and Quantum Information Theory Seminars**
   University of Pisa, November 18, 2022
   Exploring the supersolid phase of matter with dipolar quantum gases
7. **Young Researchers Workshop on Quantum Fluctuations in Ultra-cold Gases**
   Online, November 9-10, 2020
   Symmetry breaking and superfluidity in a dipolar supersolid
8. **Workshop on: Long-range Interactions in Quantum Systems**
   CNRS, Gif-sur-Yvette (France), September 17-20, 2019
   Observation of a supersolid phase of matter in a dipolar quantum gas
9. **Workshop on: Condensed Matter Physics**
   Galileo Galilei Institute, Firenze (Italy), September 2, 2019

Observation of a supersolid phase of matter

10. **International workshop on: Quantum and classical systems with long-range interactions**
International Institute of Physics (IIP), Natal (Brazil), July 15-19, 2019
Dynamics and symmetry breaking in a dipolar supersolid

11. **CNR-INO Annual Symposium 2019**
CNR, Sesto Fiorentino (Italy), April 3-5, 2019
Observation of metastable supersolid properties in a dipolar quantum gas

12. **Workshop on: Quantum droplets in ultra-cold atomic gases**
ETC*, Trento (Italy), December 7, 2018
Stable stripes in dipolar quantum gases

13. **Florence-Trento meeting on quantum gases**
Scuola Normale Superiore, Pisa (Italy), October 22-23, 2018
Stripes vs. droplets in dipolar quantum gases

14. **Quantum Gases 2018: Novel correlation effects**
Tsinghua University, Beijing (China), August 22-24, 2018
Quantum Liquid Droplets in a Mixture of Bose-Einstein Condensates

15. **Seminar at LENS**
LENS, Firenze (Italy), July 7, 2017
Quantum droplets in attractive Bose-Bose mixtures

16. **Seminar at CNR-INO**
CNR-INO, Pisa (Italy), March 3, 2017
Studying interacting systems with BEC

17. **Invited seminar at ICFO**
ICFO, Castelldefels (Spain), April 30, 2014
One-Dimensional Disordered Bosons from Weak to Strong Interactions: the Bose Glass