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at 26.03.2019

PERSONAL DATA

- Born the 11/07/1975 in Sesto Fiorentino, Italy

PRESENT POSITION

- since 1/08/2018: Director of Research at INO-CNR (*Dirigente di Ricerca*)
- 8/11/2010-30/07/2018: Permanent Researcher at INO-CNR (*Primo Ricercatore*)
- since 2010: LENS (European Laboratory for Non-Linear Spectroscopy) Fellow
- 1/11/2012 - 31/10/2017: European Research Council ERC consolidator grant QuFerm2D, *Quantum simulation of two-dimensional fermionic systems*
- since 2014: *Abilitazione Nazionale* for Associate and Full Professor positions.

PREVIOUS POSITIONS

- 1/02/2010 - 7/11/2010: Permanent Researcher at INO-CNR (*Ricercatore Terzo Livello*)
- 30/12/2005 - 31/01/2010: TD Researcher at INFN-CNR, University of Florence and Centro INFN-BEC of Trento
- 1/11/2002 - 29/12/2005: PostDoctoral Fellow on *Experiments with degenerate atomic mixtures*, LENS, University of Florence.

EDUCATION

- [2000-2003] PhD in Physics, University of Trento ("cum laude"), 27/02/2003, *Quantum degenerate K-Rb mixtures* (Supervisor: Prof. M. Inguscio, referees Prof. R. Bonifacio, Dr. M. Scotoni)
- [1994-1999] Diploma in Physics, University of Milano (110/110 "cum laude"), 14/7/1999, *Production and characterization of an ultracold gas of fermionic atoms: Sub-Doppler cooling of ^{40}K* . (Supervisor: Prof. L. Reatto).

SCIENTIFIC INTERESTS

- Ultracold Quantum Gases
- Superfluidity and Superconductivity
- Strongly-Correlated Quantum Many-body Systems

AWARDS AND APPOINTMENTS

- [September 2002] Award as best oral contribution at the SIF (Italian Physics Society) conference
- [June 2000] Award as young researcher at INFM (Italian National Institute of Physics of Matter) Meeting
- Visiting research fellow at USP, University of São Carlos, São Paulo, Brazil in the group of Prof. V. Bagnato (since 2005).
- Visiting research fellow at JILA, Boulder, Colorado (USA) in the group of Prof. E. Cornell (January-March 2006).
- Visiting research fellow at UIB (Universitat de les Illes Balears), Palma de Mallorca, Mallorca (Spain) in the group of Prof. S. Balle (September 2009).
- Visiting research fellow at MIT, Boston, in the group of Prof. M. Zwierlein (February-June 2010).

TEACHING

- [10/2005] Lecturer at "International School on ultracold atoms and molecules", Sao Carlos, Brazil
- [2006] Teaching assistant for the course "Laboratory of Applied Physics" at University of Florence
- [2009] Lecturer at the University of Florence in the Course "Fenomeni quantistici macroscopici"
- [since 2008] Lecturer at the University of Milan in the Course "Physics of Superfluids"
- [2009-2012] Lecturer at the PhD course of Ultracold atomic systems at the University of Florence
- [since 2010] Lecturer at the PhD course in Physics at LENS, University of Florence

SUPERVISED STUDENTS

- [2011-2012]: Master Thesis of G. Valtolina, University of Milano-Bicocca, 110/110 cum laude
- [2012-2016]: PhD Thesis of G. Valtolina, LENS & Scuola Normale Superiore Pisa, 70/70 cum laude
- [2013-2014]: Master Thesis of K. Khani, University of Florence, 110/110
- [2014-2015]: Master Thesis of A. Amico, University of Florence, 110/110 cum laude
- [2016- 2018]: PhD Thesis of A. Amico, University of Florence
- [2018-2019]: Master Thesis of Riccardo Panza, University of Milan, 110/110 cum laude
- 28/5/2013 - 28/7/2013: E. Pace, IROP MIT-LENS project (co-tutor Prof. M. Zwierlein, MIT)
- 22/5/2016 - 31/7/2016: M. Bertrand, ESPCI ParisTech-LENS Erasmus project
- 10/11/2017 - 05/02/2018: M. Duda, Max Planck Munich-LENS Erasmus project

PUBLICATIONS AND BIBLIOMETRIC H-INDEX

I am co-author of more than 60 publications on peer-reviewed journals (excluding the conference proceedings), among those, 17 Phys. Rev. Lett., 3 Science, 2 Nature and 3 Nature Physics.

- ISI WoS: h-index 32, number of citations 4700 w/o self citations at 26/03/2019
- I am referee for Nature, Nature Physics, Physical Review Letters, Physical Review A, European Physical Journal D. I am also referee for several Funding Agencies (Italy, France, Holland, Canada).

EDITORIAL ACTIVITY

- Co-Editor of the Proceedings of the Varenna School, Course 191 "Quantum Matter at Ultralow Temperatures" (2016), IOS Press (Amsterdam) and Societa' Italiana di Fisica

RESEARCH PROJECTS MANAGEMENT

- Principal Investigator of the PRIN 2017 CEnTraL (2019-2022), Engineering coherent transport of atoms and electrons in layered structures
- Principal Investigator of the European Research Council project ERC-consolidator grant no. 307032 QuFerm2D (2012-2017), Quantum simulation of two-dimensional fermionic systems.
- Principal Investigator of the CNPq (Brazil) Project Ciencia sem Fronteiras, "Misturas de Fluidos Atomicos em Regime Quantico Degenerados", (02/01/2013 - 02/01/2016).
- Principal Investigator of the bilateral Italy-France CNR-CNRS project (2011-2013), "Atomic Fermi gases in two-dimensional disordered potential".
- Principal Investigator of the bilateral Italy-Brazil CNR-CNPq project (2011-2013), "Study of the thermodynamics properties of ultracold Fermi and Bose atomic gases".
- Principal Investigator of the bilateral Italy-Brazil CNR-CNPq project (2010-2011), "Eccitazione di superfluidi atomici: investigazione di turbolenza, frammentazione e localizzazione".
- Principal Investigator of the European Project ESF QUIDIPMOL (2007-2010), " Quantum-Degenerate Dipolar Gases of Alkali Molecules "

ORGANIZATION OF INTERNATIONAL CONFERENCES

- Co-Director of the Cargese School of Physics: *Disordered Systems: From Condensed-Matter Physics to Ultracold Atomic Gases*, 27 June-8 July 2016
- Co-Director of the Workshop *Equations of state in quantum many-body systems*, ECT*, Trento, Italy, 30 May-1 June 2016.
- Scientific Secretary of the Enrico Fermi School *Quantum Matter at Ultralow Temperatures*, Course 191, July 7-15th, 2014, Varenna, Italy.
- Co-Director of the International Conference: *Disorder in Condensed Matter and Ultracold atoms*, 9 June-14 June 2013, Varenna, Italy.
- Co-Director of the Cargese School of Physics: *Disordered Systems: From Condensed-Matter Physics to Ultracold Atomic Gases*, 30 May-11 June 2011

MAIN SCIENTIFIC ACHIEVEMENTS

- I am leading my independent research activity as a INO-CNR researcher at LENS. This activity is fully supported by my ERC grant. I am the responsible of a new experimental group that presently is composed by two PhD students, one master student and two postdoctoral Fellows. We have recently set up a new-generation experimental apparatus able to efficiently produce ultracold Fermi gases of lithium-6 atoms. Lithium-6 sample is a unique system in the context of ultracold atoms due to the possibility of finely controlling the interactions between fermions thanks to large magnetic Feshbach resonances. This allows the exploration of the so-called BEC-BCS crossover, i.e. the transition from a Bose-Einstein condensate of molecules to a condensate of loosely bound BCS pairs. My project aims at exploring the intriguing physics of two-dimensional strongly-correlated fermions. Two-dimensional fermionic systems show indeed very peculiar and rich behavior, consequence of the interplay between statistics, dimensionality and strong interactions. Two paradigmatic examples are layered high-Tc superconductors and graphene. My plan here is to use ultracold lithium atoms as ideal quantum

simulators of these electronic systems, exploiting the unprecedented possibility of controlling most of the relevant parameters. Our machine exploits the most advanced experimental techniques. In particular, it features a large optical access to detect the atomic cloud with high optical resolution ($\sim \mu\text{m}$): in this way we can measure not only global but also local quantities, extracting the properties of the many-body wave functions. At the same time we can imprint on the fermions arbitrary laser-made optical potentials that are tailored via *spatial light modulators* or *digital micro-mirrors* devices. As an example, in the near future we are planning to investigate the competition between disorder and superfluidity, addressing the SIT transition (superfluid to insulator transition) that it is still today one of the most debated topic also in condensed matter physics.

As the main experimental activity of my team concerns the study of complex strongly-correlated systems, the collaboration with theoretical groups is fundamental. For this reason, during the years, I have created links with different groups. First of all, I want to mention the close collaboration with Augusto Smerzi (INO-CNR Florence) and Andrea Trombettoni (IOM and SISSA, Trieste), which was fundamental for our recent study of the Josephson effect across the BEC-BCS crossover. More recently, I establish a link with Alessio Recati (INO-CNR Trento) and Tilman Enss (University of Heidelberg, Germany), worldwide experts on the physics of strongly correlated fermionic systems. This collaboration has produced our most recent work on the ferromagnetic transition in ultracold Fermi systems. I am presently creating a formal collaboration with Prof. Davide Galli and Gianluca Bertaina (University of Milan) on Monte-Carlo numerics, and with Laurent Sanchez-Palencia (CNRS researcher at University Paris-Saclay and Associate Professor at Ecole Polytechnique) expert of disordered quantum system. From 2011 to 2013 I have shared with Dr. Sanchez-Palencia a CNRS-CNR bilateral project on atomic Fermi gases in two-dimensional disordered potentials.

I want also to mention that I have an active collaboration with Dr. M. Zaccanti (INO-CNR Researcher), who was part of my experimental team during the last 3 years and who now is going to start his own independent research activity.

Beside my research activity at LENS, I have an active collaboration with Prof. V. Bagnato of the University of Sao Carlos (Brazil) since 2005. I have participated in the setting up of the experimental apparatus in which we have achieved the first Bose-Einstein condensate of South America. In the same machine we have later carried out the first observations of quantum turbulence phenomena in atomic Bose-Einstein condensates. We have also recently explored the thermodynamics of Bose-Einstein condensates. Since last year, I am also directly involved in a new experimental machine to cool to quantum degeneracy a mixture of sodium and potassium atoms. The final goal is the study of quantum turbulence in a two superfluids mixture, having the unique possibility of tuning the interactions between them using Feshbach resonances.

I have also a collaboration with the MIT group led by Prof. M. Zwierlein, one of the most important group studying strongly-correlated fermionic systems. In both cases, the collaboration is not only at the level of sharing expertise, but also at the level of sharing people between the different groups.

In the following are listed the most recent scientific outcomes of my new experimental research:

MOST RECENT SCIENTIFIC OUTCOMES:

- (a) Coherent and dissipative dynamics in an atomic Josephson junction across the BEC-BCS crossover, *Phys. Rev. Lett.* 120, 025302 (2018).
 - (b) Observation of repulsive Fermi polarons in lithium Fermi gases, *Phys. Rev. Lett.* 118, 083602 (2017).
 - (c) Observation of ferromagnetic instability in a repulsive Fermi gas, *Nature Physics* 13, 704709 (2017).
 - (d) Observation of the Josephson effect across the BEC-BCS crossover, *Science* 350, 1505, (2015)
 - (e) Observation of gray molasses cooling operating on the Lithium D1 atomic transition, *Phys. Rev. A* 90, 043408 (2014).
- During PhD I have produced important results that still today have a large impact on the international ultracold atoms community. As a junior post-doc, I have continued the research on ultracold Fermi and Bose gases, keeping my interest high for unexplored phenomena and counterintuitive ideas. In

particular, I have been attracted by the possibility of studying in a clean system, such as ultracold atomic systems, complex condensed-matter phenomena. Here are listed some of the main results achieved, starting from my PhD:

- (a) First realization of degenerate heteronuclear atomic mixtures via interspecies sympathetic cooling technique between potassium and rubidium atoms. This experimental scheme has been replicated in many laboratories worldwide, which now employ the same mixture in a broad spectrum of investigations, *Science* 294, 1320 (2001), *Phys. Rev. Lett.* 89, 190404 (2002).
- (b) First realization of a Fermi- Bose degenerate mixture composed by ^{40}K and ^{87}Rb atoms. It is still now considered the starting point of many different frontier fields, from strongly correlated systems to quantum gases of polar molecules, *Phys. Rev. Lett.* 89, 150403 (2002), *Science*, 297, 2240 (2002).
- (c) First realization of a quasi-two dimensional atomic Fermi gas, discovering that an ideal Fermi gas is very interesting for performing precision measurements through interference phenomena arising in periodic potentials, such as the Bloch oscillations phenomenon, *Phys. Rev. A* 68, 011601(R) (2003), *Phys. Rev. Lett.* 92, 230402 (2004).
- (d) First realization of a novel kind of Bose-Einstein condensate of ^{39}K atoms, where the naturally large interaction between atoms can be tuned down to very negligible values thanks to Feshbach resonances. This result has again a large impact on many different area of research. ^{39}K Bose-Einstein is presently used for implementing quantum interferometric schemes, *Phys. Rev. Lett.* 99, 010403 (2007), *Phys. Rev. Lett.* 100, 080405 (2008).
- (e) First observations of Anderson localization with coherent matter wave. This has been the first of a series of experiments that we have realized and that were able also to characterize the natural interplay between disorder and interactions, *Nature* 453, 895 (2008), *Nat. Phys.* 6, 354-358 (2010).
- (f) First observation of Efimov physics in a gas of potassium atoms, *Nat. Phys.* 5, 586-591 (2009)
- (g) First observations of quantum turbulence phenomena in atomic Bose-Einstein condensates (at the University of Sao Paulo), *Phys. Rev. Lett.* 103, 045301 (2009).
- (h) First observation of universal behavior of spin diffusion in fermionic systems across the BEC-BCS crossover (at MIT, USA), finding out the quantum limit value for this phenomenon, *Nature* 472, 201-204 (2011).

INVITED TALKS AND LECTURES

- 1) Invited Seminar at Quantum Optics IX, Gdansk (Poland), "Connecting phase-slips and dissipation in an atomic Josephson junction between fermionic superfluids", 17-23 September 2017
- 2) Invited Seminar at BEC2017, Sant Feliu de Guixols (Spain), "Dissipative and coherent dynamics in a Josephson junction between fermionic superfluids", 2-8 September 2017
- 3) Lectures at ELAF, Latin American School of Physics Marcos Moshinsky 2017 Quantum Correlations, Mexico City "An introduction to atomic Fermi gases", 24th July-4th August 2017
- 4) Invited Seminar at Quantum days, SISSA, Trieste "Experiments with strongly interacting atomic Fermi gases ", 20 February 2017
- 5) Invited Seminar at University of Mexico City (Mexico) "Exploring repulsive Fermi gases ", 8 December 2016
- 6) Invited Seminar at University of Campinas (Brazil) "Dynamics of strongly interacting atomic Fermi gases ", 9 November 2016
- 7) Invited Seminar at College de France, Paris (France), "Dynamics of strongly interacting atomic Fermi gases ", 26 October 2016
- 8) Invited Seminar at Quantum Gases 2016: Non-Equilibrium Dynamics, Beijing (China), "Dynamics of strongly interacting atomic Fermi gases ", 19-25 August 2016.

- 9) Invited Seminar at ICAP-2016, Seul (South Korea) in the HOT Topics Session, "Dynamics of strongly interacting atomic Fermi gases", 26 July 2016.
- 10) Invited Seminar at the ETH, Zurich, "Dynamics of strongly interacting atomic Fermi gases", 2nd May 2016.
- 11) Invited Colloquium at IFSC (Sao Carlos, Brazil), "Quantum simulation of strongly-correlated fermions with atomic Fermi gases", 8 April 2016.
- 12) Seminar at the International Workshop, "Frontier in Ultracold Fermi gases", Florence, 21-23 March 2016.
- 13) Seminar at SISSA, Trieste, "Dynamics of strongly interacting atomic Fermi gases", 2 March 2016.
- 14) Invited Colloquium at University of Milan, Italy, "Ultracold atoms as tunable interacting Fermi gases", 2 February 2016.
- 15) Invited Colloquium at IFUNAM, Mexico City (Mexico), "Quantum simulation of strongly-correlated fermions with atomic Fermi gases", 15 October 2015.
- 16) International Conference Quantum Technologies VI, FINESSE 2015, Finite-Temperature Non-Equilibrium Superfluid Systems 14-18 September 2015, Sopot, Poland, "Dynamics of superfluid ^6Li gases through a thin barrier".
- 17) International Conference Quantum Technologies VI, Manipulating photons, atoms and molecules, 21-27 June 2015, Warsaw, Poland, "Dynamics of superfluid ^6Li gases through a thin barrier".
- 18) Seminar at University of Trento (Italy), "Dynamics of superfluid(s) Fermi gases of ^6Li atoms through a thin barrier", 5 March 2015.
- 19) Seminar at University of Kaiserslautern (Germany), "Degenerate ^6Li atoms in Florence: current and future experiments", 12 February 2015.
- 20) Seminar at University of Paris 13, Institut Galile - LPL, "Degenerate ^6Li atoms in Florence: current and future experiments", 13 November 2014.
- 21) Seminar at University of Torun (Poland), "Degenerate ^6Li atoms in Florence: current and future experiments", 17 October 14.
- 22) Seminar at University of Warsaw (Poland), "Degenerate ^6Li atoms in Florence: current and future experiments", 16 October 14.
- 23) Seminar at IFSC/USP - São Carlos, University of São Paulo, "Lithium experiment at LENS", 9 December 2013.
- 24) Seminar at SIF conference, Trieste (23 - 27 September 2013), "Towards quantum simulation of two-dimensional fermionic systems"
- 25) Lectures at New trends in quantum matter with cold atoms and molecules, São Carlos, Brazil (4-14 April 2011), "Degenerate atoms in disordered potentials: an introduction"
- 26) Seminar at ICTP, Trieste (1 febbraio 2011), "A tunable Bose-Einstein condensate in disordered potentials"
- 27) Laser Physics, Foz de Iguazu, Brazil (7 July 2010), "A tunable Bose-Einstein condensate in disordered potentials"
- 28) Seminar at MIT (11 January 2010), "A tunable Bose-Einstein condensate in disordered potentials", invited by Prof. Zwierlein
- 29) International Congress PQE 2010, Snowbird, Utah, USA (3-7 January 2010), "A tunable Bose-Einstein condensate in disordered potentials"

- 30) Seminar for the Serie Especial de Seminarios no IFSC/USP - Curso de Pos-Graduação (16-27 November 2009), São Carlos, University of São Paulo, "Bose-Einstein condensates in quasi-periodic potentials", invited by Prof. Bagnato
- 31) Seminar at the University of Balearic Islands (Spain), October 2009, "Bose-Einstein condensate in quasi-periodic potentials: an experimental study", invited by Prof. Salvador Balle.
- 32) International Congress Anderson Localization in Nonlinear and Many-Body Systems, Dresden, Germany (16-20 March 2009), "Ultra-cold atoms in certain random optical lattices: Anderson localization and beyond"
- 33) Seminar at the University of São Carlos (invited by Prof. Bagnato), November 2008, "Anderson localization with an ideal Bose-Einstein Condensate"
- 34) Seminar at the University of Padova (invited by Prof. Toigo), May 2008, "³⁹K Bose-Einstein condensate with tunable interactions "
- 35) Seminar at the University of Milan (invited by Prof. Reatto), April 2008, "³⁹K Bose-Einstein condensate with tunable interactions "
- 36) International Congress Non Linear Phenomena in Degenerate Quantum Gases, Toledo, Spain (1-5 April 2008), "Experiments with a ideal BEC at LENS"
- 37) International School Atomic Quantum Fluids, Brasilia, Brazil (13-24 August 2007), "³⁹K BEC with tunable interactions"
- 38) International Congress Achievements and Perspectives of Cold Molecules Les Houches, France (6-10 March 2006), "Feshbach resonances in K-Rb mixtures"
- 39) Seminar at JILA (Boulder, Colorado, Usa), January 2006, invited by Prof. Eric Cornell, "Experiments on K-Rb quantum degenerate mixtures"
- 40) Seminar at University of Mines (Mines, Colorado, USA), January 2006, invited by Prof. Lincoln Carr, "K-Rb degenerate atomic mixtures"
- 41) International Conference Condensed Matter Physics: Strong Correlations in Ultra Cold Fermi Systems Aspen Center of Physics, Aspen (USA) (15-21 January 2006), "Feshbach resonances in K-Rb mixtures"
- 42) International School School on ultracold atoms and molecules, Sao Carlos, Brazil (3-7 October 2005): title of the lectures "Fermionic Systems"
- 43) International Congress "EPS13 Conference", Berna, Switzerland 11-15 July 2005, " Dynamics of Bose and Fermi gases in optical potentials"
- 44) International Congress International Workshop on Atomic clocks, Estec, Holland (8-10 June 2005), "Precision measurements with ultracold fermions and bosons"
- 45) International Congress QED 2005, Les Houches, France (5-9 June 2005), "Bloch oscillations with cold quantum gases: measurements of forces at short length scale"
- 46) SIF-2004: National Congress of Physics, Brescia (September 2004), "Atom interferometry with trapped Fermi gases"
- 47) Seminar at IMEDEA, University of Balearic Islands Palma de Mallorca, Spain 10 June 2004, "Dynamics of Bose and Fermi gases in optical potentials"
- 48) International Congress Quantum Fluids Symposium (QFS), Albuquerque, New Mexico (3-8 August 2003), "Transport of cold bosons and fermions in optical lattices"
- 49) International Congress The 5th Laser Cooling Workshop, Awaji Yumebutai, Japan, (7-9 January 2003), "Experiments on K-Rb quantum degenerate mixtures"

- 50) SIF-2002: National Congress of Physics, Alghero (September 2002), "Collisional properties of potassium and rubidium ultracold mixtures"
- 51) SIF-2001: National Congress of Physics, Milan (September 2001), "Bose-Einstein condensate of ^{41}K by sympathetic cooling"

- 1) A. Amico, F. Scazza, G. Valtolina, P.E.S. Tavares, W. Ketterle, M. Inguscio, G. Roati, and M. Zaccanti Phys. Rev. Lett. 121, 253602 (2018), *Time-Resolved Observation of Competing Attractive and Repulsive Short-Range Correlations in Strongly Interacting Fermi Gases* Impact factor 7.65
- 2) S. Rosi, A. Burchianti, S. Conclave, D. S. Naik, G. Roati, C. Fort and F. Minardi, Sci Rep. 8, 1301 (2018), *Lambda-enhanced grey molasses on the D2 transition of Rubidium-87 atoms* Impact factor 4.26
- 3) A. Burchianti, F. Scazza, A. Amico, G. Valtolina, J.A. Seman, C. Fort, M. Zaccanti, M. Inguscio, and G. Roati, Phys. Rev. Lett. 120, 025302 (2018), *Connecting Dissipation and Phase Slips in a Josephson Junction between Fermionic Superfluids* Impact factor 7.65
- 4) G. Valtolina, F. Scazza, A. Amico, A. Burchianti, A. Recati, T. Enss, M. Inguscio, M. Zaccanti and G. Roati, Nature Physics 13, 704709 (2017), *Exploring the ferromagnetic behaviour of a repulsive Fermi gas through spin dynamics* Impact factor 18.8
- 5) F. Scazza, G. Valtolina, P. Massignan, A. Recati, A. Amico, A. Burchianti, C. Fort, M. Inguscio, M. Zaccanti, and G. Roati, Phys. Rev. Lett. 118, 083602, (2017), *Repulsive Fermi polarons in a resonant mixture of ultracold ^6Li atoms* Impact factor 7.65
- 6) G. Valtolina, A. Burchianti, A. Amico, E. Neri, K. Khani, J. A. Seman, A. Trombettoni, A. Smerzi, M. Zaccanti, M. Inguscio, and G. Roati, Science, 350, 1505, (2015), *Josephson effect in fermionic superfluids across the BEC-BCS crossover* Impact factor 34.6
- 7) F. J. Poveda-Cuevas, P. C. M. Castilho, E. D. Mercado-Gutierrez, A. R. Fritsch, S. R. Muniz, E. Lucioni, G. Roati, and V. S. Bagnato, Phys. Rev. A 92, 013638 (2015) *Isothermal compressibility determination across Bose-Einstein condensation* Impact factor 2.76
- 8) R. F. Shiozaki, G. D. Telles, P. Castilho, F. J. Poveda-Cuevas, S. R. Muniz, G. Roati, V. Romero-Rochin, and V. S. Bagnato Phys. Rev. A 90, 043640 (2014), *Measuring the heat capacity in a Bose-Einstein condensation using global variables* Impact factor 2.76
- 9) A. Burchianti, G. Valtolina, J. A. Seman, E. Pace, M. De Pas, M. Inguscio, M. Zaccanti, and G. Roati, Phys. Rev. A 90, 043408 (2014), *Efficient all-optical production of large 6Li quantum gases using D1 gray-molasses cooling* Impact factor 2.76
- 10) D. Conti-Sampol, F. Marino, G. Roati, A. Orfila, J. Javaloyes, O. Piro, and S. Balle, Journal of Applied Physics 116, 033102 (2014), *Shielding of optical pulses on hydrodynamical time scales in laser-induced breakdown of saline water* Impact factor 2.18
- 11) M. Landini, S. Roy, G. Roati, A. Simoni, M. Inguscio, G. Modugno, and M. Fattori, Phys. Rev. A 86, 033421, (2012), *Direct evaporative cooling of 39K atoms to Bose-Einstein condensation* Impact factor 2.76
- 12) V. Romero-Rochin, R. F. Shiozaki, M. Caracanhas, E. A. L. Henn, K. M. F. Magalhaes, G. Roati, and V. S. Bagnato, Phys. Rev. A 85, 023632 (2012), *Observation of Bose-Einstein condensation in an atomic trap in terms of macroscopic thermodynamic parameters* Impact factor 2.76
- 13) M. Caracanhas et al., J Low Temp Phys (2012) 166:4958, *Self-similar Expansion of the Density Profile in a Turbulent Bose-Einstein Condensate* Impact factor 0.79
- 14) J.A. Seman, E.A.L. Henn, R.F. Shiozaki, G. Roati, F.J. Poveda-Cuevas, K.M.F. Magalhaes, V.I. Yukalov, M. Tsubota, M. Kobayashi, K. Kasamatsu, and V.S. Bagnato, Laser Physics Letters, vol. 8, No. 9, 2011, *Route to turbulence in a trapped Bose-Einstein condensate* Impact factor 2.39
- 15) E. Lucioni, B. Deissler, L. Tanzi, G. Roati, M. Zaccanti, M. Modugno, M. Larcher, F. Dalfovo, M. Inguscio, and G. Modugno, Phys. Rev. Lett. 106, 230403 (2011), *Observation of Subdiffusion in a Disordered Interacting System* Impact factor 7.65

- 16) A. Sommer, M. Ku, G. Roati, M. W. Zwierlein, *Nature* 472, 201-204 (2011), *Universal Spin Transport in a Strongly Interacting Fermi Gas* Impact factor 38.14
- 17) B. Deissler, E. Lucioni, M. Modugno, G. Roati, L. Tanzi, M. Zaccanti, M. Inguscio, G. Modugno, *New J. Phys.* 13, 023020, (2011), *Correlation function of weakly interacting bosons in a disordered lattice* Impact factor 3.57
- 18) J. A. Seman, E. A. L. Henn, M. Haque, R. F. Shiozaki, E. R. F. Ramos, M. Caracanhas, P. Castilho, C. Castelo Branco, P. E. S. Tavares, F. J. Poveda-Cuevas, G. Roati, K. M. F. Magalhães, and V. S. Bagnato *Phys. Rev. A* 82, 033616 (2010), *Three-vortex configurations in trapped Bose-Einstein condensates* Impact factor 2.76
- 19) B. Deissler, M. Zaccanti, G. Roati, C. D'Errico, M. Fattori, M. Modugno, G. Modugno, M. Inguscio, *Nature Physics* 6, 354-358 (11 April 2010) doi:10.1038/nphys1635 Letter, *Delocalization of a disordered bosonic system by repulsive interactions* Impact factor 18.8
- 20) E.A.L. Henn, J.A. Seman, G. Roati, K.M.F. Magalhães, and V.S. Bagnato, *J. Low Temp Phys* DOI 10.1007/s10909-009-0045-2 (2009), *Generation of Vortices and Observation of Quantum Turbulence in an Oscillating Bose-Einstein Condensate* Impact factor 0.79
- 21) G. Roati, B. Deissler, C. D'Errico, L. Fallani, M. Fattori, C. Fort, M. Jona-Lasinio, M. Zaccanti, M. Modugno, G. Modugno, M. Inguscio, *Physica E* (2009), doi:10.1016/j.physe.2009.06.041 *An ideal Bose-Einstein condensate: From Anderson localization to precision measurements* Impact factor 0.8
- 22) E. A. Henn, J. A. Seman, G. Roati, K. M. Magalhães, and V. S. Bagnato, *Phys. Rev. Lett.* 103, 045301 (2009) *Emergence of Turbulence in an Oscillating Bose-Einstein Condensate* Impact factor 7.65
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