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at 21.06.2021

PERSONAL DATA

- Born 1/11/1974 in Milan (Italy).

EDUCATION

- [2000-2003] PhD in Physics, University of Trento ("cum laude"), 27/02/2003, *Quantum degenerate K-Rb mixtures* (Supervisor: Prof. M. Inguscio)
- [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).

PRESENT POSITION

- since 1/08/2018: **Director of Research at CNR-INO** (*Dirigente di Ricerca*)

PRESENT APPOINTMENTS

- since 2019: visiting research fellow at Yale University, USA (Prof. N. Navon).
- since 2018: visiting research fellow at Universidad Nacional Autonoma de Mexico UNAM, Mexico City, Mexico (Prof. J Seman).
- since 2010: LENS (European Laboratory for Non-Linear Spectroscopy) fellow.
- since 2005: visiting research fellow at USP, University of São Carlos, São Paulo, Brazil (Prof. V. Bagnato).

PREVIOUS POSITIONS AND APPOINTMENTS

- 8/11/2010 - 30/07/2018: Permanent Researcher at CNR-INO (*Primo Ricercatore*)
- 1/02/2010 - 7/11/2010: Permanent Researcher at CNR-INO (*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.
- February-June 2010: visiting research fellow at MIT, USA (Prof. M. Zwierlein).
- September 2009: visiting research fellow at UIB (Universitat de les Illes Balears), Palma de Mallorca, Mallorca Spain (Prof. S. Balle).
- January-March 2006: visiting research fellow at JILA, Boulder, USA (Prof. E. Cornell).

AWARDS

- since 2014: Abilitazione Scientifica Nazionale for Associate and Full Professor positions (FIS/03, Fisica della Materia, Condensed Matter Physics)
- [2012-2017]: European Research Council project ERC-Consolidator grant QuFerm2D, Quantum Simulation of Two-Dimensional Fermionic Systems.
- [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

PERSONAL MOTIVATIONS

My experimental research is in the field of degenerate quantum matter made of ultracold atoms. In particular, my activity focuses on the study of quantum transport phenomena. I have characterized the Anderson localization transition with ideal Bose-Einstein condensates, quantum spin transport in degenerate Fermi gases, and more recently the Josephson effects with superfluid strongly-correlated fermions. I am combining well-established techniques with new and advanced optical protocols for the manipulation and the diagnostic of ultracold samples with high-spatial resolution. They are based on the innovative combination of a microscope objective and dynamical optical masks. My group is the pioneer in Italy and among the most competitive in the world scenario. This research line constitutes one of the main activities of CNR-INO, and it links together many of the fundamental expertise of our Institute also in connection with the European Quantum Technology Flagship that has been recently launched by the European Community.

SCIENTIFIC INTERESTS

- Ultracold Quantum Gases: Atomic Fermi Gases and Bose-Einstein condensates
- Superfluidity and Superconductivity
- Strongly-Correlated Quantum Many-body Systems

PUBLICATIONS AND BIBLIOMETRIC H-INDEX

I am co-author of more than 60 publications on peer-reviewed journals (excluding the conference proceedings), among those, 19 Phys. Rev. Lett., 4 Science, 2 Nature and 3 Nature Physics.

- ISI WoS: **h-index 34**, number of citations 5600 w/o self citations at 21/06/2021 (Average citations per item 77.08)
- Google Scholar: **h-index 43**, number of citations 9600 at 21/06/2021

TEACHING ACTIVITY

- [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
- [2010-2015] Lecturer at the PhD course in Physics at LENS, University of Florence

- [July 2017] Lecturer at the Latin American School of Physics Marcos Moshinsky (ELAF17), Mexico City, Mexico
- [September 2019] Lecturer at the AtomQT Training School, Barcelona, Spain
- [June 2020] Lecturer at the Scuola Superiore di Catania in the Course "Fasi quantistiche in sistemi di atomi ultrafreddi"

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
- [2020-]: Master Thesis of Alessandro Muzi Falconi, University of Milan
- [2021-]: Master Thesis of Marco Fedrizzi, University of Milan
- [2018- 2021]: PhD Thesis of G. Del Pace, University of Florence
- [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
- [2016-2018]: Co-tutor of the Marie Skodowska-Curie grant ScoutFermi 2D (Dr. F. Scazza)
- [2019-2021]: Tutor of the Marie Skodowska-Curie grant VORDIST (Dr. W. Kwon)

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
- 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).

RESEARCH PROJECTS MANAGEMENT

- Principal Investigator of the PRIN 2017 CEnTraL (2019-2022), Engineering coherent transport of atoms and electrons in layered structures
- Co-Investigator in the European Flagship project Qombs (2018-2021), Quantum simulation and entanglement engineering in quantum cascade laser frequency combs.
- 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: *Quantum Simulation in Condensed Matter and AMO Physics*, expected June 2020, postponed to August 2021 due to COVID-19 pandemic.
- 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 experimental research activity partner of the Quantum Gases group at LENS. In particular, I am the CNR-INO Director of Research who links the cold atoms experiments to the CNR-INO *Ultracold Matter* research line.

My team focuses on the study of strongly-correlated Hamiltonians exploiting ultracold Fermi gases. Ultracold Fermi gases are considered powerful quantum simulators of quantum many-body problems. We are investigating Quantum Transport phenomena using degenerate atomic Fermi gases. In particular, my team is pioneering the manipulation of ultracold matter through the combination of high-resolution microscope objective and dynamical masks (DMD, digital micro-mirror devices). We tackle important open problems of condensed matter using the unique degree of controllability and the new observation tools that only ultracold atoms can offer.

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. I want to mention the close collaboration with Augusto Smerzi (CNR-INO Florence) and Andrea Trombettoni (SISSA, Trieste), Alessio Recati (CNR-INO Trento) and Tilman Enss (University of Heidelberg, Germany), Nick Proukakis (University of Newcastle, UK), Wilhelm Zwerger (Technische Universität München, Germany), the Nobel Laureate Wolfgang Ketterle (MIT, USA), worldwide experts on the physics of strongly correlated fermionic systems.

In parallel to my research activity at CNR-INO and 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, achieving the first Bose-Einstein condensate of Latin America. We have carried out the first observations of quantum turbulence phenomena in atomic Bose-Einstein condensates, which is considered a milestone in our field. I am also involved in the scientific activity of the group led by Prof. Jorge Seman at the UNAM University in Mexico City. We have recently completed the realization of the experimental apparatus, observing the first superfluid Fermi gas of Latin America.

More recently, I have started a longterm and strategic scientific collaboration with Prof. N. Navon at Yale University, USA. This collaboration regards the study of the out-of-equilibrium dynamics of

homogeneous strongly-correlated Fermi systems close to a Feshbach resonance and it aim at defining common projects between our institutions.

MOST RECENT SCIENTIFIC OUTCOMES (LAST FIVE YEARS):

- (1) Sound emission and annihilations in a programmable quantum vortex collider, arXiv:2105.15180 (2021), submitted to Nature
- (2) Tunneling transport of unitary fermions across the superfluid transition, Phys. Rev. Lett. 126, 055301 (2021)
- (3) Dynamical Phase Diagram of Ultracold Josephson Junctions, New J. Phys. 22 123006 (2020)
- (4) Strongly correlated superfluid order parameters from dc Josephson supercurrents, Science 369, 84 (2020)
- (5) Critical Transport and Vortex Dynamics in a Thin Atomic Josephson Junction, Phys. Rev. Lett. 124, 045301 (2020)
- (6) Exploring emergent heterogeneous phases in strongly repulsive Fermi gases, Phys. Rev. A 101, 013603 (2020)
- (7) Time-resolved observation of competing attractive and repulsive short-range correlations in strongly interacting Fermi gases, Phys. Rev. Lett. 121, 253602 (2018), Editor's Suggestion and PRL Viewpoint
- (8) Coherent and dissipative dynamics in an atomic Josephson junction across the BEC-BCS crossover, Phys. Rev. Lett. 120, 025302 (2018)
- (9) Observation of repulsive Fermi polarons in lithium Fermi gases, Phys. Rev. Lett. 118, 083602 (2017), Editor's Suggestion
- (10) Observation of ferromagnetic instability in a repulsive Fermi gas, Nature Physics 13, 704709 (2017)
- (11) Observation of the Josephson effect across the BEC-BCS crossover, Science 350, 1505, (2015)

PREVIOUS SCIENTIFIC OUTCOMES:

I have produced important results that still today have a large impact on the international ultracold atoms community. Here are listed some of the main achieved results:

- (1) 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).
- (2) 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).
- (3) 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).
- (4) 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. Phys. Rev. Lett. 100, 080405 (2008).

- (5) 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).
- (6) First observation of Efimov physics in a gas of potassium atoms, *Nat. Phys.* 5, 586-591 (2009)
- (7) First observations of quantum turbulence phenomena in atomic Bose-Einstein condensates (at the University of Sao Paulo), *Phys. Rev. Lett.* 103, 045301 (2009).
- (8) 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

I have been invited to more than 60 International Conferences. I list here 10 recent selected talks:

- 1) Atomtronics@AbuDhabi2021 (Emitares), 31 May - 4 June, 7 - 11 June 2021
- 2) ICAP-2020, Toronto (Canada), postponed to 2022 due to COVID-19 pandemic
- 3) Yale, Department of Physics (USA), May 2019
- 4) Advances in Quantum Simulation With Ultracold Atoms, Natal (Brazil), November 2018
- 5) ITAMP Harvard Workshop (USA), October 2018
- 6) QTCA Conference, Ascona (Switzerland), July 2018
- 7) BEC2017, Sant Feliu de Guixols (Spain), September 2017
- 8) CUA Seminar, MIT (USA), March 2017
- 9) College de France, Paris (France), October 2016
- 10) ICAP-2016, Seul (South Korea) in the HOT Topics Session, July 2016
- 11) ETH, Zurich, May 2016

10 SELECTED PUBLICATIONS ON PEER-REVIEWED JOURNALS

- 1) 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 supercurrents*
- 2) 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*
- 3) 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*
- 4) 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*, Editor's Suggestion
- 5) 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*
- 6) A. Sommer, M. Ku, G. Roati, M. W. Zwierlein, *Nature* 472, 201-204 (2011), *Universal Spin Transport in a Strongly Interacting Fermi Gas*

- 7) 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*
- 8) G. Roati, C. D'Errico, L. Fallani, M. Fattori, C. Fort, M. Zaccanti, G. Modugno, M. Modugno, and M. Inguscio, Nature 453, 895 (2008), *Anderson localization of a non-interacting Bose-Einstein condensate*
- 9) G. Roati, F. Riboli, G. Modugno, M. Inguscio, Phys. Rev. Lett. 89, 150403 (2002), *Fermi-Bose quantum degenerate ^{40}K - ^{87}Rb mixture with attractive interaction*
- 10) G. Modugno, G. Ferrari, G. Roati, R. J. Brecha, A. Simoni, M. Inguscio, Science 294, 1320 (2001), published online in Science Express 18 October 2001, 10.1126/science.1066687 *Bose-Einstein condensation of potassium atoms by sympathetic cooling*

Giuliano Roati

- 1) 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*
- 2) W. J. Kwon, G. Del Pace, R. Panza, M. Inguscio, W. Zwerger, M. Zaccanti, F. Scazza, G. Roati, Science 369, 84 (2020), *Strongly correlated superfluid order parameters from dc Josephson supercurrents*
- 3) K. Khani, L. Galantucci, C. F. Barenghi, G. Roati, A. Trombettoni and N. P. Proukakis, New J. Phys. 22 123006 (2020), *Dynamical phase diagram of ultracold Josephson junctions*
- 4) D. Hernandez-Rajkov, J. E. Padilla-Castillo, M. Mendoza-Lopez, R. Colin-Rodriguez, A. Gutierrez-Valdes, S. A. Morales-Ramirez, R. A. Gutierrez-Arenas, C. A. Gardea-Flores, G. Roati, R. Jauregui-Renaud, F. J. Poveda-Cuevas, and J. A. Seman, Revista Mexicana de Fisica 66, 388 (2020), *Experimental setup for the production of ultracold strongly correlated fermionic superfluids of ^6Li*
- 5) K. Khani, E. Neri, L. Galantucci, F. Scazza, A. Burchianti, K. -L. Lee, C. F. Barenghi, A. Trombettoni, M. Inguscio, M. Zaccanti, G. Roati, N. P. Proukakis, Phys. Rev. Lett. 124, 045301 (2020), *Critical transport and vortex dynamics in a thin atomic Josephson junction*
- 6) F. Scazza, G. Valtolina, A. Amico, P. E. S. Tavares, M. Inguscio, W. Ketterle, G. Roati, and M. Zaccanti, Phys. Rev. A 101, 013603 (2020), *Exploring emergent heterogeneous phases in strongly repulsive Fermi gases*
- 7) P. C. M. Castilho, E. Pedrozo-Penafiel, E. M. Gutierrez, G. Roati, K. M. Farias e V. S. Bagnato, Laser Physics Letters 16, 03551 (2019) *A compact experimental machine for studying tunable Bose-Bose superfluid mixtures*
- 8) 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*, Editor's Suggestion and PRL Viewpoint
- 9) 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*
- 10) 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*
- 11) 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*
- 12) 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*, Editor's Suggestion
- 13) 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*
- 14) 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*
- 15) 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*
- 16) 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*

- 17) 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*
- 18) 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*
- 19) 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*
- 20) M. Caracanhas et al., *J Low Temp Phys* (2012) 166:4958, *Self-similar Expansion of the Density Profile in a Turbulent Bose-Einstein Condensate*
- 21) 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*
- 22) 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*
- 23) A. Sommer, M. Ku, G. Roati, M. W. Zwierlein, *Nature* 472, 201-204 (2011), *Universal Spin Transport in a Strongly Interacting Fermi Gas*
- 24) 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*
- 25) 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. Magalhaes, and V. S. Bagnato *Phys. Rev. A* 82, 033616 (2010), *Three-vortex configurations in trapped Bose-Einstein condensates*
- 26) 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*
- 27) E.A.L. Henn, J.A. Seman, G. Roati, K.M.F. Magalhaes, 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*
- 28) 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*
- 29) E. A. Henn, J. A. Seman, G. Roati, K. M. Magalhaes, and V. S. Bagnato, *Phys. Rev. Lett.* 103, 045301 (2009) *Emergence of Turbulence in an Oscillating Bose-Einstein Condensate*
- 30) M. Zaccanti, B. Deissler, C. D'Errico, M. Fattori, M. Jona-Lasinio, S. Muller, G. Roati, M. Inguscio, G. Modugno, *Nature Physics* 5, 586-591 (13 July 2009) doi:10.1038/nphys1334 Article *Observation of an Efimov spectrum in an atomic system*
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