

Curriculum Vitae

Augusto Smerzi

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1990, July 16: Laurea in Fisica (first university degree)
 vote: 110/110
 Title of the research thesis:
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 Supervisors: Prof. M. Di Toro
 and Dr. A. Bonasera

1992-93: civil service (12 months)

1994, October 21: "Dottorato di Ricerca" (Ph.D.),
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 Title of the research thesis:
 "Classical and Quantum Dynamics
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 Supervisors: Prof. M. Di Toro
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November 1993-February 1994: Contract with the Department of Physics
 Catania, Italy

July 1994-June 1996: INFN Post-Doctoral fellowship spent at the
 University of Urbana-Champaign, USA;
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July 1996-June 1998: INFN Post-Doctoral fellowship
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August-November, 1998: Contract with the “Laboratorio interdisciplinare”
SISSA, Trieste, Italy

November 1998-October 2002: MIUR contract
SISSA, Trieste, Italy

April 2001 - December 2003: Consultant agreement
LANL, Los Alamos National Laboratory, USA

February 2004, June 2006: Long Term Visitor Staff Member (LTVSM)
LANL, Los Alamos National Laboratory, USA

2002-2005 Tenure Track
INFN, BEC-center, Trento, Italy

2005-2007: Senior Researcher
INFN, BEC-center, Trento, Italy

2007: Director of Research, INO-CNR, Firenze, Italy
QSTAR, Research Coordinator
<http://www.cqstar.eu/index.html>

PUBLICATIONS

Books and Book Chapters

- 5) Book chapter: A. Smerzi, “Quantum Interferometry”, Proceedings of the International School of Physics E. Fermi, Course on “Atom Interferometry”, Edited by G. Tino and M. Kasevich, in press.
- 4) Book: A. Smerzi, “Quantum interferometry at the Heisenberg limit”, Springer-Verlag, Series: “Springer Tracts in Modern Physics”, in preparation.
- 3) Book chapter: “Superfluidity of a Bose-Einstein condensate in a Torus”, F. Piazza, L.A. Collins and A. Smerzi, “Quantum Fluids: hot-topics and new trends”, edited by A. Bramati and M. Modugno, Springer-Verlag book (to be published)
- 2) Book chapter: ”Optical Lattices: Theory”, A. Smerzi and A. Trombettoni, ”Emergent Nonlinear Phenomena in Bose-Einstein Condensates: Theory and Experiment,” edited by P. G. Kevrekidis, D. J. Frantzeskakis, and R. Carretero-Gonzalez, Springer Series on Atomic, Optical, and Plasma Physics (2007) - pages 247-265
- 1) Book chapter: A. Smerzi, “Bose-Einstein Condensates and Atom Lasers”, pg. 249 (2000) Kluwer Academic/Plenum Publishers, New York, Ed.s S. Martellucci, A.N. Chester, A. Aspect and M. Inguscio

Journal Articles

- 101) H. Strobel, W. Muessel, D. Linnemann, T. Zibold, D. B. Hume, L. Pezz, A. Smerzi, M. K. Oberthaler, “Fisher information and entanglement of non-Gaussian spin states”, Science 25, 424 (2014)
- 100) W. Li, T. He, and A. Smerzi, “Multimode Kapitza-Dirac Interferometry with Trapped Cold Atoms”, Phys. Rev. Lett. 113, 023003 (2014)
- 99) F. Schafer, I. Herrera, S. Cherukattil, C. Lovecchio, F.S. Cataliotti, F. Caruso and A. Smerzi, “Experimental realization of quantum zeno dynamics”, Nature Communications 5, 3194 (2014)
- 98) P. Buonsante, L. Orefice and A. Smerzi, “Dynamic phase diagram for the quantum phase model”, Phys. Rev. A 87, 063620 (2013)
- 97) F. Piazza, L.A. Collins and A. Smerzi, “Critical velocity for a toroidal Bose-Einstein condensate flowing through a barrier”, Jour. of Phys. B 46, 095302 (2013)

- 96) L. Pezze, Luca and A. Smerzi, “Ultrasensitive Two-Mode Interferometry with Single-Mode Number Squeezing”, *Phys. Rev. Lett.* 110, 163604 (2013)
- 95) J. Chwedenczuk, F. Piazza and A. Smerzi, “Multipath interferometer with ultracold atoms trapped in an optical lattice”, *Phys. Rev. A* 87, 033607 (2013)
- 94) F. Logiurato and A. Smerzi, ”Born Rule and Noncontextual Probability” *Jour. of Mod. Phys.* 3, 1802 (2012)
- 93) Jan Chwedenczuk, Philipp Hyllus, Francesco Piazza and Augusto Smerzi, “Sub shot-noise interferometry from measurements of the one-body density”, *NJP* 14, 093001 (2012)
- 92) A. Smerzi, “Zeno Dynamics and Distinguishability of Quantum States”, *Phys. Rev. Lett.* 109, 150410 (2012)
- 91) P. Hyllus, L. Pezzè, A. Smerzi, G. Toth, “Entanglement and extreme spin squeezing for a fluctuating number of indistinguishable particles” *Phys. Rev. A* 86, 012337 (2012)
- 90) P. Hyllus, W. Laskowski, R. Krischek, C. Schwemmer, W. Wieczorek, W. Witlef H. Weinfurter, L. Pezzè, A. Smerzi, “Fisher information and multiparticle entanglement” *Phys. Rev. A* 85, 022321 (2012)
- 89) J. Nehr Korn, S. Montangero, A. Ekert, A. Smerzi, R. Fazio and T. Calarco “Staying adiabatic with unknown energy gap”, arXiv:1105.1707
- 88) B. Lucke, M. Scherer, J. Kruse, L. Pezzè, F. Deuretzbacher, P. Hyllus, O. Topic, J. Peise, W. Ertmer, J. Arlt, L. Santos, A. Smerzi, C. Klempt “Twin Matter Waves for Interferometry Beyond the Classical Limit” *SCIENCE* 334, 773 (2011)
- 87) Julian Grond, Ulrich Hohenester, Jrg Schmiedmayer and Augusto Smerzi, “Mach-Zehnder interferometry with interacting trapped Bose-Einstein condensates”, *Phys. Rev. A* 84, 023619 (2011)
- 86) Roland Krischek, Christian Schwemmer, Witlef Wieczorek, Harald Weinfurter, Philipp Hyllus, Luca Pezz and Augusto Smerzi, “Useful Multiparticle Entanglement and Sub-Shot-Noise Sensitivity in Experimental Phase Estimation”, *Phys. Rev. Lett.* 107, 080504 (2011)
- 85) J. Chwedenczuk, F. Piazza and A. Smerzi, “Phase estimation from atom position measurements”, *NJP* 378721 (2011)
- 84) F. Piazza, L.A. Collins and A. Smerzi, “Instability and vortex ring dynamics in a three-dimensional superfluid flow through a constriction”, *NJP* 13, 043008 (2011)

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- 82) P. Hyllus, L. Pezzé and A. Smerzi, ”Entanglement and sensitivity in precision measurements with states of a fluctuating number of particles”, *Phys. Rev. Lett.* 105,120501 (2010)
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- 76) L. Pezzé and A. Smerzi, “Entanglement, Non-linear Dynamics and Heisenberg Limit”, *Phys. Rev. Lett.* 102, 100401 (2009)
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- 14) A.Bonasera, M.Colonna, M.DiToro, F.Gulminelli and A.Smerzi "Equilibrium and Non Equilibrium Fluctuations of the One-Body Distribution Function" Nucl.Phys. A572 (1994) 171
- 13) T. Suomijarvi, J.H. Le Faou, Y. Blumenfeld, P. Piattelli, C. Agodi, N. Alamanos, R. Alba, F. Auger, G. Bellia, Ph. Chomaz, R. Coniglione, A. Del Zoppo, P. Finocchiaro, N. Frascaria, J.J. Gaardhoje, J.P. Garron, A. Gillibert, M. Lamehi-Rachti, R. Liguori-Neto, C. Maiolino, E. Migneco, G. Russo, J.C. Roynette, D. Santonocito, P. Sapienza, J.A. Scarpaci and A. Smerzi "The giant dipole resonance built on highly excited states - results of the MEDEA experiment", Nucl. Phys. A569 (1994) 225c
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- 10) J.H. Le Faou, T. Suomijarvi, Y. Blumenfeld, P. Piattelli, C. Agodi, N. Alamanos, R. Alba, F. Auger, G. Bellia, Ph. Chomaz, R. Coniglione, A. Del Zoppo, P. Finocchiaro, N. Frascaria, J.J. Gaardhoje, J.P. Garron, A. Gillibert, M. Lamehi-Rachti, R. Liguori-Neto, C. Maiolino, E. Migneco, G. Russo, J.C. Roynette, D. Santonocito, P. Sapienza, J.A. Scarpaci and A. Smerzi "Towards Limiting Temperatures in Nuclei: The Behavior of Collective Motion" Phys. Rev. Lett. 72 (1994) 3321

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- 8) A.Bonasera, M.Di Toro, A.Smerzi and D.M.Brink “Pre-Equilibrium and Temperature Effects on the Disappearing of Giant Dipole Resonances on Higly Excited Nuclei” *Nucl.Phys.* A569 (1994) 215c
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- 6) A.Smerzi, M.Di Toro and D.M.Brink “Quenching of photon decay in hot giant dipole resonances”, *Phys.Lett.B* 320 (1994) 216
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- 4) A.Bonasera, V.N.Kondratyev, A.Smerzi and A.Remler “Nuclear Dynamics in the Wigner Representation” *Phys. Rev. Lett.* 71 (1993) 505
- 3) M.Colonna, M.Di Toro, A.Guarnera, V.Latora and A.Smerzi “Searching for instabilities in nuclear dynamics” *Phys.Lett.B* 307 (1993) 273
- 2) Ph.Chomaz, M.DiToro and A.Smerzi, “Pre-equilibrium effects on properties of hot Giant Dipole Resonances”, *Nucl.Phys.* A563 (1993) 509
- 1) A.Smerzi, A.Bonasera and M.Di Toro, “Damping of giant resonances in hot nuclei”, *Phys.Rev.* C44 (1991) 1713

Highlights

-) h-index: 30
-) Sum of times cited: 4846 (4603 without self-citations).
-) More than 2651 citations for the top 5 papers
-) More than 100 publications in international journals. 3 SCIENCE, 24 Phys. Rev. Lett.
- 7) Highlight in Journal of Physics B: Atomic, Molecular & Optical Physics for the paper J. Phys. B: At. Mol. Opt. Phys. 46, 095302 (2013)
- 6) News Coverages of the papers B. Lucke et al., “Twin Matter Waves for Interferometry Beyond the Classical Limit” SCIENCE 334, 773 (2011)
German: <http://www.pro-physik.de>; <http://www.chemie.de>;
<http://www.hannover.de>
English: <http://www.research.in.germany.de>; <http://saypeople.com/>
Danish: <http://ing.dk>; <http://stiften.dk/aarhus>
Italian: http://www.galileonet.it/blog_posts/4e996f9472b7ab3b2b0001c3
Spanish: <http://www.europapress.es>; [medidas entrelazando atomos 20111014105938.html](http://medidas.entrelazando.atomos.20111014105938.html); <http://teknopolis.elhuyar.org>; <http://www.ehu.es>
Bask: <http://www.ehu.es>
- 5) The paper PRL99, 223602 (2007) has been highlighted in: “Editor’s choice”, SCIENCE 318, 1699 (2007)
- 4) The paper PRA78, 051601 (2008) has been highlighted in “Research Highlights”, Nature Physics 4, 903 (2008)
- 3) Included in: “Top 20 authors”, Cites per paper in BEC, Essential Science Indicators,
<http://esi-topics.com/bose/authors/b1c.html>
- 2) Included in: “Top 20 papers in Superfluids”, Essential Science Indicators,
<http://www.esi-topics.com/superfluids/papers/a1.html>
- 1) The paper Science 293, 843 (2001) has been highlighted in: “Science Express Reports” and in “Physicsworld.com” (IoP), <http://physicsworld.com/cws/article/news/2001/aug/02/condensates-create-josephson-arrays>

Awards

- 5) Short Term Visiting Professor. International Institute of Physics- UFRN Natal/RN- Brazil, November 15-December 15, 2013
- 4) “Hundred people project”, of the Shanxi province for Distinguished Visiting Professors, 1-8-2012/30-7-2015
- 3) Short Term Visiting Professor. International Institute of Physics- UFRN Natal/RN- Brazil, August 11-September 10, 2012
- 2) Long Term Visitor Staff Member (LTVSM), LANL, Los Alamos National Laboratory, USA, February 2004, June 2006
- 1) Consultant agreement at the LANL, Los Alamos National Laboratory, USA, April 2001 - December 2003

Proceedings Contributions and News Publications

- 30) F.S. Cataliotti, A. Smerzi, M. Inguscio, Quantum Science and Technology in Arcetri, Il Colle di Galileo, Vol. 2, n. 1, 2013.
- 29) J. Dziarmaga, A. Smerzi, W.H. Zurek and A.R. Bishop, “Mott Insulator-Superfluid Transition in a lattice of Bose-Einstein condensates”, NATO ASI, Krakow, Poland (2002)
- 28) V.Baran, M.Colonna, M.DiToro, A.Guarnera, T.I.Mikhailova and A.Smerzi “Pre-equilibrium Giant Resonances in Fusion Reactions” Proc. ”Collective Motion and Nuclear Dynamics”, Predeal International Summer School, Predeal 1995, Ed.s A.A.Raduta, D.S.Delion, I.I.Ursu, World Scientific.
- 27) V.N.Kondratyev, A.Smerzi and A.Bonasera “Quantal Effects in Nuclear Dynamics” XXXII Winter Meeting on Nuclear Physics, Bormio 1994 Ed.I.Iori
- 26) A.Smerzi, V.Kondratiev and A.Bonasera “Quantum Dynamics in Phase Space”, NATO ASI series, “Hot and dense nuclear matter” Edited by W.Greiner et al., Plenum Press, New York, 1994

- 25) M.Colonna, M.Di Toro, A.Guarnera, V.Latora, A.Smerzi and Zhong Jiquan “Deep inelastic collisions at medium energies: the rise and fall of neck instabilities” XXXII Winter Meeting on Nuclear Physics, Bormio 1994 Ed.I.Iori, R.S.E.P. Milano 1994, p.232-242
- 24) Y. Blumenfeld, J.H. Le Faou, T. Suomijarvi, P. Piattelli, C. Agodi, N. Alamanos, R. Alba, F. Auger, G. Bellia, Ph. Chomaz, R. Coniglione, A. Del Zoppo, P. Finocchiaro, N. Frascaria, J.J. Gaardhoje, J.P. Garron, A. Gillibert, M. Lamehi-Rachti, R. Liguori-Neto, C. Maiolino, E. Migneco, G. Russo, J.C. Roynette, D. Santonocito, P. Sapienza, J.A. Scarpaci and A. Smerzi “Collective motion in very hot nuclei: study of the giant dipole resonance” Proceedings of the XXXII International Winter Meeting on Nuclear Physics Bormio(Italy) 24 - 28 Jan.1994 pg. 267
- 23) M.Colonna, M.DiToro, A.Guarnera, V.Latora, A.Smerzi and D.M.Brink “Instability in nuclear dynamics: loss of collectivity and multifragmentation” Megeve 1993, Ed.D.Guinet, World Sci. 1994 , p. 108-121
- 22) V.Baran, M.Colonna, M.DiToro, A.Guarnera, A.Smerzi and Zhong Jiquan “Pre-equilibrium Giant Dipole Resonances: a probe of the reaction mechanism”, IV Int.Conf. on Selected Topics in Nuclear Structure, Dubna, July 1994, Ed.V.G.Soloviev, pp. 389-399
- 21) A.Bonasera, F.Gulminelli, M.Colonna, M.DiToro, A.Smerzi and P.Schuck “Small amplitude fluctuations in the Boltzmann-Nordeihm-Vlasov Equation” Second European Biennial Workshop on Nuclear Physics, Megeve 1993, Ed. D.Guinet, World Sci. 1994 , pp. 57-70
- 20) M.Colonna, M.Di Toro, A.Guarnera, V.Latora and A.Smerzi “Dynamics and instabilities in nuclear fragmentation” Selected contribution, Int.Work. on ”Dynamical features of nuclei and finite Fermi systems”, Sitges 1993, Ed.s X.Vinas et al. World Sci. 1994, p.96-103
- 19) Cai Yanhuang, M.Di Toro, M.Papa, A.Smerzi and Zhong Jiquan “Nuclear Giant Resonances: a never ending story” Int. Work. on ”Dynamical features of nuclei and finite Fermi system”, Sitges 1993, Ed.s X.Vinas et al. World Sci. 1994, p.393-413
- 18) A.Bonasera, V.N.Kondratyev and A.Smerzi “Quantum Fluctuations in Nuclear Dynamics” International conference on ”Nuclear Physics of our time” in honor of 60th birthday of prof. J.Hamilton, Sanibel Island, Florida, A.V.Rammaya ed. 1993 World Scientific
- 17) G.F. Burgio, M. Colonna, M. Di Toro, A. Guarnera, V. Latora and A. Smerzi “Instability and multifragmentation in nuclear dynamics” Int.School-Seminar on Heavy Ion Physics, Dubna 1993 Ed. Y.T.Oganessian et al., pp.275-292

- 16) Y. Blumenfeld, J.H. Le Faou, T. Suomijarvi, P. Piattelli, C. Agodi, N. Alamanos, R. Alba, F. Auger, G. Bellia, Ph. Chomaz, R. Coniglione, A. Del Zoppo, P. Finocchiaro, N. Frascaria, J.J. Gaardhoje, J.P. Garron, A. Gillibert, M. Lamehi-Rachti, R. Liguori-Neto, C. Maiolino, E. Migneco, G. Russo, J.C. Roynette, D. Santonocito, P. Sapienza, J.A. Scarpaci and A. Smerzi "Study of the hot giant dipole resonance with the MEDEA multi-detector", International school seminar on heavy ion physics, Dubna (Russia) May 10-15 1993 - pg. 466
- 15) P. Piattelli, J.H. Le Faou, Y. Blumenfeld, T. Suomijarvi, C. Agodi, N. Alamanos, R. Alba, F. Auger, G. Bellia, Ph. Chomaz, R. Coniglione, A. Del Zoppo, P. Finocchiaro, N. Frascaria, J.J. Gaardhoje, J.P. Garron, A. Gillibert, M. Lamehi-Rachti, R. Liguori-Neto, C. Maiolino, E. Migneco, G. Russo, J.C. Roynette, D. Santonocito, P. Sapienza, J.A. Scarpaci and A. Smerzi "The giant dipole resonance built on highly excited states - results of the MEDEA experiment 3rd course of the International School of heavy ion physics, Erice 1993, pg. 298
- 14) J.H. Le Faou, T. Suomijarvi, Y. Blumenfeld, P. Piattelli, C. Agodi, N. Alamanos, R. Alba, F. Auger, G. Bellia, Ph. Chomaz, R. Coniglione, A. Del Zoppo, P. Finocchiaro, N. Frascaria, J.J. Gaardhoje, J.P. Garron, A. Gillibert, M. Lamehi-Rachti, R. Liguori-Neto, C. Maiolino, E. Migneco, G. Russo, J.C. Roynette, D. Santonocito, P. Sapienza, J.A. Scarpaci and A. Smerzi "The Giant Dipole Resonance in very hot nuclei studied with the Medea Detector at GANIL" XXXI Winter Meeting on Nuclear Physics, Bormio 1993 Ed. I. Iori, R.S.E.P. Milano 1993, p.417
- 13) Ph. Chomaz, M. Di Toro, A. Smerzi and Zhong Jiquan "Pre-Equilibrium Giant Dipole emissions" in "Nuclear Physics at GANIL: a compilation 1992-1993" Ed. s M. Bex and J. Galin, 1993 p.19
- 12) P. Piattelli, J.H. Le Faou, Y. Blumenfeld, T. Suomijarvi, C. Agodi, N. Alamanos, R. Alba, F. Auger, G. Bellia, Ph. Chomaz, R. Coniglione, A. Del Zoppo, P. Finocchiaro, N. Frascaria, J.J. Gaardhoje, J.P. Garron, A. Gillibert, M. Lamehi-Rachti, R. Liguori-Neto, C. Maiolino, E. Migneco, G. Russo, J.C. Roynette, D. Santonocito, P. Sapienza, J.A. Scarpaci and A. Smerzi "Studio della risonanza gigante di dipolo con il rivelatore MEDEA" Comunicazione SIF Udine 1993 pg. 158
- 11) Ph. Chomaz, Zhong Jiquan, A. Smerzi and M. Di Toro "New Pieces in the Hot GDR Puzzle" XXXI Winter Meeting on Nuclear Physics, Bormio 1993 Ed. I. Iori, R.S.E.P. Milano 1993, pp.427-450
- 10) A. Smerzi and M. Di Toro "Giant Resonances in Hot Nuclei" Proc. Int. Conf. "The building blocks of nuclear structure" Amalfi May 1992, Ed. A. Covello, World Sci. p.509

- 9) M.Colonna, M.Di Toro, V.Latora and A.Smerzi, "Extreme behaviours of nuclei: from collectivity to stability limits", Proc. "New trends in Nuclear Physics", 3rd International School on Nuclear Physics, Kiev June 1992, ed.s I.N.Vishnevsky and Yu.N.Pavlenko, pp.12-42
- 8) M.Colonna, M.Di Toro and A.Smerzi "Dissipative nuclear dynamics: from damping of Giant Resonances to Nuclear Fragmentation" in "New trends in theoretical nuclear physics" Predeal 1991, Ed.A.A.Raduta, World Scientific (1992), p.324-351
- 7) A.Bonasera, V.N.Kondratyev, A.Smerzi "TDHF in Phase Space" Ist Joint Italy-Japan meeting on "New trends in Heavy Ion physics", Editrice Compositori, Bologna, p.233 Catania, 1992 edited by M. Di Toro and E. Migneco
- 6) T. Suomijarvi, J.H. Le Faou, Y. Blumenfeld, P. Piattelli, C. Agodi, N. Alamanos, R. Alba, F. Auger, G. Bellia, Ph. Chomaz, R. Coniglione, A. Del Zoppo, P. Finocchiaro, N. Frascaria, J.J. Gaardhoje, J.P. Garron, A. Gillibert, M. Lamehi-Rachti, R. Liguori-Neto, C. Maiolino, E. Migneco, G. Russo, J.C. Roynette, D. Santonocito, P. Sapienza and A. Smerzi "Study of the Hot Giant Dipole Resonance with the Medea Detector" Ist Joint Italy-Japan meeting on "New trends in Heavy Ion physics", Editrice Compositori, Bologna, p.12 Catania, 1992 edited by M. Di Toro and E. Migneco
- 5) M.Colonna, M.DiToro, V.Latora and A.Smerzi "Critical aspects of nuclear dynamics" Ist Joint Italy-Japan meeting on "New trends in Heavy Ion physics", Editrice Compositori, Bologna, p.199 Catania, 1992 edited by M. Di Toro and E. Migneco
- 4) A.Smerzi and M.Di Toro "Limiting Temperatures for Giant Resonances" XXX Winter Meeting on Nuclear Physics, Bormio 1992 Ed.I.Iori, R.S.E.P. Milano 1992, p.335-354
- 3) A.Smerzi and M.Di Toro "Damping of Giant Resonances in Hot Nuclei" in "Nuclear Physics at GANIL: 1988-1991" Ed.s M.Bex and J.Galin, GANIL 1992, p.26
- 2) A.Smerzi and M.Di Toro "Disappearing of Hot Giant Resonances" in "Perspectives in Theoretical Nuclear Physics, IV", Elba 1991, Ed.A.Fabrocini et al., E.T.S. Pisa, p.276-296
- 1) A.Smerzi, A.Bonasera and M.Di Toro "Damping of giant resonances in hot nuclei: a transitional temperature ?" All Union Conference in Nuclear Physics, Minsk 1991, Ed.K.Gromov, Dubna USSR, pp.25-38

Organization of Conferences

- 5) Workshop on “QIPC 2013”, Firenze, Italy. Organized by: M. Bellini, F. Cataliotti and A. Smerzi
- 4) Workshop on “Quantum Science and Technologies”, 9-12 May 2011, Rovereto (Trento), Italy. Organized by: A. Smerzi (chair) and Tommaso Calarco
- 3) Workshop on “Coherence, Squeezing and Entanglement for Precision Measurements with Quantum Gases”, April 3-5, 2008 Levico (Trento), Italy. Organized by: A. Smerzi (chair), A. Aspect, M. Inguscio, W. Phillips, S. Stringari
- 2) Miniworkshop on “Dynamics of a Trapped Bose-Einstein Condensate: Gross-Pitaevskii at the Borderline”, February 2002, Albuquerque, USA. Organized by: A. Smerzi, V.M. Kenkre
- 1) Workshop on “Macroscopic Quantum Coherence Phenomena”, July 5-9, 1999, Trieste, Italy. Organized by: S. Fantoni, A. Leggett and A. Smerzi

Invited Talks at Conferences and Schools

- 46) Frontiers in the Quantum World, A Symposium in honour of Ennio Arimondo on the occasion of his retirement, Firenze, March 10, 2014
- 45) Quantum Entanglement Detection and Quantification 2014, Bilbao, 11-13 March 2014
- 44) Relativistic Quantum Metrology Workshop, Nottingham, 7-8t March 2014
- 43) Varenna School on Atom Interferometry, Varenna, 14-20 July, 2013 (Lecture)
- 42) Appunti di Fisica Teorica 7, Workshop, Messina, Italy, 30-05-2013 (Tutorial)
- 41) New Research Horizon in Arcetri - Workshop Firenze (Italy) 12-03-2013 (Tutorial)
- 40) International School of Physics and Technology of Matter, Otranto, Italy, September 16-22, 2012 (Lectures)
- 39) Advances in Quantum Technology: From Quantum Information to Quantum Devices, International Institute of Physics, Natal/RN- Brazil, August 20-31, 2012 (Lectures)

- 38) Quantum Simulations with Ultracold Atoms, ICTP, Trieste, Italy, July 16-27, 2012
- 37) Quantum Meets Gravity and Metrology, Physikzentrum Bad Honnef, Germany, June 4 - 8, 2012
- 36) Quantum Technologies Conference II: Manipulating photons, atoms, and molecules, August 30 - September 4, 2011, Krakow, Poland
- 35) FOMO 2011, Frontiers on Matter Waves Optics, Universittszentrum Obergurgl, Austria, March 20-26, 2011
- 34) New Trends in Quantum Dynamics and Quantum Entanglement, Trieste, Italy, February 21-25, 2011
- 33) 19th International Laser Physics Workshop, Foz do Iguau, July 5-9, 2010, Seminar 6 on Physics of Cold Trapped Atoms and Seminar 7 on Quantum Information Science
- 32) Quantum information with Atoms, Photons, and Solid State Systems, Grenoble, France, June 17-19, 2010 (Lectures)
- 31) Quantum Engineering of States and Devices: Theory and Experiments, Universittszentrum Obergurgl, Austria, June 5-10, 2010
- 30) Advances in Foundations of Quantum Mechanics and Quantum Information with atoms and photons, Torino, Italy, May 23-29, 2010
- 29) QUEST Symposium: Precision Matter-Wave Optics, Hannover, Germany, April 12-13, 2010 (Lectures)
- 28) Mini-workshop on Josephson Devices, Wien, Austria, November 2009
- 27) Italian Quantum Information Science Conference, Pisa, November 5-8 2009
- 26) IQIS2008, Italian Quantum Information Science Conference, Camerino, October 24-29 2008
- 25) ISPS2007, Third International Symposium on Physical Sciences in Space, Nara, Japan, October 22-26, 2007
- 24) Bose-Einstein Condensation 2007: Frontiers in Quantum Gases, Sant Feliu de Guixols, Spain, September 15-20, 2007
- 23) Quantum Mechanics: from fundamental problems to applications, Bertinoro, Italy 2006
- 22) Non-equilibrium Phenomena in Strongly Correlated Quantum Systems, Institute for Theoretical Atomic, Molecular and optical Physics (ITAMP), Cambridge, MA, USA, 2006

- 21) International Workshop on Laser Physics, Seminar on Physics of Cold Trapped Atoms, Lausanne, Switzerland, July 2006
- 22) Field theories for quantum coherent devices Capri, June 2005
- 20) DAMOP 2003, Boulder, USA
- 19) Nonlinear Dynamics, October 2002, San Momme', Italy
- 18) Dynamics of a Trapped Bose-Einstein Condensate: Gross-Pitaevskii at the Borderline, February 2002, Albuquerque, USA
- 17) LXXXVI Congresso Nazionale Societa' Italiana di Fisica, October 6-11, 2000, Palermo, Italy
- 16) INFMeeting, National Conference on Physics of Matter, Genova, Italy, 12-16 June, 2000
- 15) Lecture at the International School of Quantum Electronics. 27th Course: Bose-Einstein Condensates and Atom Lasers, October 19-24, 1999, Erice, Italy (Lectures)
- 14) Quantum Liquids and Gases, Benasque Center of Physics, July 18-24, 1999, Benasque, Spain
- 13) Macroscopic Quantum Coherence Phenomena, SISSA, July 5-9, 1999 Trieste, Italy
- 12) Exploring Bose-Einstein Condensates, Aspen Center for Physics, Aspen, USA, June 12-29, 1999
- 11) VI ICSSUR, Sixth International Conference on Squeezed States and Uncertainty Relations, Napoli, Italy, May 24-29, 1999
- 10) XXII International Workshop on Condensed Matter Theories, Vanderbilt University, Nashville, Tennessee, USA, June 1-7, 1998
- 9) International Conference on "Bose-Einstein Condensation", Santa Barbara, USA, March 30 - April 3, 1998
- 8) XVI Convegno di Fisica Teorica e Struttura della Materia, Fai della Paganella, Trento, Italy, March 28-31, 1997
- 7) International Workshop on "Nucleus Nucleus Collisions V", Taormina Italy, 30 May - 4 June 1994
- 6) International Workshop on "Fluctuations in Nuclear Dynamics", ECT Center, Trento, Italy, January 31, February 12, 1994
- 5) "Second European Biennial Workshop on Nuclear Physics", Megeve France 1993

- 4) “Interazioni fra ioni pesanti alle energie del Tandem”, Workshop LNS-Sez. CT, Italy, 1992
- 3) “The building blocks of nuclear structure”, Amalfi, Italy, May 1992
- 2) “Winter Meeting on Nuclear Physics”, Bormio 1992 ,Italy
- 1) “Convegno Nazionale su Problemi di Fisica Teorica”, Marciana Marina, Elba Island, Italy, October 16-18, 1991

Colloquia and Seminars

- 31) “Entanglement and Phase Estimation”, 23/10/2013, Department of Physics, Tsinghua University, Beijing, China.
- 30) “Entanglement and Phase Estimation”, 22/10/2013, Institute of Physics, Chinese Academy of Sciences, Beijing, China.
- 29) “Entanglement and Phase Estimation”, 21/10/2013, Institute of Applied Physics and Computational Mathematics, Beijing, China.
- 28) “Indistinguishability and the Zeno Paradox”, 19/6/2013 Nottingham, England
- 27) “Indistinguishability, Entanglement and the Zeno Paradox”, (Colloquium) 16/4/2013 Firenze, Italy
- 26) “Indistinguishability, Entanglement and the Zeno Paradox”, (Colloquium) 26/4/2013, Basilea, Switzerland
- 25) “Quantum Interferometry”, 20-12-2012, Bologna, Italy
- 24) “Useful entanglement for interferometry” (Colloquium), November 2012, Institute of Theoretical Physics, Shanxi University, Taiyuan, China.
- 23) “Quantum Zeno and Entanglement”, International Institute of Physics Natal/ RN- Brazil, September 2012
- 22) “Indistinguishability and Entanglement” (Colloquium), University of Ulm, Germany, April 2010
- 21) “Sub Shot-Noise Sensitivity with Mach-Zehnder Interferometers”, University of Stuttgart, Germany, April 2010
- 20) “Superfluidity and Entanglement with Ultracold Atomic Gases”, University of Munich, Germany, February 2010

- 19) “From Superfluidity to Entanglement with Bose-Einstein Condensates” (Colloquium), University of Bonn, Germany, January 2010
- 18) “Quantum Interferometry”, LANL, USA, August 2008
- 17) “Entanglement, nonlinearity and Heisenberg limit with Bose-Einstein condensates”, Leibniz University, Hannover, Germany, March 2008
- 16) “Entanglement and Heisenberg limit”, SISSA, Trieste, Italy, February 2008
- 15) “Precision measurements with Bose-Einstein condensates”, LENS, Firenze, Italy, December 2007
- 14) “Interferometry with trapped Bose-Einstein condensates”, ENS, Pisa, Italy, November 2007
- 13) “Quantum Interferometry”, Baton Rouge, Louisiana, USA 2006
- 12) “BEC in a periodic potential”, Perugia, Italy, 2004
- 11) “BEC dynamics in optical lattices”, GeorgiaTech, Atlanta, USA, June 2002
- 10) “Nonlinear dynamics of weakly coupled Bose-Einstein condensates”, University of Perugia, February 2001
- 9) “Quantum Gases”, Los Alamos National Laboratory, USA, November 2000
- 8) “Classical and quantum dynamics of weakly coupled Bose condensates” University of Florence, Italy, May 2000
- 7) “Internal Josephson effects with trapped condensates”, LENS, Florence, Italy, March 2000
- 6) “Collective response of a Bose-Einstein condensate”, LNS, Catania, Italy, November 1999
- 5) “Josephson Dynamics of two weakly-linked Bose-Einstein condensates”, LENS, Florence, Italy, October 1999
- 4) “Large amplitude oscillations of a trapped Bose-Einstein Condensate”, University of Rome, Italy, March 1997
- 3) “Bose-Condensation of trapped atoms”, University of Catania, Italy, December 1996
- 2) “Six neutron drops”, University of Catania, Italy, December 1996
- 1) “Hot Giant Dipole Resonances”, GANIL, Caen, France 1993

Teaching Experience

Advised Thesis

- 18) A. Smerzi, Master Thesis of Giacomo Sorelli, Università di Firenze, Italy, 2014
- 17) A. Smerzi, Master Thesis of Marco Gabbrielli, Università di Firenze, Italy, 2014
- 16) A. Smerzi, Master Thesis of Michele De Regis, Università di Firenze, Italy, 2014
- 15) A. Smerzi, Ph.D. Thesis of Marco Moratti, Firenze, 2013
- 14) A. Smerzi, Ph.D. Thesis of Safoura Mirkhalaf, Firenze, 2013
- 13) A. Smerzi, Ph.D. Thesis of Francesco Piazza, Trento, 2008
- 12) A. Smerzi, Master Thesis of Francesco Piazza, Trento, 2007
- 11) A. Smerzi, Ph.D. Thesis of L. Pezzé, Trento, 2007
- 10) A. Smerzi, C. Menotti and S. Stringari, Master Thesis of S. Ianeselli, Università di Trento, Italy, 2004
- 9) A. Smerzi, L.P. Pitaevskii and S. Stringari, Master Thesis of L. Pezzé, Università di Padova and Università di Trento, Italy, 2004
- 8) A. Smerzi, Ph.D. Thesis of A. Trombettoni, SISSA, Italy, 2001
- 7) A. Smerzi, Diploma Course in Condensed Matter Physics of A. Vazquez, ICTP, Italy, 2000
- 6) A. Barone and A. Smerzi, Master Thesis of F. Ferlino, Università di Napoli and SISSA, Italy, 2000
- 5) A. Smerzi and S. Fantoni, Ph.D. Thesis of S. Giovanazzi SISSA, Italy, 1998
- 4) S. Fantoni and A. Smerzi, Dissertation For Diploma Course in Condensed Matter Physics of Narayan Prasad Adhikari, ICTP, Italy, 1998
- 3) S. Fantoni, S. Raghavan and A. Smerzi, Dissertation For Diploma Course in Condensed Matter Physics of Juan Amir, ICTP, Italy, 1998
- 2) M.Di Toro and A.Smerzi, Diploma Thesis of G.Mirone, Univ. of Catania Italy, 1993
- 1) M.Di Toro and A.Smerzi, Diploma Thesis of E.Turturici, Univ. of Catania Italy, 1992

Lectures

- 8) University course on Ultracold Atoms, Firenze, A.A. 2013-2014, A.A. 2014-2015
- 7) Ph.D. Course on "Quantum Information", Department of Physics, Trento, 2011
- 6) Ph.D. Course on "Entanglement and Quantum Interferometry", CNRS, Grenoble, June 2010
- 5) Ph.D. Course on "Quantum Interferometry", Department of Physics, Trento, 2010
- 4) Ph.D. Course on "Quantum Interferometry", Department of Physics, Trento, 2009
- 3) Lectures on "Josephson effects in BEC", Field theories for quantum coherent devices, Capri, June 2005
- 3) ICTP, second semester 1999-2000, lectures on "Quantum Liquids"
- 2) SISSA, first semester 1999-2000, lectures on "Bose-Einstein Condensation of Trapped Atoms"
- 1) ICTP, second semester 1998-1999, lectures on "Quantum Liquids"

Research Grants

- 10) QIBEC - Quantum Interferometry with Bose-Einstein Condensates, STREP, European Commission, FP7-284584-2. November 2011, October 2014 (2.000.606 Euro). PI: Augusto Smerzi
- 9) Research Grant PRIN, MIUR, n.: 2009FBKLNN-002, October 2011-September 2013 (120.000 Euro)
PI: Giovanni Modugno, PI Trento unit: Augusto Smerzi
- 8) Research Grants LDRD-ER LANL, Los Alamos National Laboratory, FY2004-FY2006 (approximately 200.000 USD). PI: Gennady Berman
- 7) Research Grant LDRD-DR, LANL, Los Alamos National Laboratory, FY2004-FY2006 (approximately 1.2 million USD). PI: Eddy Timmermans

- 6) Agreement between CNR and Provincia Autonoma di Trento , 2010-2012 (690000 Euro). PI: Sandro Stringari
- 5) QuDeGPM collaborative project of the ESF program Euro QUASAR 1/08/2008 - 31/07/2011 (100000 Euro). PI: Hanns-Christoph Naegerl
- 4) Agreement between CNR and Provincia Autonoma di Trento, 2007-2009 (240000 Euro). PI: Sandro Stringari
- 3) Agreement between CNR and Provincia Autonoma di Trento , 2002-2006 (837000 Euro). PI: Sandro Stringari
- 2) Research Grant MURST, “Ministero della ricerca scientifica”, n.: 2001022277, 2002
- 1) Research Grant MURST, “Ministero della ricerca scientifica”, n.: 9902623127, 2000

Foreign University sojourns

- 16) Institute of Theoretical Physics, Shanxi University, Taiyuan, 030006, P. R. China, 26 September - 2 November, 2013
- 15) Institute of Theoretical Physics, Shanxi University, Taiyuan, 030006, P. R. China, October 23-November 5, 2012
- 14) International Institute of Physics- UFRN Natal/RN- Brazil, August 11-September 10, 2012
- 13) LANL, Los Alamos National Laboratory, September 2010
- 12) LANL, Los Alamos National Laboratory, August-September 2008
- 11) LANL, Los Alamos National Laboratory, July-August 2007
- 10) LANL, Los Alamos National Laboratory, USA, February 2004-June 2006
- 9) LANL, Los Alamos National Laboratory, USA, February 2003
- 8) LANL, Los Alamos National Laboratory, USA, March 2001-June 2002
- 7) LENS (European Laboratory for Non-Linear Spectroscopy), Florence, Italy, January-February 2001
- 6) LANL, Los Alamos National Laboratory, USA, November-December 2000

- 5) LENS (European Laboratory for Non-Linear Spectroscopy), Florence, Italy, September-October 2000
- 4) University of Berkeley, USA, January 25-February 7, 1998
- 3) University of Illinois at Urbana-Champaign Illinois, USA, July 1994-June 1996
- 2) GANIL, France, March 1993
- 1) Department of Theoretical Physics, Oxford University, England, December 1991

Reviewer for:

International Journals:

- 4) Science
- 3) Nature Physics
- 2) Physical Review
- 1) European Journal of Physics

Funding Agencies:

- 2) European Research Council: Panel member of the "ERC Starting and Consolidators Independent Investigator Grants" (2013, 2014)
- 1) US National Science Foundation (NSF)