

Complete publication list of Dr. Thorsten Schumm

Summary:

Publication statistics (ResearcherID B-8565-2008)

Total number of publications in the years 2003 to 2009:	24 (3 under review)
Peer reviewed articles:	23
Conference proceedings:	2
Books / invited contributions:	4
Total number of citations:	602
Citations for most cited article:	218
Citations / publication (ISI, without books):	28.7
H-Index:	11
Invited talks	23
Posters	11
Reviewing for:	Physical Review Letters, Physical Review A, Applied Physics Letters, Europhysics Letters, ANR, CNRS, DPG, ARC

Publications currently in review

Opposite sign correlations in fermion or boson gases, A. Gottlieb, [T. Schumm](#), ArXiv:0705.3491 (submitted Physical Review A)

Fermions on atom chips, M. H. T. Extravour, L. J. LeBlanc, J. McKeever, A. B. Bardou, S. Aubin, S. Myrskog, [T. Schumm](#), and J. Thywissen, (invited book contribution to “Atom Chips”, editors J. Reichel and V. Vuletic, Wiley-VCH Verlag GmbH, Weinheim, in production, arXiv:0811.1401)

Interferometry with Bose-Einstein condensates, [T. Schumm](#), S. Manz, R. Bücker, D. Smith, and J. Schmiedmayer (invited book contribution to “Atom Chips”, editors J. Reichel and V. Vuletic, Wiley-VCH Verlag GmbH, Weinheim, in production)

Peer-reviewed publications

Two-point density correlations of quasi-condensates in free expansion, S. Manz, R. Bücke, T. Betz, Ch. Koller, S. Hofferberth, I. E. Mazets, A. Imambekov, E. Demler, A. Perrin, J. Schmiedmayer, and T. Schumm, submitted to Phys. Rev. A 81, 031610 (2010)

An optical lattice on an atom chip, D. Gallego, S. Hofferberth, T. Schumm, P. Krüger, J. Schmiedmayer, Opt. Lett. **34**, 3463-3465 (2009)

„Density Ripples“ in expanding low-dimensional gases as a probe of correlations, A. Imambekov, I. E. Mazets, D. S. Petrov, V. Gritsev, S. Manz, S. Hofferberth, T. Schumm, E. Demler, and J. Schmiedmayer, Phys. Rev. A **80**, 033604 (2009)

Single-atom-sensitive fluorescence imaging of ultracold quantum gases, R. Bücke, A. Perrin, S. Manz, T. Betz, Ch. Koller, T. Plisson, J. Rottmann, T. Schumm, J. Schmiedmayer, New Journal of Physics **11**, 103039 (2009)

Quantum noise thermometry for bosonic Josephson junctions in the mean-field regime, A. D. Gottlieb and T. Schumm, Phys. Rev. A **79**, 063601 (2009)

Stochastic optimization of a cold atom experiment using a genetic algorithm, W. Rohringer, R. Bücke, S. Manz, T. Betz, C. Koller, M. Göbel, A. Perrin, J. Schmiedmayer, and T. Schumm, Appl. Phys. Lett. **93**, 264101 (2008), (featured in Nature Physics 4, 901 (2008))

Probing quantum and thermal noise in an interacting many-body system, S. Hofferberth, I. Lesanovsky, T. Schumm, A. Imambekov, V. Gritsev, E. Demler, J. Schmiedmayer, Nature Phys. **4**, 489-495 (2008)

Breakdown of integrability in a quasi-one-dimensional ultracold bosonic gas, I.E. Mazets, T. Schumm, J. Schmiedmayer, Phys. Rev. Lett. **100**, 210403 (2008)

Multi-layer atom chips for versatile atom micro manipulation, M. Trinker, S. Groth, S. Haslinger, S. Manz, T. Betz, I. Bar-Joseph, T. Schumm, and J. Schmiedmayer, Appl. Phys. Lett. **92**, 254102 (2008) (titlepage, featured in Nature 454, 370 (2008))

Non-equilibrium coherence dynamics in one-dimensional Bose gases, S. Hofferberth, I. Lesanovsky, B. Fischer, T. Schumm, J. Schmiedmayer, Nature **499**, 324-327 (2007)

Ultracold atoms in radio-frequency dressed potentials beyond the rotating-wave approximation, S. Hofferberth, B. Fischer, T. Schumm, J. Schmiedmayer, and I. Lesanovsky, Phys. Rev. A **76**, 013401 (2007)

Observations of density fluctuations in a very elongated Bose gas: from the ideal gas to the quasi-condensate regime, J. Estève, J.-B. Trebbia, T. Schumm, A. Aspect, C. I. Westbrook, and I. Bouchoule, Phys. Rev. Lett. **96**, 130403(1-4) (2006)

Adiabatic radio frequency potentials for the coherent manipulation of matter waves, I. Lesanovsky, T. Schumm, S. Hofferberth, L. M. Andersson, P. Krüger, and J. Schmiedmayer, Phys. Rev. A **73**, 033619(1-5) (2006)

Matter-wave interferometry in a double well on an atom chip, T. Schumm, S. Hofferberth, L. M. Andersson, S. Wildermuth, S. Groth, I. Bar-Joseph, J. Schmiedmayer and P. Krüger, *Nature Physics* **1**, 57-62 (2005)

Atom chips in the real world: the effects of wire corrugation, T. Schumm, J. Estève, C. Aussibal, C. Figl, J.-B. Trebbia, H. Nguyen, D. Maily, I. Bouchoule, C. Westbrook, and A. Aspect, *Eur. Phys. J. D* **32**, 171-180 (2005)

Realizing a stable magnetic double-well potential on an atom chip, J. Esteve, T. Schumm, J.-B. Trebbia, I. Bouchoule, A. Aspect, and C. Westbrook, *Eur. Phys. J. D* **35**, 141-146 (2005)

Role of wire imperfections in micromagnetic traps for atoms, J. Estève, C. Aussibal, T. Schumm, C. Figl, D. Maily, I. Bouchoule, C. I. Westbrook, and A. Aspect, *Phys. Rev. A* **70**, 043629(1-4) (2004)

Bose-Einstein Condensation in a simple Micro trap, S. Schneider, A. Kasper, Ch. vom Hagen, M. Bartenstein, B. Engeser, T. Schumm, I. Bar-Joseph, R. Folman, L. Feenstra, and J. Schmiedmayer, *Phys. Rev. A*, **67**, 023612(1-4) (2003)

A Bose-Einstein condensate in a microtrap, A. Kasper, S. Schneider, Ch. vomHagen, B. Engeser, T. Schumm, I. Bar-Joseph, L. Feenstra, and J. Schmiedmayer, *J. Opt. B: Quantum Semiclass. Opt.* **5**, 143-149 (2003)

Books / invited contributions:

Materiewellen auf dem Chip, T. Schumm and J. Schmiedmayer, *Physik Journal* **8**, 23 (2009)

Fermions on atom chips, M. H. T. Extravour, L. J. LeBlanc, J. McKeever, A. B. Bardou, S. Aubin, S. Myrskog, T. Schumm, and J. Thywissen, (invited book contribution to "Atom Chips", editors J. Reichel and V. Vuletic, Wiley-VCH Verlag GmbH, Weinheim, in production, arXiv:0811.1401)

Interferometry with Bose-Einstein condensates, T. Schumm, S. Manz, R. Bücke, D. Smith, and J. Schmiedmayer (invited book contribution to "Atom Chips", editors J. Reichel and V. Vuletic, Wiley-VCH Verlag GmbH, Weinheim, in production)

A Double Well Interferometer on an Atom Chip, T. Schumm, P. Krüger, S. Hofferberth, I. Lesanovsky, S. Wildermuth, S. Groth, I. Bar-Joseph, L. M. Andersson and J. Schmiedmayer, *Quantum Information Processing*, Springer Netherlands, ISSN 1570-0755 (Print) 1573-1332 (Online), (2006)

Conference proceedings:

Measuring Relative Atom Number Fluctuations in a Coherently Split Bose Einstein Condensate, M. H. T. Extravour, J. McKeever, T. Schumm, L. J. LeBlanc, A. B. Bardou, D. Jervis, A. Stummer, J. H. Thywissen, 2008 Conference On Laser And Electro-Optics, Quantum Electronics And Laser Science, Vols 1-9, Pages 3315-3316 (2008)

Dual-species quantum degeneracy of 40K and 87Rb on an atom chip, M.H.T. Extravour, L.J. LeBlanc, T. Schumm, B.Cieslak, S. Myrskog, A. Stummer, S. Aubin, J. H. Thywissen, *Proceedings of the 20th International Conference on Atomic Physics*, (Innsbruck, Austria) 2006

Invited talks:

Probing one-dimensional Bose on atom chips, Institutsseminar des Institut für Theoretische Physik, TU Wien, Vienna, Austria 23.03.2010

Nuclear Physics with a laser: ²²⁹Thorium, Institutsseminar der Universität Wien - Vienna Environmental Research Accelerator (VERA), Vienna, Austria, 18.03.2010

Probing one-dimensional Bose gases on the single particle level, "ESF International Conference on Quantum Optics", Tagungszentrum Obergurgl, Austria, 22.02.2010

Kernphysik mit einem Laser: Thorium-dotierte CaF Kristalle?, Institutsseminar Fraunhofer Institut für Integrierte Systeme und Baustoffkunde (IISB), TU Erlangen, Germany, 08.02.2010

Probing one-dimensional Bose gases on atom chips, Seminar at the Institut Charles Fabry de L'Institut D'Optique (CFIO), Paris/Palaiseau, France, 21.01.2010

"Atom optics" with ultracold quantum gases on atom chips, Seminar at the Institute of Solid State Physics, Vienna University of Technology, Austria, 13.01.2010

Second-order correlations across the BEC phase transition, BEC 2009 Conference, Sant Feliu de Guixols, Spain, 05.09.2009 - 11.09.2009

One-dimensional Bose gases on atom chips, International Conference on Applied Atom Optics 2009, Tagungszentrum der DPG, Bad Honnef, Germany, 27.07.2009 - 29.07.2009

One-dimensional Quantum gases, Introductory Course on Ultracold Quantum Gases (lecture), Universität Innsbruck, Austria, 09.07.2009 - 11.07.2009

Quantum noise thermometry for (coupled) one-dimensional Bose gases, MIDAS network meeting, CEA Saclay, France, 30.03.2009

Interferometry with Bose-Einstein condensates, Workshop on "Quantum Control", Wolfgang Pauli Institut, Vienna, Austria, 23.02.2009 - 27.02.2009

One-dimensional Bose-gases on atom chips, Southwest Quantum Information and Technology/Workshop on Integrated Atomic Systems, Seattle, USA, 18.02.2009 - 22.02.2009

One-dimensional Bose-gases on atom chips: Decoherence, correlations, integrability, ITAMP/CUA workshop on: Non-Equilibrium Dynamics and Correlations in Strongly Interacting Atomic, Optical and Solid State Systems, Harvard University, Cambridge, USA, 26.01.2009

Using interference to probe (de) coherence and quantum noise in many-body systems, International Workshop on one-dimensional quantum gases, IFRAF, Paris, France, 16.12.2008

Interferometry with one-dimensional Bose-Einstein condensates, IQOQI Seminar, Innsbruck, Austria, 16.10.2008

Macroscopic Interference Devices for Atomic and Solid-State Systems, MIDAS consortium meeting, Wien, Austria, 02.06.2008 - 03.06.2008

One-dimensional Bose-gases on atom chips, Seminar Talk at Imperial College London, London, UK, 30.05.2008

One-dimensional Bose-gases on atom chips: Decoherence, Integrability, University of Nottingham, Nottingham, UK, 28.05.2008

Correlations and Integrability in weakly interacting 1D Bose condensates, ESF-FWF Conference "Quantum Optics: From Photons and Atoms to Molecules and Solid State Systems", Universitätszentrum Obergurgl, Austria, 24.02.2008 - 01.03.2008

Coherence and correlations in 1D bosonic systems, Symposium on Ultra-Cold Quantum Gases and Atomtronics, Örenäs Castle, Lund, Sweden, 05.11.2007 - 07.11.2007

Coherence and correlations in 1D Bose gases, Bose-Einstein Condensation 2007 - Frontiers in Quantum Gases, Sant Feliu de Guixols (Costa Brava), Spain, 15.09.2007 - 20.09.2007

BEC in dressed adiabatic potentials on atom chips, International Summer School in Quantum Information Processing and Control (QUIC 2007), Maynooth, Ireland, 26.08.2007 - 31.08.2007

Non-equilibrium coherence dynamics in one-dimensional Bose gases, SFB "Control and Measurement of Coherent Quantum Systems", TU Wien, Atominstitut d. Österr. Univ. Vienna, Austria, 05.05.2007

Interference with Bose-Einstein condensates on atom chips, Int. Workshop on "Advances in precision tests and experimental gravity, Florenz, Italy, 28.09.2006 - 30.09.2006

Contributed talks:

Nuclear Physics with a Laser: ^{229}Th , Seminar "Neue Arbeiten", Institute for Atomic and Subatomic Physics, Vienna, Austria, 19.01.2010

Decoherence dynamics in interferometry with one-dimensional Bose-Einstein condensates, Topical Meeting "Quantum-Atom optics downunder, Wollongong, Australia, 03.12.2007 - 07.12.2007

The role of wire imperfections in magnetic wire traps, Young Atom Optics (YAO) conference, Innsbruck, Austria, 13.03.2004 - 17.3.2004

Micromagnetic Potentials: Bose-Einstein condensation and fragmentation, Fastnet/GDR review meeting, Sienna, Italy, 24.10.2003 - 25.10.2003

Bose-Einstein condensation in magnetic micropotentials: Towards Josephson tunneling, Cold Quantum Gases (CQG) Network midterm meeting, Camogli, Italy, 2003

The chip BEC experiment in Orsay, Konferenzvortrag ACQUIRE midterm meeting, Heidelberg, Germany, 14.02.2003

Posters:

Numer squeezing and many-body effects when splitting a mesoscopic condensate, J. Grond, T. Schumm, A. Scrinzi, Th. Betz, J. Schmiedmayer, U. Hohenester, Tunneling and Scattering in Complex Systems - From Single to Many Particle Physics, Dresden, Germany, 14.09.2009 - 18.09.2009

Light Sheet Fluorescence Imaging of Cold Atoms, R. Bücke, S. Manz, A. Perrin, Th. Betz, C. Koller, W. Rohringer, M. Göbel, J. Rottmann, T. Schumm, J. Schmiedmayer, PreDoc School on Laser Cooling and Bose-Einstein Condensation, Les Houches, France, 28.09.2008 - 10.10.2008

One-dimensional Bose gases on atomchips, S. Manz, Th. Betz, C. Koller, R. Bücke, W. Rohringer, S. Hofferberth, A. Perrin, T. Schumm, J. Schmiedmayer, 3rd annual SCALA meeting, Mainz, Germany, 2008

Breakdown of integrability in a quasi-one-dimensional ultracold bosonic gas, I. Mazets, T. Schumm, J. Schmiedmayer: 40th European Group for Atomic Systems, Graz, Austria, 02.07.2008 - 05.07.2008

1D quasi-condensates in RF-induced adiabatic potentials, S. Manz, S. Hofferberth, T. Schumm, J. Verdu, Th. Betz, R. Bücke, C. Koller, B. Fischer, I. Lesanovsky, P. Krüger, J. Schmiedmayer, Young Atom Opticians Conference 2007, Durham, UK, 2007

Interferometry with 1D quantum gases, T. Schumm, S. Manz, S. Hofferberth, J. Verdu, Th. Betz, R. Bücke, C. Koller, B. Fischer, I. Lesanovsky, P. Krüger, J. Schmiedmayer Bose-Einstein Condensation 2007 - Frontiers in Quantum Gases, Sant Feliu de Guixols (Costa Brava) Spain, 15.09.2007 - 20.09.2007

Atom chips in the real world: The Role of Wire Corrugation, T. Schumm, J. Estève, J.-B. Trebbia, D. Maily, I. Bouchoule, C. Westbrook, A. Aspect, DPG-Tagung 2005, Berlin, Deutschland, 4.-9.03.2005

Atom chips in the real world: The effect of wire edge corrugation, T. Schumm, J. Estève, J.-B. Trebbia, H. Nguyen, D. Maily, I. Bouchoule, C. Westbrook, A. Aspect, Workshop on Mesoscopic phenomena in ultracold matter: From single atoms to coherent ensembles, Dresden, Deutschland, Oktober 11-15 (2004)

Micromagnetic Potentials: Bose-Einstein condensation and fragmentation, T. Schumm, C. Aussibal, J. Estève, I. Bouchoule, D. Maily, C. Westbrook, A. Aspect, Bose-Einstein Condensation Conference, San Feliu de Guixols, Spanien September 13-18, 2003

Bose-Einstein condensation in magnetic micropotentials: Towards Josephson tunneling, T. Schumm, C. Aussibal, J. Estève, I. Bouchoule, C. Westbrook, A. Aspect, DPG-Tagung, Hannover, Germany, March 2003

Towards a rubidium Bose-Einstein condensate on an atom chip, T. Schumm, A. Kasper, S. Schneider, M. Bartenstein and J. Schmiedmayer, DPG-Tagung 2001, Berlin und YAO 2001, Stuttgart, Germany