

Curriculum Vitae for Prof. Dr. Thorsten Schumm

Title: Univ. Prof. Dipl. Phys. Dr. Rer. Nat.
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 1020 Vienna, Austria
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Mail: schumm@thorium.at
Date of birth: 20.04.1975
Place of birth: Berlin, Germany
Nationality: german



Academic career

Since 2011 Full Professor, chair for Quantum Metrology, Institute for Atomics and Subatomic Physics, Vienna University of Technology, Austria
 Atomic clocks, Frequency comb spectroscopy, Coherence and correlations in quantum degenerate atomic gases, low-dimensional quantum systems, nuclear spectroscopy

2011 Assistant Professor, Vienna University of Technology, Austria

2006-2011 Universitätsassistent, Vienna University of Technology, Austria

2006 Postdoctoral fellow, McLennan physical labs, Toronto, Canada
 Work on degenerate Fermi gases, Bose-Fermi mixtures

2003-2006 Ph. D. in Atom Optics, Europ. collaborative thesis (cotutelle de thèse):
 Prof. A. Aspect, Université Paris Sud, France
 Prof. J. Schmiedmayer, Universität Heidelberg, Germany
 “Bose-Einstein condensates in magnetic double well potentials” (date of PhD:13.02.2006,
Summa cum laude / highest honors)

2000-2002 Diploma in Physics, University of Innsbruck / University of Heidelberg
 “Toward Bose-Einstein condensation in magnetic micro traps” (with distinction)

1996-2000 Studies of Physics at the Free University of Berlin

Appointments and affiliations, Awards:

2011 Vice-director of the Wolfgang Pauli Institute

2011 Member of Austrian Academy of Sciences (“Junge Kurie”)

2010 Associated faculty of Graduate School on Complex Quantum Systems

2010 ERC Independent Researcher Starting Grant

2009 Full member of the Wolfgang Pauli Institute

2009 START price of Austrian Ministry of Research and FWF

2007 Ruprecht-Karls price of the University of Heidelberg

2006 Visiting scientist fellowship at the University of Toronto

2003-2006 Three year research stipend of the French Ministry of Research

Memberships, Publications: German and Austrian Physical Society (DPG, ÖPG),
Total number of publications: 29 (+4 under review), 4 contribution to books
Reviewing for: Phys. Rev. Lett., Phys. Rev. A, Appl. Phys. Lett., Europhys. Lett.,
 European funding agencies (ESF, FWF, CNRS, ANR, DPG), Australian Research Council
Conference participations: > 40 **Invited talks:** 31
Conferences organized: 4 **H-Index:** 14

Teaching, Supervision:

Lectures/seminars • 141.212 Atoms - Light - Matter Waves (lecture, 2SWS)
 • 141.231 Macroscopic Quantum Systems (lecture, 2SWS)
 Project work • 141.A10 Quantum Optics I & II (lecture, 2SWS)
 • 141.A16 Quantum Technology I & II (lecture, 2SWS)
 • 141.276 Atomic Clocks and Quantum Metrology (project, 8SWS)
 • 141.214 Ultracold Atoms and Spectroscopy (project, 8SWS)
 • 141.A12 Basic Experiments on Quantum Physics (project)
 Current group size Two experimental setups, 1 PostDoc, 6 Phd's, 1 Diploma
 Theses supervised 4 Phd's, 3 Diploma, 1 PostDoc acquired permanent research position

Languages:

German: native French, English: business fluent

Miscellaneous:

1997 – 2000 Students representative at the Free University of Berlin
 Coordination of introductory events for new students, development of the new
 curriculum according to the ECTS Bachelor/Master program, rewriting of the
 study regulations for physics (ECTS and gender mainstreaming)

Scientific projects, grants (PI or Co-PI):

Starting Independent Researcher Grant “Nuclear Atomic Clock”, ERC (Organizer, 1.200 k€/5 years)

START Price 2009 “Nuclear Physics with a Laser”, FWF (Organizer 1.200k€/6 years)

Thematic Program 2009 “Quantum many-body systems and NLS approximations: experiments and simulations (QUANTUM-09)”, Wolfgang Pauli Institute (WPI) Vienna (Organizer/PI, 50k€/Year)

Thematic Program 2008 “Correlation and quantum physics”, Wolfgang Pauli Institute (WPI) Vienna (Organizer/PI, 50k€/Year)

Technical University of Vienna “Innovatives Projekt”: “A Nuclear Atomic Clock”, (PI, 125k€)

FWF Stand-Alone-Project “Low-dimensional quantum gases on atom chips”, Austrian Science fund, P21080-N16 (PI, 300k€/3Years)

SFB “Foundations and applications of quantum science”, Austrian Science fund, under review (Co-PI with Prof. Schmiedmayer, 680k€/4Years, 9600k€ total)

Five Most relevant publications

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)

(>260 ISI citations, selected one of the 10 most influential papers in atom optics, Nature Physics Vol. 6, No. 10 (2010))

Non-equilibrium coherence dynamics in one-dimensional Bose gases, S. Hofferberth, I. Lesanovsky, B. Fischer, T. Schumm, J. Schmiedmayer, **Nature** **499**, 324-327 (2007) (122 ISI citations)

Twin-atom beams, R. Bücker, J. Grond, S. Manz, T. Berrada, T. Betz, Ch. Koller, U. Hohenester, T. Schumm, A. Perrin, and J. Schmiedmayer, (**Nature Physics** accepted 2011, arXiv:1012.2348v1)

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) (52 ISI citations)

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 Physics** **4**, 489-495 (2008) (43 ISI citations)

Five most recent invited talks***Second-order correlations across the BEC phase transition***

Invited talk: BEC 2009 Conference, Sant Feliu de Guixols, Spain, 05.09.2009 - 11.09.2009

One-dimensional Bose gases

Invited talk: International Conference on Applied Atom Optics 2009, Tagungszentrum der DPG, Bad Honnef, Deutschland, 27.07.2009 - 29.07.2009

Quantum noise thermometry for (coupled) one-dimensional Bose gases

Invited talk: MIDAS network meeting, CEA Saclay, France, 30.03.2009

One-dimensional Bose-gases on atom chips

Invited talk: 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

Invited talk: 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