

## Theoretical quantum physicist (CNRS)

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### Personal details

**Name:** Johannes Schachenmayer

**Born:** 19. July 1982, Deggendorf, Germany (Nationality: German)

**Languages:** English, French (intermediate), German (native)

### Scientific education & career

- **Since Oct. 2016:**

*Chargé de recherche (CRCN, Section 4)*, CNRS, IPCMS & ISIS, Université de Strasbourg, France

- **June 2013 - Sept. 2016:**

*Postdoctoral Fellow*, JILA, University of Colorado & NIST, Boulder, USA (Group of A. M. Rey)

- **May 2011 - May 2013:**

*Doctoral Research Scholar*, University of Pittsburgh, USA (Group of A. J. Daley)

- **Apr. 2009 - Dec. 2012:**

*Doctoral student*, Universität Innsbruck, Austria (Group of P. Zoller)

### Diplomas

- **Degree:** Habilitation à diriger des recherches (HDR, 12. Nov. 2019)

**Institution:** Université de Strasbourg

- **Degree:** Doktor der Naturwissenschaften (Dr. rer. nat., PhD degree, 20. Dec. 2012)

**Institution:** Universität Innsbruck, Austria

**Grade/Honours:** Sehr gut (best possible), “Mit Auszeichnung” (with distinction)

- **Degree:** Diplom-Physiker Univ. (Dipl.-Phys. Univ., 5 year Master’s degree, 4. Nov. 2008)

**Institution:** Technische Universität München (TUM), Germany

**Grade/Honours:** 1.0 (best possible), “Mit Auszeichnung” (with distinction)

### Summary: publications & talks

- **45 publications:** Nature Materials (1), Nature Communications (3), Phys. Rev. X (2), Phys. Rev. Lett. (9), ACS Photonics (1), New. J. Phys. (5), Phys. Rev. A/B (15), Springer book chapter (1), ...

- **2700+ citations, h-index: 24** (Google scholar, Jan. 2022)

- **50+ visits** to international conferences/research groups, **45+ talks:** 25+ invited talks/seminars

### Research Grants & Prizes

- **Research Prize:** Prix espoirs de l’Université de Strasbourg, 10k€, Sep. 2021

- **ECOS Sud (PI):** Bilateral network grant (France – Chile)

Project: “*Quantum dynamics in cavity-coupled molecules - numerical simulations and applications*”  
Jan. 2021–Dec. 2023 (funding for exchange visits)

- **International Emerging Action (IEA) (PI):** Bilateral network grant (France – Chile)

Project: “*Quantum many-body dynamics in cavity-coupled molecules*”  
Jan. 2021–Dec. 2022 (funding for exchange visits & meetings)

- **QUSTEC 2019 (PI):** PhD research grant, ~140k€

Project: “*Semi-classical modelling of open quantum technology platforms*”  
Feb. 2020–Feb. 2024 (funding for 4-year PhD project)

- **LabEx NIE 2018 (PI)**: PhD research grant, 111k€  
Project: “*Novel approaches to quantum many-body dynamics in molecular complexes*”  
Sep. 2018–Sep. 2021 (funding for 3-year PhD project)
- **IdEx 2017 Attractivité (PI)**: research grant, 107k€  
Project: “*Simulation of transport in engineered many-body quantum systems*” (STEMQuS)  
Oct. 2017–Dec. 2018
- **EquipEx+** (work package leader): large-scale interdisciplinary infrastructure grant  
Project: “*Atomic quantum computing as a service*” (aQCess)  
2021–2028, PI: S. Whitlock (ISIS/UNISTRA)
- **FAPESP** (partner): grant for visiting PhD student (from São Paulo, Brazil)  
Project: “*Blockade effects with light-mediated dipole-dipole interactions*”  
Sep. 2017–Mar. 2018, PI: R. Bachelard (São Paulo, Brazil)
- **QuantERA 2018** (partner): research grant  
Project: “*Towards Room Temperature Quantum Technologies*” (ROUTE)  
2018–2021, PI: T. Ebbesen (ISIS/UNISTRA)
- **Computational grants**: HPC UNISTRA CPU hours [4.5M hours 2018-2021]

### Supervision of students and post-docs

- **PhD student**: Guillermo Preisser, Feb. 2020–Feb. 2024 (QUSTEC grant)
- **PhD student**: David Wellnitz Oct. 2018–Feb. 2022 (LabEx NIE grant)
- **Post-doc**: Stefan Schütz, Oct. 2017–Sep. 2018 (IdEx Attractivité grant)
- **Visiting PhD student**: Tiago Santiago do Espirito Santo, Sep. 2017–Mar. 2018 (with R. Bachelard)
- **PhD students (co-supervision)**:  
Vineesha Srivastava (2020–2024, with G. Pupillo); T. Ley, (2021–2023 with P. Collet),
- **Master student projects** (R. Daraban 2022, A. Kasri 2021, G. Percebois 2019)

### Teaching activities

- **Atomic physics 2019,2020,2021,2022** (Université de Strasbourg, Master 1, 10 hours each)
- **Many-body physics 2018,2019,2020,2021** (Université de Strasbourg, Master 2, 10 hours each)

### Advisory activities

- **Industry**: Lead scientific advisor for QuantFI SAS (start-up in quantum finance, Paris, since 2021)
- **Evaluator for faculty hirings**: European Science Foundation
- **Reviewer/panel participant for research grants**:  
FFG (Austria), National Science Centre Poland, University of Trento (Italy), SIRTEQ (Île-de-France)
- **Referee for scientific journals**: IOP Trusted Reviewer Award, Nature Communications, Phys. Rev. X, Phys. Rev. Lett., IOP QST, New J. Phys., Phys. Rev. A/B, EPJ, SciPost, ...

### Other responsibilities & activities

- **PhD committee**  
Rapporteur: A. Dunnett, Sorbonne Université, Paris, supervisor: A. Chin, 2021
- **Referent d’axe** “Correlations quantiques” of the GDR “atomes froides”  
(Directeur: T. Bourdel)
- **QMAT** graduate school supervisor
- **Public outreach**: Interview about quantum computing in University newspaper, “Savoirs 42”

## List of publications and pre-prints

Articles are openly available as pre-prints under: [https://arxiv.org/a/schachenmayer\\_J\\_1.html](https://arxiv.org/a/schachenmayer_J_1.html) 

- [1] “*The rise and fall, and slow rise again, of operator entanglement under dephasing*”  
D. Wellnitz, G. Preisser, V. Alba, J. Dubail, and **J. Schachenmayer**  
pre-print: arXiv:2201.05099 (2022)
- [2] “*Entanglement dynamics in spin chains with structured long-range interactions*”  
G. S. Bentsen, A. J. Daley, and **J. Schachenmayer**  
Invited book chapter: “Entanglement in Spin Chains – Theory and Quantum Technology Applications”,  
(Springer, submitted, 2022)
- [3] “*Disorder enhanced vibrational entanglement and dynamics in polaritonic chemistry*”  
D. Wellnitz, G. Pupillo, and **J. Schachenmayer**  
pre-print: arXiv:2107.06053 (accepted in Comm. Phys. 2022)
- [4] “*Large Random Arrowhead Matrices: Multifractality, Semi-Localization, and Protected Transport in Disordered Quantum Spins Coupled to a Cavity*”  
J. Dubail, T. Botzung, **J. Schachenmayer**, G. Pupillo, and D. Hagenmüller  
pre-print: arXiv:2105.08444 (2021)
- [5] “*A quantum optics approach to photoinduced electron transfer in cavities*”  
D. Wellnitz, G. Pupillo, and **J. Schachenmayer**  
J. Chem. Phys. 154, 054104 (2021)
- [6] “*Dark state semilocalization of quantum emitters in a cavity*”  
T. Botzung, D. Hagenmüller, S. Schütz, J. Dubail, G. Pupillo, and **J. Schachenmayer**  
Phys. Rev. B 102, 144202 (2020)
- [7] “*Photon blockade with ground-state neutral atoms*”  
A. Cidrim, T. S. do Espirito Santo, **J. Schachenmayer**, R. Kaiser, and R. Bachelard  
Phys. Rev. Lett. 125, 073601 (2020)
- [8] “*Adiabatic preparation of entangled, magnetically ordered states with cold bosons in optical lattices*”  
A. Venegas-Gomez, **J. Schachenmayer**, A. S. Buyskikh, W. Ketterle, M. L. Chiofalo, and A. J. Daley  
Quantum Science and Technology 5, 045013 (2020)
- [9] “*Collective Dissipative Molecule Formation in a Cavity*”  
D. Wellnitz, S. Schütz, S. Whitlock, **J. Schachenmayer**, and Guido Pupillo  
Phys. Rev. Lett. 125, 193201 (2020)
- [10] “*Adiabatic elimination for ensembles of emitters in cavities with dissipative couplings*”  
D. Hagenmüller, S. Schütz, G. Pupillo, C. Genes, and **J. Schachenmayer**  
Phys. Rev. A 101, 013617 (2020)
- [11] “*Dynamics of rotated spin states and magnetic ordering with two-component bosonic atoms in optical lattices*”  
A. Venegas-Gomez, A. S. Buyskikh, **J. Schachenmayer**, W. Ketterle, and Andrew J. Daley  
Phys. Rev. A 102, 023321 (2020)
- [12] “*Collective Excitation Dynamics of a Cold Atom Cloud*”  
T. S. do Espirito Santo, P. Weiss, A. Ciprois, R. Kaiser, W. Guerin, R. Bachelard, and **J. Schachenmayer**  
Phys. Rev. A 101, 013617 (2020) (Editors’ Suggestion)
- [13] “*Ensemble-induced strong light-matter coupling of a single quantum emitter*”  
S. Schütz, **J. Schachenmayer**, D. Hagenmüller, V. Sandoghdar, T. W. Ebbesen, C. Genes, and G. Pupillo  
Phys. Rev. Lett. 124, 113602 (2020)
- [14] “*Exploring Superconductivity under Strong Coupling with the Vacuum Electromagnetic Field*”  
A. Thomas, E. Devaux, K. Nagarajan, T. Chervy, M. Seidel, D. Hagenmüller, S. Schütz, **J. Schachenmayer**,  
C. Genet, G. Pupillo, and T. W. Ebbesen  
arXiv:1911.01459 (2019)
- [15] “*Collective Multi-mode Vacuum Rabi Splitting*”  
W. Guerin, T. S. do Espirito Santo, P. Weiss, A. Ciprois, **J. Schachenmayer**, R. Kaiser, and R. Bachelard  
Phys. Rev. Lett. 123, 243401 (2019).

- [16] “*Doublon dynamics of Bose-Fermi mixtures in optical lattices*”  
M. Gärttner, A. Safavi-Naini, **J. Schachenmayer**, and A. M. Rey  
Phys. Rev. A 100, 053607 (2019)
- [17] “*A generalized phase space approach for solving quantum spin dynamics*”  
B. Zhu, A. M. Rey, and **J. Schachenmayer**  
New J. Phys. (Fast Track Communication) 21, 082001 (2019)
- [18] “*Enhancement of the electron-phonon scattering induced by intrinsic surface plasmon-phonon polaritons*”  
D. Hagenmüller, **J. Schachenmayer**, C. Genet, T. W. Ebbesen, and G. Pupillo  
ACS Photonics 6, 1073 (2019)
- [19] “*Out-of-equilibrium quantum magnetism and thermalization in a spin-3 many-body dipolar lattice system*”  
S. Lepoutre, **J. Schachenmayer**, L. Gabardos, B. Zhu, B. Naylor, E. Marechal, O. Gorceix, A. M. Rey, L. Vernac, and B. Laburthe-Tolra  
Nature Communications 10, 1714 (2019)
- [20] “*Cavity-assisted mesoscopic transport of fermions: Coherent and dissipative dynamics*”  
D. Hagenmüller, S. Schütz, **J. Schachenmayer**, C. Genes, and G. Pupillo  
Phys. Rev. B 97, 205303 (2018)
- [21] “*Exploring many body localization and thermalization using semiclassical method*”  
O. L. Acevedo, A. Safavi-Naini, **J. Schachenmayer**, M. L. Wall, R. Nandkishore, and A. M. Rey  
Phys. Rev. A 96, 033604 (2017)
- [22] “*Cavity-enhanced transport of charge*”  
D. Hagenmüller, **J. Schachenmayer**, S. Schütz, C. Genes, and G. Pupillo  
Phys. Rev. Lett. 119, 223601 (2017)
- [23] “*Laser noise imposed limitations of ensemble quantum metrology*”  
D. Plankensteiner, **J. Schachenmayer**, H. Ritsch, and C. Genes  
J. Phys. B 49, 245501 (2016)
- [24] “*Spin-orbit coupled correlated metal phase in Kondo lattices: an implementation with alkaline-earth atoms*”  
L. Isaev, **J. Schachenmayer**, and A. M. Rey  
Phys. Rev. Lett. 117, 135302 (2016)
- [25] “*Doublon dynamics and polar molecule production in an optical lattice*”  
J. P. Covey, S. A. Moses, M. Gärttner, A. Safavi-Naini, M. T. Miecnikowski, Z. Fu, **J. Schachenmayer**, P. S. Julienne, A. M. Rey, D. S. Jin, and J. Ye  
Nature Communications 7, 11279 (2016)
- [26] “*Collective atomic scattering and motional effects in a dense coherent medium*”  
S. L. Bromley, B. Zhu, M. Bishof, X. Zhang, T. Bothwell, **J. Schachenmayer**, T. L. Nicholson, R. Kaiser, S. F. Yelin, M. D. Lukin, A. M. Rey, and J. Ye  
Nature Communications 7, 11039 (2016)
- [27] “*Entanglement growth and correlation spreading with variable-range interactions in spin and fermionic tunnelling models*”  
Anton S. Buyskikh, Maurizio Fagotti, **J. Schachenmayer**, Fabian Essler, and A. J. Daley  
Phys. Rev. A 93, 053620 (2016)
- [28] “*Adiabatic cooling of bosons in lattices to magnetically ordered quantum states*”  
**J. Schachenmayer**, D. M. Weld, H. Miyake, G. A. Siviloglou, A. J. Daley, and W. Ketterle  
Phys. Rev. A 92, 041602(R) (2015)
- [29] “*Synchronization of interacting quantum dipoles*”  
B. Zhu, **J. Schachenmayer**, M. Xu, F. Herrera, J. G. Restrepo, M. J. Holland, and A. M. Rey  
New J. Phys. 17 083063 (2015)
- [30] “*Dynamics of correlations in two-dimensional spin models with long-range interactions: A phase-space Monte-Carlo study*”  
**J. Schachenmayer**, A. Pikovski, and A. M. Rey  
New J. Phys. 17, 065009 (2015)
- [31] “*Cavity-enhanced transport of excitons*”  
**J. Schachenmayer**, C. Genes, E. Tignone, and G. Pupillo  
Phys. Rev. Lett. 114, 196403 (2015)

- [32] “*Conductivity in organic semiconductors hybridized with the vacuum field*”  
E. Orgiu, J. George, J. A. Hutchison, E. Devaux, J. F. Dayen, B. Doudin, F. Stellacci, C. Genet, **J. Schachenmayer**, C. Genes, G. Pupillo, P. Samori, T. W. Ebbesen  
Nature Materials 14, 1123–1129 (2015)
- [33] “*The local density of states on a vibrational quantum dot out of equilibrium*”  
K. F. Albrecht, A. Martin Rodero, **J. Schachenmayer**, L. Mühlbacher  
Phys. Rev. B 91, 064305 (2015)
- [34] “*Many-body quantum spin dynamics with Monte-Carlo trajectories on a discrete phase space*”  
**J. Schachenmayer**, A. Pikovski, and A. M. Rey  
Phys. Rev. X 5, 011022 (2015)
- [35] “*Thermalization of strongly interacting bosons after spontaneous emissions in optical lattices*”  
**J. Schachenmayer**, L. Pollet, M. Troyer and A. J. Daley  
EPJ Quantum Technology, 2:1 (2015)
- [36] “*Light scattering and dissipative dynamics of many fermionic atoms in an optical lattice*”  
S. Sarkar, S. Langer, **J. Schachenmayer**, and A. J. Daley  
Phys. Rev. A 90, 023618 (2014)
- [37] “*Suppressing the loss of ultracold molecules via the continuous quantum Zeno effect*”  
B. Zhu, B. Gadway, M. Foss-Feig, **J. Schachenmayer**, M. Wall, K. R. A. Hazzard, B. Yan, S. A. Moses, J. P. Covey, D. S. Jin, J. Ye, M. Holland, and A. M. Rey  
Phys. Rev. Lett. 112, 070404 (2014)
- [38] “*Spontaneous emissions and thermalization of cold bosons in optical lattices*”  
**J. Schachenmayer**, L. Pollet, M. Troyer, and A. J. Daley  
Phys. Rev. A 89, 011601(R) (2014)
- [39] “*Entanglement growth in quench dynamics with variable range interactions*”  
**J. Schachenmayer**, B. P. Lanyon, C. F. Roos, and A. J. Daley  
Phys. Rev. X 3, 031015 (2013)
- [40] “*Heating dynamics of bosonic atoms in a noisy optical lattice*”  
H. Pichler, **J. Schachenmayer**, A. J. Daley, and P. Zoller  
Phys. Rev. A 87, 033606 (2013)
- [41] “*Noise- or disorder- resilient optical lattices*”  
H. Pichler, **J. Schachenmayer**, J. Simon, P. Zoller, and A. J. Daley  
Phys. Rev. A 86, 051605(R) (2012)
- [42] “*Measuring entanglement growth in quench dynamics of bosons in an optical lattice*”  
A. J. Daley, H. Pichler, **J. Schachenmayer**, and P. Zoller  
Phys. Rev. Lett. 109, 020505 (2012)
- [43] “*Atomic matter-wave revivals with definite atom number in an optical lattice*”  
**J. Schachenmayer**, A. J. Daley, and P. Zoller  
Phys. Rev. A 83, 043614 (2011)
- [44] “*Dynamical crystal creation with polar molecules or Rydberg atoms in optical lattices*”  
**J. Schachenmayer**, I. Lesanovsky, A. Micheli, and A. J. Daley  
New J. Phys. 12, 103044 (2010)
- [45] “*Time-dependent currents of 1D bosons in an optical lattice*”  
**J. Schachenmayer**, G. Pupillo, and A. J. Daley  
New J. Phys. 12, 025014 (2010)

## Selected talks

1. *Invited discussion leader*, CECAM flagship workshop: Local vs. Collective Interactions in Polaritonic Chemistry, Jun. 22–24, Bordeaux, France  
Topic: “Classical vs. Quantum” Regimes of Light-Matter Strong Coupling
2. *Talk*, Conference: APS DAMOP Meeting, May. 30–Jun 3, 2022, Orlando, Florida, USA  
Title: “The rise and fall, and slow rise again, of operator entanglement under dephasing”



3. *Invited talk*, Séminaire matière condensée, LPS Mar. 24, 2022, Saclay, France  
Title: *Dynamics of “entanglement” in ensembles of cold atoms or molecules out of equilibrium*
4. *Invited talk*, Conference, CoScaLi 2021, Sep. 12–Sep. 17, 2021, Porquerolles, France  
Title: *Collective dynamics of “molecules” in a cavity*
5. *Invited talk*, KITP Conference: Transport & Efficient Energy Conversion in Quantum Systems, Aug. 30–Sep. 2, 2021, Santa Barbara, CA, USA (held online)  
Title: *Modified transport properties of dark eigenstates under strong light-matter coupling*
6. *Invited talk*, Conference: Quantum simulations of molecular energy transport (CEFIPRA Symposium), Nov. 30–Dec. 1, 2020, IISER Bhopal, India (held online)  
Title: *Transport and localization properties of dark states under strong light-matter coupling*
7. *Invited talk*, Conference: CoOLMe 2020 (GdR atomes froids), Nov. 16–18, 2020, (held online)  
Title: *Entanglement dynamics and quantum thermalization with ultracold chromium atoms*
8. *Invited talk*, Conference: Long Range Interacting Quantum Systems (French-German WE-Heraeus seminar), Sep. 21–25, 2020, Bad Honnef, Germany (held online)  
Title: *Localization properties of dark eigenstates under strong light-matter coupling*
9. *Talk*, Conference: Molecular Quantum Technology 2019, Dec. 16–20, 2019, Puerto Natales, Chile  
Title: *The Fate of Anderson Localization Under Strong Coupling*
10. *Invited talk*, Conference: Atoms and photons 2019, Nov. 5–7, 2019, Nice, France  
Title: *The Fate of Anderson Localization Under Strong Coupling*
11. *Invited talk*, Conference: Quantum and Classical Systems with Long-Range Interactions, Jul. 15–19, 2019, Natal, Brazil  
Title: *Dynamics in dipolar lattice systems: A semi-classical perspective on entanglement build-up and thermalization*
12. *Invited talk*, Conference: Molecular Polaritonics 2019, Jul. 7–11, 2019, Miraflores de la Sierra, Spain  
Title: *Numerical simulations of ultra-cold atom experiments: Applications to molecular polaritonics?*
13. *Invited talk*, Colloquium: International Max Planck Research School, Mar. 21, 2019, Erlangen, Germany  
Title: *Thermalization in quantum spin models: A semi-classical perspective*
14. *Invited talk*, Seminar: Theory of Quantum Matter Group, ENS Lyon, Jan. 24, 2019, Lyon, France  
Title: *Dynamics of correlations and thermalization of dipolar quantum spin models: A semi-classical perspective*
15. *Invited talk*, Seminar: Institute for Molecular Science (IMS), Dec. 13, 2018, Okazaki, Japan  
Title: *Quantum thermalization in a spin-3 many-body model in an optical lattice*
16. *Invited talk*, Seminar: Computational Nonlinear & Quantum Optics Group, University of Strathclyde, Sep. 14, 2018, Glasgow, Scotland, UK  
Title: *Entanglement build-up and thermalization with Chromium atoms in an optical lattice*
17. *Invited talk*, Seminar: Max Planck Institute for the Science of light (MPL), Jul. 3, 2018, Erlangen, Germany  
Title: *Semi-classical approaches to many-body spin-dynamics*
18. *Invited talk*, CQD Colloquium, Physikalisches Institut, Universität Heidelberg, May. 16, 2018, Germany  
Title: *Semi-classical numerical approaches to many-body spin-dynamics*
19. *Invited talk*, Seminar: Theoretical Chemistry Group, UCSD, Mar. 11, 2018, San Diego, USA  
Title: *Semi-classical numerical approaches to many-body spin-dynamics*
20. *Invited talk*, Seminar: Groupe de Physique Statistique, Université de Lorraine, Feb. 8, 2018, Nancy, France  
Title: *Exploring dynamics and entanglement in quantum many-body lattice systems*
21. *Invited talk*, Conference: Entangled Interacting Quantum Matter (ENIQMA), Nov. 27–28, 2017, Lille, France  
Title: *Simulating quantum many-body dynamics with discrete Wigner functions*
22. *Invited talk*, Seminar: FOTONIKA-LV, Latvijas Universitāte, Oct. 26, 2017, Riga, Latvia  
Title: *Phase-space dynamics of quantum many-body models*
23. *Invited talk*, OSA Latin America Optics & Photonics Conference, Aug. 22–25, 2016, Medellín, Colombia  
Title: *Exploring Quantum Many-Body Spin Dynamics with Truncated Wigner Methods*
24. *Invited talk*, Conference: CoScaLi 2016, May. 9–12, 2016, Ubatuba, Brazil  
Title: *Collective atomic emission and its interplay with motional effects*

25. *Invited talk*, Conference: APS March Meeting, Mar. 14–18, 2016, Baltimore, Maryland, USA  
Title: *Exploring Quantum Many-Body Spin Dynamics with Truncated Wigner Methods*
26. *Invited talk*, Conference: ICAM Energy Transport Workshop 2015, Dec. 14–16, 2015, Boulder, Colorado, USA  
Title: *Cavity and vacuum field effects on exciton and charge transport in organic semiconductors*
27. *Invited talk*, Seminar: Departamento de Física, Universidad de Santiago de Chile, Oct. 14, 2015  
Title: *Numerical computations of quantum many-body dynamics & Cavity-assisted transport*
28. *Invited talk*, Seminar: Institut für Theoretische Physik (ITP), Aug. 17, 2015, Innsbruck, Austria Title: *The discrete truncated Wigner approximation & Cavity enhanced transport*
29. *Talks*, Conference: APS DAMOP Meeting, Jun. 8–12, 2015, Columbus, Ohio, USA  
Title: *“Transport dynamics in quantum lattice models and the discrete truncated Wigner approximation”*  
Title: *“Novel phase-space Monte-Carlo method for quench dynamics in 1D and 2D spin models”*
30. *Invited talk*, Conference: Frontiers in Optics/Laser Science 2014, Oct. 19–24, 2014, Tucson, Arizona, USA  
Title: *Simulating many-body dynamics in systems of cold atoms, molecules, and ions*
31. *Talk*, Conference: APS DAMOP Meeting, Jun. 2–6, 2014, Madison, Wisconsin, USA Title: *“The truncated Wigner approximation for spin dynamics in systems of trapped ions, atoms & molecules”*
32. *Talk*, Conference: APS March Meeting, Mar. 3–7, 2014, Denver, Colorado, USA  
Title: *“Spin dynamics and entanglement growth with trapped ions, atoms & molecules”*
33. *Talk* Conference: APS DAMOP Meeting Jun. 3–7, 2013, Quebec City, Quebec, Canada  
Title: *“Dynamical entanglement creation and measurement with cold atoms or ions”*
34. *Talk*, Conference: APS March Meeting, Mar. 18–22, 2013, Baltimore, Maryland, USA  
Title: *“Spin dynamics and entanglement growth with trapped ions, atoms & molecules”*
35. *Talk*, APS March Meeting, Mar. 29–31, 2012, Boston, Massachusetts, USA  
Title: *“Cold bosons in noisy optical lattices”*

## Older scientific and non-scientific achievements and experiences

- **Research project**, Max Planck Institute of Quantum Optics  
Theory Division, Garching (Group of J. I. Cirac)  
*“Numerical simulation of 1D hard-core bosons”* (Mar. - Aug. 2007)
- **Research project**, Max Planck Institute for Extraterrestrial Physics  
Theory and Complex Plasmas Group, Garching  
*“C & IDL code optimization”* (Mar. – May 2006)
- **Alternative Civilian Service**, Bischof-Wittmann-Schule, Regensburg, Germany  
School for mentally disabled children (2002-2003)
- **Repeated participation in “Start-Up Gründungswerkstatt”**  
German-wide entrepreneurship competition  
Placed 1st in 2001, 2nd in 2000 (now <http://www.dgp-schueler.de>)