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## Personal data

Place and date of birth: Miltenberg am Main (Germany), July 22, 1987.

Citizenship: German

Family status: Married, one child

Work address:

Institut de Science et d'Ingénierie Supramoléculaires

University of Strasbourg

8 Allée Gaspard Monge

67000 Strasbourg (France)

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## Research Interests

Condensed matter, effects of strong correlations, many-body localization, ultracold atomic lattice systems, BEC, supersolidity, Rydberg atoms, magnetism, nonequilibrium systems, superconductivity

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## Education

7/2013 – 2/2018

**Goethe Universität, Frankfurt am Main**

**Ph.D. position at the Institut für Theoretische Physik**

- Doctorate with *summa cum laude*, defended in October 2018  
Thesis title: *Lattice-supersolids in bosonic quantum gases with Rydberg excitations*  
Supervisor: Prof. Dr. Walter Hofstetter

10/2008 – 6/2013

**Julius-Maximilians-Universität, Würzburg**

**Study program FOKUS-Physics**

- Area of studies: Theoretical and Computational Physics
- Master of Science with honors (1,4) in May 2013  
Thesis title: *Kasteleyn's dimer representation of the classical Ising problem – a generalisation for arbitrary external field  $H$*   
Supervisor: Prof. Dr. Reinhold Oppermann
- Bachelor of Science with honors (1,3) in November 2011  
Thesis title: *Supraleitung im 2-Band-Modell: funktionale Renormierungsgruppen-Studien*  
Supervisor: Prof. Dr. Dr. h.c. Werner Hanke

09/2007 – 06/2008

**Alternative service with the Johanniter-Unfall-Hilfe, Miltenberg**

- In parallel: Semester of correspondence course in theoretical physics at the University Bayreuth

09/1998 – 07/2007

**Johannes-Butzbach-Gymnasium, Miltenberg am Main**

- Abitur (German A-levels): gut (1,9)

## Employment

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Since 09/2018	<b>Institut de Science et d'Ingénierie Supramoléculaires, Strasbourg</b> Postdoctoral fellow (Leopoldina Research Fellow since 01/2019)
07/2013 – 09/2018	<b>Goethe Universität, Frankfurt am Main</b> Research assistant at the Institut für Theoretische Physik
06/2012 – 02/2013	<b>Julius-Maximilians-Universität, Würzburg</b> Research assistant at the Fakultät für Physik und Astronomie
06/2008 – 07/2008	<b>PSI AG, Aschaffenburg</b> Internship (development of guidance systems)
09/2007 – 06/2008	<b>Johanniter-Unfall-Hilfe, Miltenberg</b> Alternative service: <ul style="list-style-type: none"><li>▪ Shuttle service</li><li>▪ Community care</li></ul>

## Awards and Honors

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Leopoldina Research Fellowship (granted by the Deutsche Akademie der Naturforscher Leopoldina - German National Academy of Sciences in 12/2018)

Master of Science with Honors as a FOKUS-student of the Julius-Maximilians-Universität Würzburg (<10 % of students accepted; with organized internship project at the MPI Göttingen in WS 09/10)

## Visited workshops/schools/meetings/conferences

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- Israel-Strasbourg “Quantum dynamics” mini-symposium (October 2018)
- DPG spring meeting in Erlangen (March 2018)
- GiRyd Status Workshop in Dresden (November 2017)
- CQD Mini Symposium in Heidelberg (April 2017)
- DPG spring meeting in Mainz (March 2017)
- GiRyd kick-off meeting in Heidelberg (November 2016)
- 10th Annual Retreat of the SFB/TR 49 in Bensheim (September 2016)
- “Quantum Dynamics: From Algorithms to Applications” workshop at the Alfred-Krupp-Wissenschaftskolleg in Greifswald (September 2016)
- DPG spring meeting in Hannover (March 2016)
- 9th Annual Retreat of the SFB/TR 49 in Langenselbold (September 2015)
- “Hybrid Atomic Quantum Systems” workshop in Hamburg (September 2015)
- “International conference on Rydbergs at Durham” final conference of the COHERENCE network (June/July 2015)
- DPG spring meeting in Heidelberg (March 2015)
- 8th Annual Retreat of the SFB/TR 49 in Höhr-Grenzhausen (September 2014)
- “Ultracold Rydberg physics workshop” of the COHERENCE network in Granada (September 2014)
- 4th Les Houches School in computational physics: “From quantum gases to strongly correlated systems” (June/July 2014)

- DPG spring meeting in Berlin (March 2014)
- “Transregio SFB/TR 49 Student Seminar” in Hamburg (October 2013)
- 7th Annual Retreat of the SFB/TR 49 in Bensheim (September 2013)

## Publications

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- 1. Density-wave steady-state phase of dissipative ultracold fermions with nearest-neighbor interactions**  
Jaromir Panas, Michael Pasek, Arya Dhar, Tao Qin, Andreas Geißler, Mohsen Hafez-Torbati, Max E. Sorantin, Irakli Titvinidze, Walter Hofstetter  
arXiv:1811.07369 (accepted at *Physical Review B*)
- 2. Decay-dephasing-induced steady states in bosonic Rydberg-excited quantum gases in an optical lattice**  
Mathieu Barbier, Andreas Geißler, Walter Hofstetter  
arXiv:1806.08588 (accepted at *Physical Review A*)
- 3. Quasiparticle spectra of supersolid lattice gases at near-resonant Rydberg-dressing**  
Andreas Geißler, Ulf Bissbort, Walter Hofstetter  
*Physical Review A* **98**, 063635 (2018), arXiv:1806.05911
- 4. Supersolidity of lattice bosons immersed in strongly correlated Rydberg dressed atoms**  
Yongqiang Li, Andreas Geißler, Walter Hofstetter and Weibin Li  
*Physical Review A* **97**, 023619 (2018), arXiv: 1705.01026
- 5. Infinite occupation number basis of bosons: Solving a numerical challenge**  
Andreas Geißler and Walter Hofstetter  
*Physical Review B* **95**, 224516 (2017), arXiv: 1611.10185
- 6. Condensation versus long-range interaction: Competing quantum phases in bosonic optical lattice systems at near-resonant Rydberg dressing**  
Andreas Geißler, Ivana Vasić and Walter Hofstetter  
*Physical Review A* **95**, 063608 (2017), arXiv: 1509.06292

## Invited talks

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- “Stability and instabilities of bosonic crystalline quantum phases of Rydberg dressed lattice gases” seminar talk at the ISIS in Strasbourg (May 2017)
- “Bosonic quasi-particle spectra of long-range ordered phases” at the CQD Mini Symposium in Heidelberg (April 2017)
- “Tackling the multitude of bosonic quantum phases in Rydberg-dressed optical lattice systems” at the 10th Annual Retreat of the SFB/TR 49 in Bensheim (September 2016)
- “Tackling the multitude of bosonic quantum phases in Rydberg-dressed optical lattice systems” SCL Seminar at the Institute of Physics Belgrade (August 2016)
- “Generalising Kasteleyns dimer representation of the classical Ising problem” seminar talk at the Goethe Universität Frankfurt (March 2013)

## Contributed talks

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- “Beam-shape assisted Rydberg many-body blockade” at the Israel-Strasbourg “Quantum dynamics” mini-symposium (October 2018)
- “Quasi-particle spectra of bosonic Rydberg-dressed many-body phases” at the DPG spring meeting in Erlangen (March 2018)
- “Stability and instabilities of bosonic crystalline quantum phases of Rydberg dressed lattice gases” at the DPG spring meeting in Mainz (March 2017)
- “Tackling the multitude of bosonic quantum phases in Rydberg-dressed optical lattice systems” at the “Quantum Dynamics: From Algorithms to Applications” workshop at the Alfried-Krupp-

Wissenschaftskolleg Greifswald (September 2016)

- “Effect of lattice geometry on bosonic quantum phases of Rydberg dressed lattice gases” at the DPG spring meeting in Hannover (March 2016)
- “Dynamical Mean-Field Theory of Rydberg-dressed quantum gases” at the COHERENCE YEA meeting & Idea Factory in Granada (September 2014)

## **Posters**

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- “Quasi-particle spectra of bosonic Rydberg-dressed many-body phases” GiRyd Status Workshop (November 2017)
- “Ordered states of Rydberg-dressed ultracold quantum gases in optical lattices” GiRyd kickoff meeting (November 2016)
- “Condensation vs. Interaction: Competing Quantum Phases in Bosonic optical lattice systems at near resonant Rydberg dressing” at the “Hybrid Atomic Quantum Systems” workshop in Hamburg (September 2015)
- “Tackling the multitude of bosonic quantum phases in Rydberg-dressed optical lattice systems” at the “International conference on Rydbergs at Durham” final conference of the COHERENCE network (June/July 2015)
- “Dynamical Mean-Field Theory of Rydberg-dressed quantum gases in optical lattices” at the DPG spring meeting in Heidelberg (March 2015)
- “Dynamical Mean-Field Theory of Rydberg-dressed quantum gases” at the “Ultracold Rydberg physics workshop” of the COHERENCE network in Granada (September 2014)
- “Dynamical Mean-Field Theory of Rydberg-dressed quantum gases in optical lattices” at the 4th Les Houches School in computational physics: “From quantum gases to strongly correlated systems” (June/July 2014)
- “Dynamical Mean-Field Theory of Rydberg-dressed quantum gases in optical lattices” at the DPG spring meeting in Berlin (March 2014)

## **Teaching experience / Tutorials**

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WS 2017/18: Theoretical physics I

WS 2016/17: Statistical mechanics

SoSe 2016: Quantum mechanics 1

WS 2015/16: Theoretical Quantum Optics

SoSe 2015: Computational Physics and Simulations with Matlab

WS 2014/15: Theoretical physics III: Electrodynamics

SoSe 2014: Quantum mechanics 1

WS 2013/14: Theoretical physics I for prospective teachers

Strasbourg, 28. February 2019