Curriculum Vitae: Prof. Dr. Nils Blümer

Contact Information

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Professional Experience / Position offers

Since 10/2011	Acting associate professor (W2), University of Mainz
Since 5/2011	Extracurricular professorship at the University of Mainz
2/2011 - 9/2011	Research associate (Akademischer Rat auf Zeit) at the University of Mainz
2/2005 - 2/2011	Assistant professor (Juniorprofessor) for Theoretical Solid State Physics at the University of Mainz; positive evaluation in 1/2008
11/2004	Offer of assistant professorship (Juniorprofessur) for Theoretical Physics at the University of Frankfurt/Main (declined)
2001 - 2005	Senior scientist (since 2003 research associate, C1) with Prof. Dr. P. van Dongen at the University of Mainz

Education

12/2002	Doctorate in Physics (*summa cum laude* at University of Augsburg), thesis: *Mott-Hubbard Metal-Insulator Transition and Optical Conductivity in High Dimensions*
2000	Master of Science (UIUC), GPA: 3.96
1999	Research visit at University of Cincinnati (with Prof. M. Jarrell)
1997 - 2000	Doctoral student at the University of Augsburg (with Prof. Dr. D. Vollhardt)
1996 - 1997	Graduate student at the University of Illinois at Urbana-Champaign (UIUC); research assistant with Prof. D. Ceperley
7/1996	Diploma in Physics ("very good")
1991 - 1996	Studies in Physics and Mathematics at the RWTH Aachen
1990	Abitur at the Schillergymnasium Münster (highest grade, 1.0)

Stipends and Prizes

1996 - 1997	Fulbright scholarship
1996	*Best student poster* at the Midwestern Solid State Theory Conference (UIUC)
1990	Participant in final selection contest (4^{th} round) for International Physics Olympiad

Publications

More than 30 publications, more than 620 (1050) citations, h-index 13 (17): ISI WoS (Google Scholar)

Invited Talks and Lectures

More than 40 talks at international conferences and workshops (including several schools) and invited talks at national meetings and seminars. For a full list, see: http://komet337.physik.uni-mainz.de/Bluemer/presentations.

Research Interests

- Condensed matter theory, in particular theory of strongly correlated fermions
- Dynamical mean-field theory (DMFT) and LDA+DMFT approach
- Development and application of quantum Monte Carlo (QMC) algorithms
- Single-band and orbital-selective Mott metal-insulator transitions
- Correlations and proximity effects in ultracold quantum gases
- Microscopic mechanisms for magnetism and magnetic frustration

Funding by German Research Foundation (DFG)

2010 - 2016 Project P9 *Quantum Monte Carlo impurity solvers for multi-orbital problems and frequency-dependent interactions* (with F. Assaad, Würzburg, and P. Werner, Fribourg) in FOR 1346 - one doctoral position (each)

2007 - 2015 Project A6 *Multi-flavour Mott transitions and magnetism of ultracold quantum gases on optical lattices* in SFB/TR 49 (Frankfurt, Kaiserslautern, Mainz) - one doctoral position

2004 - 2007 Project TP6 *Microscopic theory of double perovskites: LDA+DMFT evaluated by QMC* (with P. van Dongen) in FOR 559 (Mainz, Kaiserslautern) - one doctoral position

In addition, about 75000 EUR from state initiatives (Center for Computational Sciences and Research Fund of the Gutenberg University Mainz) plus funding of a doctoral student by the graduate school of excellence MATCOR/MAINZ.

Teaching and Supervision of Theses

- Main courses in Theoretical Physics: 2× *Introduction* (2nd semester), 3× *Analytical Mechanics* (3rd semester), 1× Classical Field Theory (6th semester), all with positive evaluation
- Advanced courses: 3× *Computer Simulations in Statistical Physics*, 2× *Advanced Numerical Methods in Solid State Theory*, 2× *Condensed Matter Theory*, all with positive evaluation
- Beginners courses (*Mathematical Extensions to Physics I+II*) and seminars (including an exceptionally successful proseminar for top 2nd semester students)
- Main supervision of 1 diploma and 2 doctoral theses. Co-supervision of 2 diploma theses and 1 doctoral thesis. Second examiner of 2 doctoral theses (groups of I. Bloch and K. Binder). Member of 6 doctoral committees. More than 30 examinations of diploma students.

For a full list of lectures, see: http://komet337.physik.uni-mainz.de/Bluemer/lectures

Other Activities (Editorial Work & Research Management)

since 2011 Reviewer for the Deutsche Forschungsgemeinschaft

since 2010 Reviewer for the Swiss National Science Foundation

since 2008 Member of Center for Computational Sciences at the University of Mainz

2008 - 2012 Associated member of the graduate center of excellence “Materials Science in Mainz”

since 2003 Regular referee for Phys. Rev. Lett., Phys. Rev. A + B + E, EPL, and Eur. Phys. J. B