Nicholas Sedlmayr
Curriculum Vitae

Personal Details

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Institute for Mathematical and Theoretical Physics
Michigan State University
East Lansing, MI 48824
U.S.A.

Education

2006 Ph.D., Theoretical Physics
The University of Birmingham, UK

2002 MSci. First Class (Honours), Theoretical Physics and Applied Mathematics
The University of Birmingham, UK

Academic Employment

2015 Research Associate Postdoctoral Fellow
Institute for Mathematical and Theoretical Physics
Michigan State University
East Lansing, U.S.A.

2013 - 2015 Postdoctoral Researcher
Institute of Theoretical Physics, CEA Saclay
Saclay, France

2010 - 2013 Postdoctoral Researcher
Department of Physics, University of Kaiserslautern
Kaiserslautern, Germany

2007 - 2009 Postdoctoral Researcher
Institute of Physics, Martin-Luther-University
Halle (Saale), Germany

2006 - 2007 Postdoctoral Researcher
Max-Planck Institute for Microstructure Physics
Halle (Saale), Germany

Publications

Journal Articles

1. E. König, A. Levchenko, and N. Sedlmayr
   Universal fidelity near quantum and topological phase transitions in finite 1D systems
   ArXiv: 1602.04201
2. M. Guigou, N. Sedlmayr, J.M. Aguiar-Hualde, and C. Bena
   Signature of a topological phase transition in long SN junctions in the spin-polarized density of states
   ArXiv: 1407.1393
3. I.M. Dayton, N. Sedlmayr, V. Ramirez, T. Chasapis, R. Loloee, M. Kanatzidis, A. Levchenko, and S. Tessmer
   Scanning tunneling microscopy of superconducting topological surface states in Bi2Se3
   Phys. Rev. B (Rapid Comm.) 93, 220506(R) (2016)
4. N. Sedlmayr, J.M. Aguiar-Hualde, and C. Bena
   Majorana bound states in open quasi-1D and 2D systems with transverse Rashba coupling
   Phys. Rev. B, 93, 155425 (2016)
5. N. Sedlmayr, M. Guigou, P. Simon, and C. Bena
   Majoranas with and without a 'character': hybridization, braiding and Majorana number
   Journal of Physics: Condensed Matter, 27, 455601 (2015)
6. N. Sedlmayr, and C. Bena
   Visualising Majorana bound states in 1D and 2D using the generalized Majorana polarization
   Phys. Rev. B, 92, 115115 (2015)
7. N. Sedlmayr, J.M. Aguiar-Hualde, and C. Bena
   Flat Majorana bands in 2-d lattices with inhomogeneous magnetic fields: topology and stability
   Phys. Rev. B, 91, 115415 (2015)
8. J. Sirker, M. Maiti, N.P. Konstantinidis, and N. Sedlmayr
   Boundary fidelity and entanglement in the symmetry protected topological phase of the SSH model
   Journal of Statistical Mechanics: Theory and Experiment, P10032 (2014)
9. J. Sirker, N.P. Konstantinidis, F. Andraschko, and N. Sedlmayr
   Locality and thermalization in closed quantum systems
   Phys. Rev. A, 89, 042104 (2014)
10. N. Sedlmayr, D. Morath, J. Sirker, S. Eggert, and I. Affleck
    Conducting fixed points for inhomogeneous quantum wires: a conformally invariant boundary theory
    Phys. Rev. B, 89, 045133 (2014)

11. N. Sedlmayr, V.K. Dugaev, and J. Berakdar
Dynamics of the polarization of a pinned domain wall in a magnetic nanowire
Physica Status Solidi (b), 251, 231 (2014)

12. N. Sedlmayr, P. Korell, and J. Sirker
Two-band Luttinger liquid with spin-orbit coupling: Applications to monatomic chains on surfaces
Phys. Rev. B., 88, 195113 (2013)

13. N. Sedlmayr, J. Ren, F. Gebhard, and J. Sirker
Closed and open system dynamics in a fermionic chain with a microscopically specified bath: Relaxation and thermalization
Phys. Rev. Lett. 110, 100406 (2013)

14. N. Sedlmayr, P. Adam, and J. Sirker
Theory of the conductance of interacting quantum wires with good contacts and applications to carbon nanotubes
Phys. Rev. B., 87, 035439 (2013)

15. N. Sedlmayr, J. Ohst, I. Affleck, J. Sirker, and S. Eggert
Transport and scattering in inhomogeneous quantum wires
Phys. Rev. B (Rapid Comm.) 86, 121302(R) (2012)

16. N. Sedlmayr and J. Berakdar
Negative differential magnetoresistance in ferromagnetic wires with domain walls
Phys. Rev. B, 86, 024409 (2012)

17. F. Gebhard, K. zu Münster, J. Ren, N. Sedlmayr, J. Sirker, and B. Ziebarth
Particle injection into a chain: decoherence versus relaxation for Hermitian and non-Hermitian dynamics
Annalen der Physik, 524, 286 (2012)

18. N. Sedlmayr, V.K. Dugaev, M. Inglot, and J. Berakdar
Indirect interaction of domain walls
Physica Status Solidi RRL, 5, 450 (2011)

19. N. Sedlmayr, S. Eggert, and J. Sirker
Electron scattering from domain walls in ferromagnetic Luttinger liquids
Phys. Rev. B, 84, 024424 (2011)

20. N. Sedlmayr, V.K. Dugaev, and J. Berakdar
Spin density waves and domain wall interactions in nanowires
Phys. Rev. B, 83, 174447 (2011)

21. N. Sedlmayr, V.K. Dugaev, and J. Berakdar
Role of non-collinear magnetization: from ferromagnetic nanowires to rings
Physica Status Solidi (b), 247, 2603 (2010)

22. N. Sedlmayr, V.K. Dugaev, and J. Berakdar
Current-induced interactions of multiple domain walls in magnetic quantum wires
Phys. Rev. B, 79, 174422 (2009)

23. N. Sedlmayr and J. Berakdar
Transport properties of an interacting quantum dot in a non-uniform magnetization

Europhys. Lett., 83, 57003 (2008)

24. N. Sedlmayr, I.V. Yurkevich, and I.V. Lerner
Tunnelling density of states at Coulomb blockade peaks
Europhys. Lett., 76, 109 (2006)

Conference Proceedings

1. N. Sedlmayr, S. Eggert, and J. Sirker
Non-collinear ferromagnetic Luttinger liquids
J. Phys.: Conf. Ser., 303, 012107 (2011)
2. N. Sedlmayr, V.K. Dugaev, J. Berakdar, V.R. Vieira, M.A.N. Araújo, and J. Barnaś
Spin and charge transport through non-collinear magnetic nanowires
J. Magn. Magn. Mater., 322, 1419 (2010)

On-line book chapters

1. N. Sedlmayr, J. Berakdar, M.A.N. Araújo, V.K. Dugaev, and J. Barnaś
Charge and spin transport in magnetic nanowires
Nanowires – Fundamental Research (Intech, Croatia) (2011)

Invited talks

2014 Technical University of Kaiserslautern, Germany, 6 November 2014
2013 *SFB/TRR 49 Condensed Matter Systems with Variable Many-Body Interactions* Annual Retreat, Bensheim, Germany, 19-20 September 2013
2012 Marburg University, Germany, 8 November 2012
2011 *SFB/TRR 49 Condensed Matter Systems with Variable Many-Body Interactions* Annual Retreat, Alzey, Germany, 15-16 September 2011
2011 Max Planck Institute for Solid State Research, Stuttgart, Germany, 6 July 2011.
2011 Invited talk at the Martin-Luther University, Halle, Germany, 2 May 2011

Contributed talks

2016 *APS March Meeting*, Baltimore, USA 14-18 March
2013 *APS March Meeting*, Baltimore, USA 18-22 March
2012 *CMD24-CMMP12*, Edinburgh, Scotland, 3-7 September
2012 *German Physical Society (DPG) Spring Meeting*, Berlin, Germany, 26-30 March
2012 *APS March Meeting*, Boston, USA, 27 February-3 March
2011 *CMMP11*, Manchester, England, 13-15 December
2011 *APS March Meeting*, Dallas, USA, 21-25 March
2010 *Joint European Magnetic Symposia*, Krakow, Poland, 23-28 August
2009 *German Physical Society (DPG) Spring Meeting*, Dresden, Germany, 22-27 March