

Curriculum vitae (March 12, 2023)

Personal data:

Name: Magdalena Joanna
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Degrees

- 2018 Habilitation in Theoretical Physics, University of Regensburg, thesis title:
"Interactions and topological states in hybrid carbon nanotube/superconductor and carbon nanotube/metal devices"
- 2000 - 2004 PhD study at the University of Silesia, supervisor: Prof. Marek Szopa, thesis title:
"Electronic structure and persistent currents in carbon cages and nanotubes"
- 1997 - 1998 MSc study in theoretical physics at Univ. of Silesia, supervisor: Prof. Marek Zrałek, thesis title:
"Quantum interference between states with undetermined mass"

Language skills

Native language: Polish
Fluent: English, French
Intermediate: German

Current employment

2018 - present Privatdozent at the University of Regensburg, Germany

Previous work experience

- 02/2018, 10/2018, 10/2019 visiting researcher in the group of Prof. Andres Ayuela,
Donostia International Physics Center, San Sebastian (Spain)
- 2012 - 2018 research assistant at the University of Regensburg, Germany
- 2006 - 2012 post-doctoral fellow at the University of Regensburg, Germany
- 2004 - 2006 post-doctoral fellow at the University of Silesia (Katowice, Poland)
- 06-09/2001 visiting researcher in the group of Prof. Arnout Ceulemans,
Katholieke Universiteit Leuven (Belgium)

Research funding and grants

- 2021 - 2024 second phase of CRC 1227 *"Emergent relativistic effects in condensed matter: From fundamental aspects to electronic functionality"*, PI in the project B4 *"Spin-orbit interaction and superconductivity in hybrid 1D-2D van der Waals heterostructures"* with Dr. Nicola Paradiso, Prof. Milena Grifoni and Prof. Christoph Strunk, 589.2k €, theory: 189.6k €

- 2017 - 2021 CRC 1227 "Emergent relativistic effects in condensed matter: From fundamental aspects to electronic functionality", PI in the project B4 "Spin-orbit interaction in hybrid superconductor-1D systems" with Prof. Milena Grifoni and Prof. Christoph Strunk, 533.5k €, theory: 296.5k €
- 2017 - 2018 Academic Research Sabbatical grant of the University of Regensburg in the winter term, 7k €
- 2002 - 2003 Polish Committee for Scientific Research PhD grant "Electronic structure and magnetic properties of carbon nanotube systems"

Research output

Total number of publications: 35

Main publications:

- ✦ *Linear and non-linear transport across a finite Kitaev chain: an exact analytical study*
N. Leumer, M. Grifoni, B. Muralidharan, M. Marganska, Phys. Rev. B 103 (2021) 165432
- ✦ *Metallic Carbon Nanotube Quantum Dots with Broken Symmetries as a Platform for Tunable Terahertz Detection*
G. Buchs, M. Marganska, J. W. González, K. Eimre, C. A. Pignedoli, D. Passerone, A. Ayuela, O. Gröning, D. Bercioux, Appl. Phys. Rev. 8, 021406 (2021)
- ✦ *Fabry-Pérot oscillations in correlated carbon nanotubes*
W. Yang, C. Urgell, S. L. De Bonis, M. Marganska, M. Grifoni, A. Bachtold, Phys. Rev. Lett. 125 (2020) 187701
- ✦ *Shaping electron wave functions in a carbon nanotube with a parallel magnetic field*
M. Marganska, D. R. Schmid, A. Dirnacher, P. L. Stiller, Ch. Strunk, M. Grifoni and A. K. Hüttel, Phys. Rev. Lett. 122 (2019) 086802, Editor's Choice
- ✦ *Majorana quasiparticles in semiconducting carbon nanotubes*,
M. Marganska, L. Milz, W. Izumida, C. Strunk and M. Grifoni, Phys. Rev. B 97 (2018) 075141
- ✦ *Blocking transport resonances via Kondo entanglement in quantum dots*,
M. Niklas, S. Smirnov, D. Mantelli, M. Marganska, N.-V. Nguyen, W. Wernsdorfer, J.-P. Cleuziou and M. Grifoni, Nature Communications 7 (2016) 12442
- ✦ *Signatures of spin-orbit interaction in transport properties of finite carbon nanotubes in parallel magnetic field*
M. del Valle, M. Marganska, M. Grifoni, Phys. Rev. B 84 (2011) 165427
- ✦ *Spin-orbit interaction in chiral carbon nanotubes probed in pulsed magnetic fields*
S. H. Jhang, M. Marganska, Y. Skourski, D. Preusche, B. Witkamp, M. Grifoni, H. van der Zant, J. Wosnitza, and C. Strunk, Phys. Rev. B 82 (2010) 041404

Research supervision and leadership experience

Diploma: 1, co-supervisor

Bachelor: 5 co-supervisor, 3 principal supervisor

Master: 1, co-supervisor

PhD: 2, co-supervisor

Other academic activities:

- ✦ membership in doctoral committees
- ✦ referee for Nature Communications, Physical Review Letters, Journal of Physics: Condensed Matter and physica status solidi (b)

Administrative duties

2018 - 2022 gender equality representative of the Faculty of Physics

2017 - 2021 gender equality representative and member of the board of the Integrated Research Training Group within the CRC 1277

Organization

- 2023 Focus session “Topology in quantum and classical physics: from topological insulators to active matter” during the Spring Meeting of the Condensed Matter Section of German Physical Society, Dresden 2023
- 2022 International Conference on Superlattices, Nanostructures and Nanodevices, Quy Nhon, Vietnam (planned for 3rd - 8th July 2022, cancelled)
- 2019 Focus session “Designer Quantum Systems” during the Spring Meeting of the Condensed Matter Section of German Physical Society, Regensburg 2019

Selected invited talks and seminars

- 2023 *Two-gap Ising superconductivity from Coulomb interactions in monolayer NbSe₂*, 25.01.2023 Wrocław University of Science and Technology, Poland
- 2022 *On the quest for topological superconductivity: theoretical and experimental study of carbon nanotubes and NbSe₂*, 29.08.2022 Tohoku University, Sendai, Japan
- 2019 *Majorana states in carbon nanotubes*, 27.05.2019 Ecole Normale Supérieure, Paris
- 2017 *Shaping wave functions with parallel magnetic field*, 23.11.2017 Donostia International Physics Center in San Sebastian (Spain)
Majorana fermions in carbon nanotubes: microscopic modelling, international GRK 1570 workshop “Boundary effects and correlations in one-dimensional systems” 1-2.06.2017 Regensburg
- 2015 *How technology mimics life: individual and coordinated microswimmers*, Talk Nano! series of talks, 28.04.2015 Regensburg

Outreach activities

Popular science lectures for general public in my hometown Katowice (Poland):

Historia pewnego pierwiastka (The history of carbon), 2005

Pamięć Ziemi. Wspomnienia naszej planety (Earth's memory. From the prehistory of our planet), 2009

Utracone ścieżki ewolucji (The lost evolutionary paths), 2010

Mali twórcy wielkiego świata (Tiny creators of the wide world), 2010