

Position: Research group leader

Born: May 14, 1975 (male)

Affiliation:

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Institute of Solid State
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Career Path

- Oct 2020 to now** **Acting head of the solid state physics professorship (Vertretungsprofessor), IFMP, TU Dresden**
Topics: Spinelectronics, topological insulators, layered materials, ALD and sputter deposition of complex metal and insulator thin films
- July 2015 to now** **Group leader of the Quantum Materials and Devices Group at the Institute of Solid State and Materials Research (IFW-Dresden)**
Deputy director of the Institute for Metallic Materials since 2018
- Oct 2009 to July 2015** **Head of a Junior Research Group Physics department at Bielefeld University, Germany**
Topic: Materials for Spin Polarized Tunneling
During this time visiting professor (Vertretungsprofessor) in Hamburg, Mainz and Osnabrück
- June 2005 to Oct 2009** **Research Supervisor Physics department at Bielefeld University, Germany**
Working on magnetic tunnel junctions and materials for spin polarized tunneling
- May 2003 to May 2005** **Postdoctoral researcher at Mass. Inst. of Tech., Cambridge (USA)**
Working with Dr. Jagadeesh Moodera,
research focus: spin polarized transport, superconductivity, magnetic nanostructures

Scientific Degrees

- August 2009** **Habilitation** at the Physics Department of Bielefeld University, Germany
Privatdozent at the Physics Department (Bielefeld University), Germany
- 2000-2003** **Bielefeld University**
Ph.D. thesis in solid state physics
Supervisor: Prof. Dr. G. Reiss

Academic Education

- 1995 - 2000** **Bielefeld University, Germany**
Diplomstudiengang Physik
5 year degree in physics

Honors, distinctions, scholarships, awards

- 2014 - Physics prize of the Göttingen Academy of Sciences and Humanities „für seine Arbeiten, in denen er die memristiven Eigenschaften von Tunnelkontakten nutzt, um künstliche neuronale Strukturen zu schaffen.“
- 2006 - Feodor-Lynen Fellowship of the Alexander von Humboldt Foundation
- Fund raising: >1.8 Mio Euro from peer-review based research projects
- Since 2000: 90 scientific publications

Recent selected publications (Research ID C-7210-2008):

- **Signatures of the magnetic entropy in the thermopower signals in nanoribbons of the magnetic Weyl semimetal $\text{Co}_3\text{Sn}_2\text{S}_2$**
K. Geishendorf, P. Vir, C. Shekhar, C. Felser, Jorge I. Facio, J. van den Brink, K. Nielsch, A. Thomas, S.T.G. Goennenwein
Nanolett. **19**, 2366 (2019)
- **All electrical access to topological transport features in $\text{Mn}_{1.8}\text{PtSn}$ films**
R. Schlitz, P. Swekis, A. Markou, H. Reichlova, M. Lammel, J. Gayles, A. Thomas, K. Nielsch, C. Felser, S.T.B. Goennenwein
Nanolett. **19**, 2366 (2019)
- **Spin-Hall-active platinum thin films grown via atomic layer deposition**
R. Schlitz, A. A. Amusan, M. Lammel, S. Schlicht, T. Tynell, J. Bachmann, G. Woltersdorf, K. Nielsch, S. T. B. Goennenwein, A. Thomas
Appl. Phys. Lett. **112**, 242403 (2018)
- **Surface modification of V-VI semiconductors using exchange reactions within ALD half-cycles**
C.W. Wiegand, R. Zierold, R. Faust, D. Pohl, A. Thomas, B. Rellinghaus, K. Nielsch
Adv. Mater. Interfaces **5**, 1701155 (2018)
- **Accessing the fundamentals of magnetotransport in metals with THz probes**
Z. Jin, A. Tkach, F. Casper, V. Spetter, H. Grimm, A. Thomas, T. Kampfrath, M. Bonn, M. Kläui, D. Turchinovich
Nature Phys. **11**, 761 (2015).
- **The memristive magnetic tunnel junction as a nanoscopic synapse-neuron-system**
P. Krzysteczko, J. Münchenberger, M. Schäfers, G. Reiss, A. Thomas
Adv. Materials **24**, 762 (2012)
- **Local charge and spin currents in magnetothermal landscapes**
M. Weiler, M. Althammer, F. D. Czeschka, H. Huebl, M. S. Wagner, M. Opel, I.-M. Imort, G. Reiss, A. Thomas, R. Gross, S. T. B. Goennenwein
Phys. Rev. Lett. **108**, 106602 (2012).
- **Seebeck effect in magnetic tunnel junctions**
M. Walter, J. Walowski, V. Zbarsky, M. Münzenberg, M. Schäfers, D. Ebke, G. Reiss, A. Thomas, P. Peretzki, M. Seibt, J.S. Moodera, M. Czerner, M. Bachmann, C. Heiliger
Nature Mat. **10**, 742 (2011).
- **Scaling behavior of the spin pumping effect in ferromagnet-platinum bilayers**
F. D. Czeschka, L. Dreher, M. S. Brandt, M. Weiler, M. Althammer, I. M. Imort, G. Reiss, A. Thomas, W. Schoch, W. Limmer, H. Huebl, R. Gross, S. T. B. Goennenwein
Phys. Rev. Lett. **107**, 046601 (2011).
- **Spin polarization in half-metals probed by femtosecond spin excitation**
G.M. Müller, J. Walowski, M. Djordjevic, G.-X. Miao, A. Gupta, A.V. Ramos, K. Gehrke, V. Moshnyaga, K. Samwer, J. Schmalhorst, A. Thomas, A. Hütten, G. Reiss, J. Moodera, M. Münzenberg
Nature Mat. **8**, 56 (2009).