

## Curriculum vitae of Prof. Dr. Roland Wiesendanger

### Address:

University of Hamburg, Dept. of Physics, Jungiusstrasse 11, D-20355 Hamburg, Germany  
(nationality: German).

### Academic Background:

- 1981 - 1986 Studies of Physics, Mathematics, and Astronomy at the University of Basel
- 1986 Diploma in Experimental Physics
- 1987 Ph.D. ("summa cum laude") at the University of Basel
- 1990 Habilitation at the University of Basel
- 1991 - 1992 Private Lecturer at the University of Basel
- 1992 Offer for a Full Professor position (C4) for Experimental Solid State Physics at the University of Hamburg
- Since 1993 Foundation and extension of the Microstructure Advanced Research Center Hamburg (MARCH); focus on Low-Temperature Scanning Probe Spectroscopy
- 1996 - 2004 Chairman of the Nanoscience and Technology Division of the German Vacuum Society
- 1998 - 2001 Chairman of the Nanoscience and Technology Division of the International Union for Vacuum Science, Techniques and Applications (IUVSTA)
- 1998 - 2006 Coordinator of the German Center of Competence in Nanotechnology "Nanoanalytics" (1998-2003) and "HanseNanoTec" (2003-2006) funded by the German Ministry for Education and Research
- Since 2001 Scientific Coordinator of the Interdisciplinary Nanoscience Center Hamburg
- 2003 - 2012 Managing Director of the Institute of Applied Physics at Hamburg University
- 2003 - 2004 Vice-Dean of the Department of Physics at Hamburg University
- 2006 - 2017 Speaker and Scientific Coordinator of the DFG Collaborative Research Center SFB 668 "Magnetism from the Single Atom to the Nanostructure"
- 2009 - 2013 Advanced Grant "FURORE" of the European Research Council (ERC)
- 2009 - 2012 Speaker and Scientific Coordinator of the Hamburg Cluster of Excellence "NANOSPINTRONICS"
- 2010 - 2013 Chairman of the International Committee for Nanoscience and Nanotechnology
- 2014 - 2018 Advanced Grant "ASTONISH" of the European Research Council (ERC)
- Since 1986
- 570 publications, incl. 9 Science, 3 Nature, 18 Nature sister journal articles, 65 PRL, 102 PRB, 30 review papers and book chapters,
  - author of 2 textbooks,
  - editor/co-editor of 8 books and 7 conference proceedings,
  - co-editor of the Springer Series in Nanoscience and Technology,
  - h-index: 79, i10-index: 344, citations: ca. 26.000 (Google Scholar),
  - ca. 530 invited and plenary talks at international conferences, universities, research institutions, and industry laboratories,
  - ca. 1.600 communications at conferences (contributed talks and posters),
  - member of programme and advisory committees of more than 120 international conferences,
  - member of numerous scientific societies (incl. APS, AVS, DPG, DVG, MRS).

### **Professional Honours:**

1992	Gaede Prize of the German Vacuum Society
1992	Max Auwärter Prize
1999	Karl Heinz Beckurts Prize
2000	Elected Member of the German Academy of Sciences "Leopoldina"
2003	Philip Morris Research Prize (together with Dr. Matthias Bode)
2005	Elected Founder Member of the Hamburg Academy of Sciences
2008	Elected Member of the German Academy of Technical Sciences "acatech"
2008	Advanced Grant of the European Research Council (ERC)
2010	Nanotechnology Recognition Award of the American Vacuum Society
2012	Honorary Professor of Harbin Institute of Technology, China
2012	Fellow of the American Vacuum Society (AVS)
2013	Elected Member of the Polish Academy of Sciences
2013	Advanced Grant of the European Research Council (ERC)
2014	Heinrich Rohrer Grand Medal and Prize
2015	Doctor Honoris Causa of Poznan University of Technology, Poland
2015	International Fellow of the Surface Science Society of Japan (SSSJ)
2015	Hamburg Science Prize of the Hamburg Academy of Sciences
2016	Julius Springer Prize for Applied Physics (together with Prof. Dr. Xiang Zhang)
2016	Elected Member of the European Academy of Sciences (EURASC)

### **Named Lectures:**

1998	Kepler Lecture (University of Tübingen, Germany)
2001	Kronig Lecture (TU Delft, The Netherlands)
2007	Kavli Lecture (Caltech, USA)
2011	Zernike Lecture (University of Groningen, The Netherlands)
2013	Distinguished iNANO Lecture (University of Aarhus, Denmark)
2015	cfaed Distinguished Lecture (TU Dresden, Germany)

### **Selected research topics and accomplishments:**

Demonstration of vacuum tunnelling of spin-polarized electrons in STM; demonstration of atomic-resolution magnetic imaging by SP-STM; demonstration of the detection of magnetic exchange forces in NC-AFM and atomic-resolution magnetic imaging by Magnetic Exchange Force Microscopy; discovery of atomically sharp magnetic domain walls in ultrathin ferromagnetic films; atomic-resolution of antiferromagnetic domain walls; observation of magnetic hysteresis on a single-digit nanometer scale and development of single-atom magnetometry; observation of oscillatory magnetic exchange coupling between individual adatoms; observation of thermally induced magnetization switching of nanometer-scale magnetic islands and few-atom clusters; demonstration of spin-current induced magnetization switching across a vacuum gap by SP-STM; discovery of complex spin structures including magnetic vortices, spin spirals, and skyrmion lattices by SP-STM; demonstration of local writing and deleting of individual skyrmions by an SP-STM tip; observation of the spin-density distribution of individual adsorbed molecules with intramolecular spatial resolution; detection of spin-split Landau levels in semiconductors by SP-STM; combination of single atom manipulation and spin state imaging; demonstration of artificially built nanomagnets and of atomic-scale all-spin logic operations.

### **Supervision of young researchers:**

Since 1993 I have supervised 6 completed Habilitation Theses, 17 Research Assistants, 22 Postdocs, 64 completed Ph.D. Theses, and 122 completed Diploma/Master Theses. Currently, I am supervising 2 Habilitation candidates, 12 Postdocs, and 20 Ph.D. students. So far, 14 previous group members have become full professors in all parts of the world.