

Name: Kornelius Nielsch

Date of birth: 09.11.1973

Professional employment and academic education:

- Since 2009 Coordinator in the Physics Department of the Bachelor Degree Course on Nanoscience and Technology
- Since 2007 Full Professor (W2), University of Hamburg
- 2007 Habilitation in physics, University of Bielfeld
- 2003-2008 Leader of the BMBF Nanotechnology Research Group, Max Planck Institute of Microstructure Physics, Halle
- 2002-2003 Postdoctoral Associate at the Massachusetts Institute of Technology
- 1997-2002 Ph.D. in physics, Max Planck Institute of Microstructure Physics, Halle
- 1997 Diploma in physics, University of Duisburg and University of Lund

Honours, distinctions, scholarships, awards:

- 2012 Meeting Chair for the Spring Meeting of the Materials Research Society (MRS) in San Francisco, April 2012.
- 2011 Acknowledged as one of the world's top 100 materials scientists over the last decade (2000-2010) by Thomson Reuters/Web of Science.
- 2006 Research Prize for Basic Research of the State Saxony-Anhalt
- 2002 Young Investigator Award of Nanotechnology from the German Federal Ministry of Education and Research (BMBF)
- Since 2002 fund raising: 4.45 Mio Euro from peer-review based research projects
- Since 1998 more than 5000 citations by other references and H factor ≥ 33
- Since 1998 ca. 100 scientific publications, 95 invited presentations

Supervisory work:

- Since 2003 Supervision of more than 15 Diploma-students, 14 PhD-students, 8 Post-Docs

Selected professional memberships:

- Since 2011 SPP 1538 "Spin-CALoric Transport – SPINCAT"
- Since 2009 Coordinator of the DFG-SPP 1386 "Nanostructured Thermoelectric"
- Since 2008 DFG-SPP 1165 "Nanowires and Nanotubes"
- Since 2008 DFG-GrK 1286 "Functional Metal-Semiconductor Hybrid Systems"
- 2006-2010 International Max Planck Research School for Science and Technology of Nanostructures
- 2006-2009 DFG-FOR 522 "Architecture of nano- and microdimensional building blocks"
- Since 2002 Member of the Materials Research Society, the German Physics Society and the German Thermoelectric Society

Selected research topics and accomplishments:

Development of nanostructured physical model systems by chemical synthesis, e.g. Atomic Layer Deposition/Epitaxy, semiconductor nanowires by Vapor-Liquid-Solid (VLS) Growth, electrochemical deposition of metals and semiconductors and electrochemical oxidation by combination lithographical processes.

- Since 2009 Epitaxial growth of core-shell nanowires of $\text{Sb}_2\text{Se}_3/\text{Sb}_2\text{S}_3$ and surface diffusion at low temperatures
- Since 2007 Measurement of the main thermoelectric properties (Seebeck coefficient, electrical and thermoelectric conductivity) at individual nanowires based on Ni und $(\text{Bi}/\text{Sb})_2\text{Te}_3$
- Since 2008 Suspensions of magnetic nanotube and investigation of the magnetic field dependence viscosity.
- Since 2006 Magnetic reversal modes in ALD synthesized nanotube as a function of wall thickness and diameter

Ten most relevant publications:

- K. Nielsch, F. Müller, A.P. Li, U. Gösele,
Uniform Nickel Deposition into Ordered Alumina Pores by Pulsed Electrodeposition,
Advanced Materials 12, 582 (2000).
- K. Nielsch, R.B. Wehrspohn, J. Barthel, J. Kirschner, U. Gösele, S.F. Fischer, H. Kronmüller,
Hexagonally Ordered 100 nm Period Nickel Nanowire Arrays,
Applied Physics Letters 79, 1360 (2001).
- K. Nielsch, J. Choi, K. Schwirn, R.B. Wehrspohn, U. Gösele,
Self-ordering regimes of porous alumina: the 10% porosity-rule,
Nano Letters 2, 677 (2002).
- M. Knez, A. Kadri, C. Wege, U. Gösele, H. Jeske K. Nielsch,
Atomic Layer Deposition on Biological Macromolecules: Metal Oxide Coating of Tobacco Mosaic
Virus and Ferritin,
Nano Letters 6, 1172 (2006).
- H.J. Fan, M. Knez, R. Scholz, K. Nielsch, E. Pippel, D. Hesse, M. Zacharias, U. Gösele,
Monocrystalline Spinel Nanotube Fabrication Based on the Kirkendall Effect,
Nature Materials 5, 627 (2006).
- W. Lee, R. Ji, U. Gösele, K. Nielsch,
Fast fabrication of long-range ordered porous alumina membranes by hard anodization,
Nature Materials 5, 741 (2006).
- M. Knez, K. Nielsch, L. Niinistö,
Synthesis and Surface Engineering of Complex Nanostructures by Atomic Layer Deposition,
Advanced Materials 19, 3425 (2007).
- R.B. Yang, N. Zakharov, O. Moutanabbir, K. Scheerschmidt, L-M. Wu, U. Gösele, J. Bachmann,
K. Nielsch,
The Transition between Conformal Atomic Layer Epitaxy and Nanowire Growth,
Journal of the American Chemical Society 132, 7592 (2010).
- J. Lee, Y. Kim, L. Cagnon, U. Gösele, J. Lee, K. Nielsch
Power factor measurements of bismuth telluride nanowires grown by pulsed electrodeposition,
Physica Status Solidi - Rapid Research Letters 4, 43 (2010).
- Y.T. Chong, D. Görlitz, S. Martens, M.Y.E. Yau, S. Allende, J. Bachmann, K. Nielsch
Multilayered Core/Shell Nanowires Displaying Two Distinct Magnetic Switching Events,
Advanced Materials 22, 2435 (2010).