

Research Area B 'Nano-Electronics'

Project B1 'Fabrication and Characterization of Nanostructures'

B1.6 'Preparation and Characterization of Metallic Nanostructures' (T. Schimmel)

- [B1.6:1] * F.-Q. Xie, R. Maul, A. Augenstein, Ch. Obermair, E.B. Starikov, G. Schön, Th. Schimmel, and W. Wenzel, *Independently Switchable Atomic Quantum Transistors by Reversible Contact Reconstruction*, Nano Lett. **8**, 4493 (2008)
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- [B1.6:3] Ch. Obermair, F.-Q. Xie, and Th. Schimmel, *The Single-Atom Transistor: Quantum Electronics at Room Temperature*, IEEE NANO 2009 in IEEE Xplore Database (2009)
- [B1.6:4] * Ch. Obermair, F.-Q. Xie, R. Maul, W. Wenzel, G. Schön, and Th. Schimmel, *Single-Atom Transistors: Switching an Electrical Current with Individual Atoms*, Invited Paper, In: H. Hahn, A. Sidorenko, I. Tiginyanu (Eds.) *Nanoscale Phenomena – Fundamentals and Applications*, Springer Serie: Nano Science and Technology, Heidelberg, Dordrecht, London, New York, pp.113–124 (2009)
- [B1.6:5] ‡ S. Zhong, D. Wang, Th. Koch, M. Wang, S. Walheim, and Th. Schimmel, *Growth and Branching Mechanisms of Electrochemically Self-Organized Mesoscale Metallic Wires*, Crystal Growth & Design **10**, 1455 (2010)
- [B1.6:6] * ‡ S. Zhong, Th. Koch, M. Wang, T. Scherer, S. Walheim, H. Hahn, and Th. Schimmel, *Nanoscale Twinned Copper Nanowire Formation by Direct Electrodeposition*, Small **5**, 2265 (2009)
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- [B1.6:8] Ch. Obermair, F.-Q. Xie, and Th. Schimmel, *The Single-Atom Transistor: Perspective for Quantum Electronics on the Atomic-Scale*, Europhysics News **41**, 25 (2010)
- [B1.6:9] * F.-Q. Xie, R. Maul, Ch. Obermair, W. Wenzel, G. Schön, and Th. Schimmel, *Multilevel Atomic-Scale Transistors Based on Metallic Quantum Point Contacts*, Adv. Mater. **22**, 2033 (2010)
- [B1.6:10] Th. Schimmel, F. Xie, and Ch. Obermair: *Gate-Controlled Atomic Switch*, US Patent 20090195300, Patent Granted (2011)
- [B1.6:11] C. Obermair, H. Kuhn, and Th. Schimmel, *Lifetime analysis of individual-atom contacts and crossover to geometric-shell structures in unstrained silver nanowires*, Beilstein J. Nanotechnol. **2**, 740 (2011)

B1.7 'Quantum Coherent Transport in Nanostructures' (G. Schön)

- [B2.4:1] ‡ M. Pletyukhov, V. Gritsev, and N. Pauget, *Tunneling conductance of a mesoscopic ring with spin-orbit coupling and Tomonaga-Luttinger interaction*, Phys. Rev. B **74**, 045301 (2006)
- [B2.4:2] ‡ P. San-Jose and E. Prada, *Effect of inelastic scattering on spin entanglement detection through current noise*, Phys. Rev. B **74**, 045305 (2006)
- [B2.4:3] ‡ M. Pletyukhov and V. Gritsev, *Screening in the two-dimensional electron gas with spin-orbit coupling*, Phys. Rev. B **74**, 045307 (2006)
- [B2.4:4] ‡ J.C. Cuevas and A. Levy Yeyati, *Subharmonic gap structure in short ballistic graphene junctions*, Phys. Rev. B **74**, 180501 (2006)
- [B2.4:5] * ‡ E. Scheer, P. Konrad, C. Bacca, A. Mayer-Gindner, H. v. Löhneysen, M. Häfner, and J.C. Cuevas, *Correlation between transport properties and atomic configuration of atomic contacts of Zinc by low-temperature measurements*, Phys. Rev. B **74**, 205430 (2006)
- [B2.4:6] ‡ F. Pauly, M. Dreher, J.K. Viljas, M. Häfner, J.C. Cuevas, and P. Nielaba, *Theoretical analysis of the conductance histograms and structural properties of Ag, Pt and Ni nanocontacts*, Phys. Rev. B **74**, 235106 (2006)
- [B2.4:7] ‡ E. Prada, P. San-Jose, B. Wunsch, and F. Guinea, *Pseudo-diffusive magnetotransport in graphene*, Phys. Rev. B **75**, 113407 (2007)
- [B2.4:8] M. Pletyukhov, *Crossover from diffusive to non-diffusive dynamics in the two-dimensional electron gas with Rashba spin-orbit coupling*, Phys. Rev. B **75**, 155335 (2007)
- [B2.4:9] * T. Champel and S. Florens, *Quantum transport properties of two-dimensional electron gases under high magnetic fields*, Phys. Rev. B **75**, 245326 (2007)
- [B2.4:10] ‡ A. Shnirman and I. Martin, *Spin density induced by electromagnetic wave in two-dimensional electron gas*, Europhys. Letters **78**, 27001 (2007)
- [B2.4:11] M. Pletyukhov and S. Konschuh, *Charge and spin density response functions of the clean two-dimensional electron gas with Rashba spin-orbit coupling at finite momenta and frequencies*, Eur. Phys. J. B **60**, 29 (2007)
- [B2.4:12] P. San-Jose, E. Prada, and D.S. Golubev, *Universal scaling of current fluctuations in disordered grapheme*, Phys. Rev. B **76**, 195445 (2007)
- [B2.4:13] ‡ U. Zülicke and D. Csontos, *Engineering of hole-spin polarization in nanowires*, Proc. SPIE **6800**, 68000A (2007)
- [B2.4:14] ‡ R.S. Whitney, A. Shnirman, and Y. Gefen, *Towards a dephasing diode: Asymmetric and geometric dephasing*, Phys. Rev. Lett. **100**, 126806 (2008)
- [B2.4:15] ‡ D. Csontos and U. Zülicke, *Tailoring hole spin splitting and polarization in nanowires*, Appl. Phys. Lett. **92**, 023108 (2008)
- [B2.4:16] * F.-Q. Xie, R. Maul, S. Brendelberger, Ch. Obermair, E.B. Starikov, W. Wenzel, G. Schön, and Th. Schimmel, *Pre-selectable integer quantum conductance of electrochemically fabricated silver point contacts*, Appl. Phys. Lett. **93**, 043103 (2008)
- [B2.4:17] ‡ M. Häfner, J.K. Viljas, D. Frustaglia, F. Pauly, M. Dreher, P. Nielaba, and J.C. Cuevas, *Theoretical study of the conductance of ferromagnetic atomic-sized contacts*, Phys. Rev. B **77**, 104409 (2008)
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- [B2.4:19] ‡ J.-F. Dayen, A. Mahmood, D.S. Golubev, I. Roch-Jeune, P. Salles, and E. Dujardin, *Side-gated transport in FIB-fabricated multilayered graphene nanoribbons*, *Small* **4**, 716 (2008)
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- [B1.7:2] ‡ R. Rahman, S.H. Park, J.H. Cole, A.D. Greentree, R.P. Muller, G. Klimeck, and L.C.L. Hollenberg, *Atomistic simulations of adiabatic coherent electron transport in triple donor system*, *Phys. Rev. B* **80**, 035302 (2009)
- [B1.7:3] R. Maul and W. Wenzel, *Influence of structural disorder and large-scale geometric fluctuations on the coherent transport of metallic junctions and molecular wires*, *Phys. Rev. B* **80**, 045424 (2009)
- [B1.7:4] ‡ R.H.M. Smit, A.I. Mares, M. Häfner, P. Pou, J.C. Cuevas, and J.M. van Ruitenbeek, *Metallic properties of magnesium point contacts*, *New. J. Phys.* **11**, 073043 (2009)
- [B1.7:5] * Ch. Obermair, F.-Q. Xie, R. Maul, W. Wenzel, G. Schön, and Th. Schimmel, *Single-Atom Transistors: Switching an Electrical Current with Individual Atoms*, pp. 113-123, in "Nanoscale Phenomena - Fundamentals and Applications", Eds. H. Hahn, A. Sidorenko, and I. Tiginyanu, Springer Heidelberg (2009), ISBN 978-3-642-00707-1
- [B1.7:6] * F.-Q. Xie, R. Maul, Ch. Obermair, W. Wenzel, G. Schön, and Th. Schimmel, *Multilevel atomic-scale transistors based on metallic quantum point contacts*, *Adv. Mater.* **22**, 2033 (2010)
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- [B1.7:11] ‡ D. Natelson, D.R. Ward, F. Hüser, F. Pauly, J.C. Cuevas, D.A. Corley, and J.M. Tour, *Plasmons in nanoscale metal junctions: optical rectification and thermometry*, *Proc. SPIE* **8096**, 80961O (2011)
- [B1.7:12] ‡ F. Pauly, J.K. Viljas, M. Bürkle, M. Dreher, P. Nielaba, and J.C. Cuevas, *Molecular dynamics study of the thermopower of Ag, Au, and Pt nanocontacts*, *Phys. Rev. B* **84**, 195420 (2011)

B1.9 ‘Controlling Electron Transport in Carbon Nanotubes and Graphene with an Optical Micro-Resonator Cavity’ (R. Krupke)

- [B1.9:1] M. Oron-Carl and R. Krupke, *Raman spectroscopic evidence for hot phonon generation in electrically biased carbon nanotubes*, Phys. Rev. Lett. **100**, 127401 (2008)
- [B1.9:2] A. Vijayaraghavan, S. Blatt, C.W. Marquardt, S. Dehm, R. Wahi, F. Hennrich and R. Krupke, *Imaging electronic structure of carbon nanotubes by voltage-contrast scanning electron microscopy*, Nano Research **1**, 321 (2008)
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- [B1.9:10] * M.H.P. Pfeiffer, N. Stürzl, C.W. Marquardt, M. Engel, S. Dehm, F. Hennrich, M.M. Kappes, U. Lemmer, R. Krupke, *Electroluminescence from chirality-sorted (9,7)-semiconducting carbon nanotube devices*, Optics Expr. **19**, A1184 (2011)