Christian SCHÖNENBERGER

Professor of Experimental Physics, University of Basel,
Department of Physics, Switzerland.

Born: 5.07.1956, in Zürich, Switzerland. Citizenship: Swiss

Education and Theses

1990	Ph.D. in physics, ETH-Zürich, Switzerland: *"Understanding Magnetic Force Microscopy".*
1986	Diploma in physics, ETH-Zürich, Switzerland.
1979	Electrical Engineer of Applied Sceinces, HTL Technikum Winterthur

Employment

1995 -	Full Chair in Experimental Physics at the University of Basel
1993 – 1995	Research Staff Member at Philips Research in Eindhoven, The Netherlands
1990 – 1993	Postdoctoral Fellow at Philips Research in Eindhoven, The Netherlands
1986-1990	PhD candidate in experimental physics, IBM Research laboratory, Rüschlikon, Switzerland
1979 - 1980	Research assistant at the Molecular Spectroscopy Group of Prof. K. Dressler at Physical Chemistry, ETH-Zürich, Switzerland

Honors

2012:	Fellow of the American Physical Society
2012:	ERC advanced researcher grant
2010:	Life-time member of the Swiss Academy of Technical Sciences (SATW)
1994:	Profil-II award of the Swiss National Science Foundation
1991:	Swiss Physical Society Price
1990:	PhD medal from the ETH-Zürich

Publication Record

155 ISI publications including 4 Nature, 1 Science, 1 Nature Physics, 3 Nature Nanotechnology, 10 Nano Lett., 13 Phys. Rev. Lett., 1 Small, 11 Appl. Phys. Lett., 16 Phys. Rev. B., 9 Nanotechnology, 3 New Journal of Phys. and 8 in high impact chemical journals (JACS, JOC, JPC, ChemCom, and Langmuir). Citation rate ca. 600-700/year; total citations excluding self citations 7,610; 51 citations per paper on average; *h*-index 46.

Synergistic activities

Board:	Director (and co-founder) of the Swiss Nanoscience Institute at the University of Basel since 2006.
	Director of the SNF-funded National Center of Competence for Research (NCCR) in Nanoscale Science and Technology with leading house University of Basel since 2005.
	Swiss Network in Micro- and Nanotechnology MNT.
	FAG (Academic Society of Basel) since 2001.

Membership: American Physical Society (APS), German Physical Society (DPG), Swiss Physical Society (SPG), Swiss Society for Optics and Microscopy (SSOM), Swiss Academy of Technical Sciences (SATW)

Reviewing: For major national and European bodies, such as SNF (Swiss National Science Foundation), DFG (Deutsche Forschungsgemeinschaft), FOM (Stichting voor Fundamenteel Onderzoek der Materie), CNRS, SFI (Science Foundation Ireland), SSF (Swedish Foundation for Strategic Research), US-NSF, GIF (German-Israeli Foundation), as well as for major journals, such as Nature, Nature Physics, Nature Nano, Science, Physical Review Letters, Physical Review B, Nano Letters ...

Advisor: Freiburg Institute for Advanced Studies (FRIAS), Helmholtz Gesellschaft, Volkswagen Gesellschaft, CEA (Centre de Saclay), Landesstiftung Baden-Würtemberg, Deutsche Forschungsgemeinschaft, Centre Suisse d'Electronique et de Microtechnique (CSEM).

Conferences: (Co)organizer of 11 schools, 6 international and 7 national conferences.

Interests

Nano electronics, charge- and spin-transport in low-dimensional systems, molecular electronics, spintronics, nanowire and quantum-dot physics, carbon nanotubes and graphene, shot-noise and charge-fluctuation phenomena, nanodevice based sensors.

Funding

Third-party funded projects 2007-2012: 15 research grant with a total grant sum of CHF 9.27M. Of the 15 projects, 7 are EU projects (one, a FET-open in which CS acts as the coordinator and one an ERC advanced research grant), one is from a private funding organization (Gebert+Ruef Foundation), one an applied project funded by the Swiss Nanoscience Institute, and the rest are funded by the Swiss National Science Foundation through various schemes. CS is coordinator of an FP7 STREP project and also coordinates a large project on nanowire-based sensing under the Swiss scheme Nano-tera. CS also runs interdisciplinary projects with partners in engineering sciences and chemistry.

Patents

M. Calame, M. Gräber, M.L.Perrin and C.Schönenberger, European Patent Application 10172786.5, Filing date: 13.08.2010

Other activities

Established a new center of excellence in Nanoscience, the *Swiss Nanoscience Institute* together with H.J. Güntherodt and D. Loss.

Address

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Department web site: www.physik.unibas.ch
Swiss Nanoscience Snstitute (SNI) web site: www.nanoscience.ch

List of selected publications (personal choice)

1. C. Schönenberger, J. A. M. Sondag-Huethosrt, J. Jorritsma, and L. G. J. Fokkink, *What are the holes in self-assembled monolayers of alkanethiols on gold,* **Langmuir** 10 (1994) 611.
2. H. Birk, M. J. M. de Jong, C. Schönenberger, *Shot-Noise Suppression in the Single-Electron Tunneling Regime*, **Phys. Rev. Lett.** 75 (1995) 1610.
3. C. Schönenberger, B. M. I. van der Zande, L. G. J. Fokkink, M. Henny, C. Schmid, M. Krüger, A. Bachtold, H. Birk, and U. Staufer, *Template-Synthesis of Nanowires in Porous Polycarbonate Membranes: Electrochemistry and Morphology,* **J. Phys. Chem.** B 101 (1997) 5497.
4. A. Bachtold, C. Strunk, J.-P. Salvetat, J.-M. Bonard, L. Forró, T. Nussbaumer, and C. Schönenberger, *Aharonov-Bohm Oscillations in Carbon Nanotubes*, **Nature** 397 (1999) 673.
5. H.-W. Fink and C.S., *Electrical Conduction through DNA Molecules*, **Nature** 398 (1999) 407.
6. C. Schönenberger, A. Bachtold, C. Strunk, and J.-P. Salvetat, *Interference and Interaction in Multiwall Carbon Nanotubes*, **Appl. Phys. A** 69, (1999) 283-295.
7. M. Henny, S. Oberholzer, C. Strunk, T. Heinzel, K. Ensslin, M. Holland, and C. Schönenberger, *The Fermionic Hanbury-Brown and Twiss Experiment*, **Science** 284 (1999) 296.
8. M. Henny, S. Oberholzer, C. Strunk and C. Schönenberger, *The 1/3-shot noise suppression in diffusive nanowires* , **Phys. Rev. B 59** (1999) 2871-2880.
9. M. Krüger, M. Buitelaar, T. Nussbaumer, C. Schönenberger and L. Forró, *The Electrochemical Nanotube Field-Effect Transistor*, **Appl. Phys. Lett**. 78 (2001) 1291.
10. M. R. Buitelaar, T. Nussbaumer and C. Schönenberger, *Quantum Dot in the Kondo Regime coupled to Superconductors*, **Phys. Rev. Lett**. 89 (2002) 256801.
11. A. Kis, S. Kasa, B. Babic, A.J. Kulik, W. Benoit, G.A.D. Briggs, C. Schönenberger, S. Catsicas and L. Forro' *Nanomechanics of Microtubules*, **Phys. Rev. Lett.** 89 (24) (2002) 248101.
12. C. Beenakker and C. Schönenberger, Quantum Shot Noise, **Physics Today**, 56-5 (2003) 37-42.
13. S. Sahoo, T. Kontos, J. Furer, C. Hoffmann, M. Gräber, A. Cottet, and C. Schönenberger, *Electric field control of spin transport*, **Nature Physics** 1, 99-102 (2005).
14. A. Eichler, M. Weiss, S. Oberholzer, and C.S:, A. Levy Yeyati, J. Cuevas, and A. Martin-Rodero, *Even-odd effect in Andreev Transport through a Carbon Nanotube Quantum Dot*, **Phys. Rev. Lett.** 99, 126602 (2007).
15. L. Hofstetter, S. Csonka, J. Nygard, and C. Schönenberger, *Cooper pair splitter realized in a two-quantum-dot Y-junction*, **Nature** 461 (2009) 960.
16. E. Bieri, M. Weiss, O. Göktas, M. Hauser, C. Schönenberger, and S. Oberholzer, *Finite-bias visibility dependence in an electronic Mach-Zehnder interferometer*, **Phys. Rev. B** 79 (2009) 245324.
17. A. Kleine, A. Baumgartner, J. Trbovic, and C. Schönenberger. *Contact resistance dependence of crossed Andreev reflection***, Eur. Phys. Lett.** 87:27011, 2009.
18. L. Hofstetter, A. Geresdi, M. Aagesen, J. Nygård, C. Schönenberger, and S. Csonka, *Ferromagnetic, Proximity Effect in a Ferromagnet Quantum-Dot Superconductor Device*, **Phys. Rev. Lett.** 104:246804, 2010.
19. S. de Franceschi, L. Kouwenhoven, C. Schönenberger, and W. Wernsdorfer, *Hybrid superconductor-quantum dot devices*, **Nature Nano** 5 (2010) 703.
20. L. Hofstetter, S. Csonka, A. Baumgartner, Fülöp, S. d'Hollosy, J. Nygård, and C. Schönenberger, *Finite bias Cooper pair splitting*, **Phys. Rev. Lett**. 107 (2011) 136801.
21. F. Freitag, J. Trbovic, M. Weiss, and C. Schönenberger, "Spontaneously Gapped Ground State in Suspended Bilayer Graphene", **Phys. Rev. Lett.** 108 (2012) 076602.
22. J. Schindele, A. Baumgartner, and C. Schönenberger, "Near-Unity Cooper Pair Splitting Efficiency" **Phys. Rev. Lett.** 109 (2012) 157002.
23. P. Rickhaus, R. Maurand, Ming-Hao Liu, M. Weiss, K. Richter, and C. Schönenberger, "Ballistic interferences in suspended graphene", arXiv:0703311 (2013).