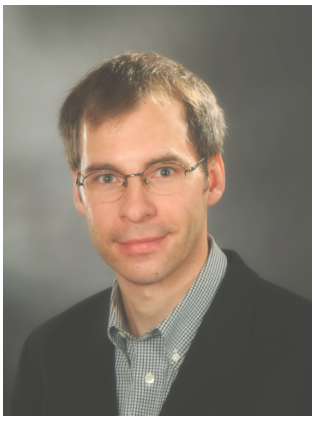
PD Dr. Ulrich Schwarz



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03/03/1966, Stuttgart
Group leader

SCIENTIFIC VITA

1987 - 1990	Physics student, Freiburg University
1990 - 1991	Fulbright scholar, Johns Hopkins University, Baltimore, MD, USA
1991 - 1994	Physics student, Munich University
1994 - 1998	PhD, Max Planck Institute of Colloids and Interfaces, Potsdam
1998 - 2000	Postdoc, Minerva fellow, Weizmann Institute, Rehovot, Israel
2000 - 2005	Group leader, Max Planck Institute of Colloids and Interfaces, Potsdam
2001 - now	Emmy Noether junior research group leader
2003	Visiting professor, Leipzig University
2004	Habilitation, Potsdam University
2005 - now	Group leader, Center for Modelling and Simulation in the Biosciences (BIOMS)
2005 - now	Member, Interdisciplinary Center for Scientific Computing (IWR), Heidelberg
2006 - now	Privatdozent, Department of Physics and Astronomy, Heidelberg University

COORDINATING FUNCTIONS

2003	Organizer Second MPI-UPenn Symposium on Soft Matters, Potsdam
2004	Organizer Max Planck Symposium on Systems Biology, Potsdam
2005	Organizer WEH-seminar “Dynamics of cell and tissue structure”, Bad Honnef
2005 - now	Member programme committee “Engineering stem cell microenvironments”
2005 - now	Member Rektoratskommission “BIOQUANT”

reviewer for 15+ journals, including “Physical Review Letters” and “Biophysical Journal”
15 invited conference talks since 2000, including “IoP2005: Physics, a century after Einstein” and “World Congress of Biomechanics 2006”

FIELDS OF INTEREST

Theoretical physics, statistical mechanics, physics of soft condensed matter, biological physics, computational cell biology, quantitative and systems biology, cell mechanics and adhesion

CURRENTLY FUNDED PROJECTS

Emmy Noether junior research group; BIOMS junior research group (Klaus Tschira Foundation, Landesstiftung Baden-Württemberg, Heidelberg University); VW Foundation

Currently supervision of 4 interns, 3 doctoral theses, 2 postdocs

PUBLICATIONS (10 selected publications since 2000):

Bischofs, I. B. and **U. S. Schwarz**. 2005. Effect of Poisson ratio on cellular structure formation. *Phys. Rev. Lett*. **95**: 068102.

Schwarz, U. S. and I. B. Bischofs. 2005. Physical determinants of cell organization in soft media. *Med. Eng. Phys*. **27**: 763-72.

Erdmann, T and **U. S. Schwarz**. 2004. Stability of adhesion clusters under constant force. *Phys. Rev. Lett*. **92**: 108102.

Schwarz, U. S. and R. Alon. 2004. L-selectin mediated leukocyte tethering in shear flow is controled by multiple contacts and cytoskeletal anchorage facilitating fast rebinding events. *Proc. Natl. Acad. Sci.* USA **101**: 6940-6945.

Dwir, O., A. Solomon, S. Mangan, G. S. Kansas, **U. S. Schwarz**, and R. Alon. 2003. Avidity enhancement of L-selectin bonds by flow: shear-promoted rotation of leukocytes turn labile bonds into functional tethers. *J. Cell Biol.* **163**: 649-659.

Bischofs, I. B. and **U. S. Schwarz**. 2003. Cell organization in soft media due to active mechanosensing. *Proc. Natl. Acad. Sci. USA* **100**: 9274-79.

Schwarz, U. S., N. Q. Balaban, D. Riveline, A. Bershadsky, B. Geiger, and S. A. Safran. 2002. Calculation of forces at focal adhesions from elastic substrate data: the effect of localized force and the need for regularization. *Biophys. J.* **83**: 1380-1394.

Balaban, N. Q., **U. S. Schwarz**, D. Riveline, P. Goichberg, G. Tzur, I. Sabanay, D. Mahalu, S. Safran, A. Bershadsky, L. Addadi, and B. Geiger. 2001. Force and focal adhesion assembly: a close relationship studied using elastic micro-patterned substrates. *Nat. Cell Biol.* **3**: 466-72.

Riveline, D., E. Zamir, N. Q. Balaban, **U. S. Schwarz**, B. Geiger, Z. Kam, and A. D. Bershadsky. 2001. Focal contact as a mechanosensor: externally applied local mechanical force induces growth of focal contacts by a mDia1-dependent and ROCK-independent mechanism. *J. Cell Biol.* **153**: 1175-1185.

Schwarz, U.S. and G. Gompper. 2000. Stability of inverse bicontinuous cubic phases in lipid-water mixtures. *Phys. Rev. Lett.* **85**: 1472-1475.