

# Alexei BOULBITCH

## Curriculum Vitae

### Address

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### Current Position

Senior Researcher at the Department for Biophysics E22, Technical University Munich, Germany.

### Education

2001 Habilitation in Theoretical Biophysics with Prof. E. Sackmann (Technical University Munich, Germany)  
1988 PhD in Solid State Theory at the Institute for Physics, Rostov-on-Don, Russia  
1975-1980 BSc and MSc studies in physics at the Physics Department of Rostov University, Russia.

### Teaching Experience

1. 4 one-semester courses on biophysics for graduates (Technical University Munich)
2. A two-semester course on biophysics accompanied by computer classes and a one-semester course on mathematics for undergraduates (Rostov University)
3. A two-semester course on calculus for undergraduates, University of Picardie, Amiens, France
- Supervision of the research of 4 diploma students and 3 postgrads, supervision of two PhD Thesis (1. Rostov University, Russia - defended in 1991 and 2. Technical University Munich – in preparation). Co-supervision (with Prof. E. Sackmann) of 4 diploma and PhD students

### Significant Awards

1996-1998 Alexander von Humboldt Fellowship (Alexander von Humboldt Foundation, Germany)

### Grants

1998-2004 The grant from the German Research Society (Deutsche Forschungsgemeinschaft) € 470 000,-  
1983-1988 Two 3-year grants from the Moscow Institute for Electric Sources

### Recent Invited Lectures

1. Kinetics of adhesion studied by a new cell-mimicking system with a single ligand-receptor couple. Jülich Soft Matter Days 2002, (November 2002, Kerkrade, Netherlands, invited speaker).
2. Kinetics of adhesion studied by a new cell-mimicking system with a single ligand-receptor couple. Int. Conf. "Biosystems-Biotechnology-Bioengineering" (Rostock, Germany, September 2002, invited speaker)
3. Kinetics of a spontaneous binding and enforced unbinding of biomembranes whose mutual adhesion is mediated by specific interaction. 273 WE-Heraeus-Seminar "Micro to Macromechanics of Hierarchical Living Materials" (Bad Honnef, Germany, March 2002, invited speaker)
4. Universal properties of initial steps of phase transitions in the vicinity of elastic defects. Int. Symp. on Ferroic Domains and Mesoscopic Structures, (Toulon, France June, 2002, invited speaker)
5. Micromechanical Properties of Bacteria. Int. Conf. "Life Science 2001" (Gozd Martuljek, Slovenia, September 2001, invited speaker).

### Recent Selected Publications

1. Elasticity of Rod-Shaped Gram-Negative Eubacteria **Phys. Rev. Lett.** 85 5246 (2000) (with B. Quinn and D. Pink)
2. Phase nucleation on elastic defects in crystals undergoing a phase transition. **Phys. Rev. Lett.** 81 838 (1998) (with P. Tolédano)
3. Enforced unbinding of biomembranes whose mutual adhesion is mediated by specific interaction. **Eur. Biophys. J. Lett.** 31 637 (2003)
4. Enforced unbinding of a bead adhered to a biomembrane by generic forces. **Europhys. Lett.** 59 910 (2002)
5. Kinetics of membrane adhesion mediated by ligand-receptor interaction studied with a biomimetic system. **Biophys. J.** 81 2743 (2001) (With , Z. Guttenberg, and E. Sackmann)
6. First-order transition between adhesion states in a system mimicking cell-tissue interaction. **Europhys. Lett.** 54 826 (2001) (With , Z. Guttenberg, B. Lorz and E. Sackmann)
7. Bacterial Turgor Pressure Can be Measured by Atomic Force Microscopy. **Phys. Rev. E.** 62 1034 (2000) (with M. Arnoldi, M. Fritz, E. Bäuerlein, M. Radmacher, E. Sackmann)
8. Local measurements of viscoelastic parameters of adherent cell surfaces by magnetic bead microrheometry. **Biophys. J.** 75 2038 (1998) (with A. Bausch, F. Ziemann, K. Jacobson and E. Sackmann)