

Scientific profile

PROF. DR. ANA-SUNČANA SMITH

Erlangen, 15. 1. 2017.



PULS Group
Institut für Theoretische Physik
Excellence Cluster:
Engineering of Advanced Materials
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DETAILED CURRICULUM VITAE

PERSONAL

Family name	› Smith (maiden name Barišić)
Name	› Ana-Sunčana
Date of birth	› 03/03/1975
Place of birth	› Zagreb, Croatia
Marital status	› married, 3 children (born 2000, 2008, and 2013)
Nationalities	› Croatian, French
Private address	› Nördliche Stadtmauerstrasse 12 91054 Erlangen, Germany
Mobile phone	› +49 173 75 097 16
Office	› +49 9131 85 20842 / Secretary 85 20852

CURRENT POSITION AND DUTIES

Oct. 12 –	› W2 Professor <ul style="list-style-type: none"> › Leader of the PULS Group (3 PostDocs, 7 PhDs, 5 Masters and 1 Bachelor student) › Lecturer at the Physics Department, FAU Erlangen
	› Address <ul style="list-style-type: none"> › I. Institut für Theoretische Physik, Universität Nürnberg-Erlangen Excellence Cluster Engineering of Advanced Materials Nägelbachstrasse 49b, 91052 Erlangen, Germany › Email: smith@physik.fau.de › URL: www.puls.physik.fau.de
Nov. 11	› Member of the Executive Board of the Excellence Cluster: Engineering of Advanced Materials
Apr. 14	› Member of the steering committee of the Research Training Group 1862: Dynamic Processes on Biological Membranes and Tissues
Oct. 13	› Senior scientist at the Institute Ruđer Bošković, Zagreb, Croatia (Nebentaetigkeit 20% EH)

AWARDS AND DISTINCTIONS

2016	› Order of the Croatian Daystar for contributions to Croatian science
2015	› MRAK award for creativity in science for the collaboration Institute Ruđer Bošković
2013	› ERC Award (Stg 337283 MembranesAct – Biological Membranes in Action)
2011 -2013	› Member of the Collegium of the Bavarian Academy of Sciences and Humanities
2011	› Kavli fellow
2009	› Rising Star of the Excellence Cluster: Engineering of Advanced Materials, FAU

SABBATICALS

Winter 15	› Newton Institute of Physics, Cambridge, UK
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PREVIOUS JOB OFFERS

Mar. 11	› Senior research associate (Associate professor) at the Institute Ruđer Bošković, Zagreb, HR
Aug. 09	› W2 Professorship for 5 years at the BioQuant, Heidelberg, Germany

PREVIOUS EMPLOYMENT

Oct. 09 – Oct. 11	› Professor (W1) at the Institut für Theoretische Physik, FAU Erlangen <ul style="list-style-type: none"> › Rising Star in the Excellence Cluster: Engineering of Advanced Materials
Sep. 06 – Sep. 09	› Research associate at the II. Institut für Theoretische Physik, Universität Stuttgart

POSTDOCTORAL EXPERIENCE

Mar. 06 – June 06	› II. Institut für Theoretische Physik, Universität Stuttgart, group of Prof. U. Seifert
Aug. 05 – Feb. 06	› I. Institut für Theoretische Physik, FAU Erlangen, group of Prof. K. Mecke
Feb. 05 – June 05	› School of Chemistry, University of Sydney, AU, Visiting fellow in the group of Prof. R. Clarke

DOCTORAL STUDIES	
Mar. 02 – Dec. 04	<ul style="list-style-type: none"> › Lehrstuhl für Biophysik E22, Technische Universität München › Supervisor: Prof. E. Sackmann › Thesis: "Modeling cell adhesion and its control mechanisms with a vesicle substrate system". Grade: Excellent 1.0
UNDERGRADUATE STUDIES AND RELATED WORK EXPERIENCE	
Sep. 93 – June 01	<ul style="list-style-type: none"> › Department of Physics, Faculty of Mathematics and Natural Sciences, University of Zagreb, Croatia. Graduation as "Diplomirani inženjer fizike" › Thesis: "Examination of New Aspects of the Hydrophobic Effect" › Grade: <i>Excellent</i> › Recognized as "Diplomphysikerin" by the TU München, Germany
June 01	› Diploma at the Department of Physics, University of Zagreb, Croatia
Mar. 99 – Nov. 99	› Diploma project at the Department of Applied Mathematics, RSPHYSSE, Australian National University, Canberra, A.C.T., Australia. Supervisor: Prof. S. Marčelja.
Nov. 95 – April 97	› Student research assistant at the Department of Geophysics, Faculty of Mathematics and Natural Sciences, University of Zagreb, group of Prof. B. Vršnjak. Project: "A study of the differential synodic rotation of the Sun".
Mar. 95 – Mar. 99	› Undergraduate studies for piano performing at the Music Academy „Ino Mirković“, Lovran, Croatia. Piano-class of Prof. O. Chakirov.
SCHOOL	
Sep. 89 – Jul. 93	› V. Gimnazija, Zagreb, Croatia.
Sep. 92 – Mar. 93	› École Secondaire „Camille See“, Paris 14, France
Sep. 81 – Jul. 89	› Primary school OŠ „Mladost“, Zagreb, Croatia
SCHOLARSHIPS	
Apr. 05 – Jul. 05	› Scholarship for post-doctoral studies from Hochschul- und Wissenschaftsprogramm (HWP II) at the TU- München
Jun. 04 – Dec. 04	› Scholarship for doctoral studies from Hochschul- und Wissenschaftsprogramm (HWP II) at the TU- München
INTERNATIONAL EXCHANGE EXPERIENCE	
Feb.03 – May 03	› Department of Applied Mathematics, Australian National University, Canberra, Australia
Dec. 01 – Feb. 02	› Lehrstuhl für Biophysik E22, Technische Universität München,
Nov. 99	› GROMACS Simulation Group, Groningen, The Netherlands
Mar. 99 – Oct. 99	› Department of Applied Mathematics, Australian National University, Canberra, Australia.
NON-ACADEMIC WORK EXPERIENCE	
1993 – 1996	› French interpreter for Canal+, Red Cross and the European Community Monitor Mission
2000 – 2001	› Programmer in the software company ADAPRO, Zagreb, Croatia
ASSOCIATIONS	
2006 –	› Member of the Deutsche Physikalische Gesellschaft
2005 –	› Member of the Croatian Physical Society
1996 –	› Member of the Croatian Society of Astronomers
REFEREEING DUTIES	
Editorial Board	› Biophysical Journal (2016-2019)
Journals	› Nature Physics, Proceedings of the National Academy of Sciences U.S.A., Physical Review – Letters, X and E, Angewante Chemie, Biophysical Journal, PLOS One, Europhysics Letters, Soft Matter, Langmuir, European Journal of Chemical Physics, EPJE, EPL...
Science Foundations	› W.M Keck, French, Israeli, Croatian, and German (including centres of excellence)

TEACHING EXPERIENCE	
Sep. 02 – Feb. 03	<ul style="list-style-type: none"> › Teaching Assistant for the Physik Department, TUM, Garching, Germany <ul style="list-style-type: none"> › Course: <i>Biophysik</i>
Sep. 09 –16	<ul style="list-style-type: none"> › Lecturer for the Graduate Program of the Physics Department, University of Zagreb, Croatia, <ul style="list-style-type: none"> › Core course: <i>Introduction to Soft Matter Physics</i>
Apr. 10 –	<ul style="list-style-type: none"> › Lecturer at the Physics Department, FAU Erlangen, Germany <ul style="list-style-type: none"> › <i>Compulsory courses in the Physics Advanced study program</i> <ul style="list-style-type: none"> › Classical Field Theory and Electrodynamics (<i>Winters 2010, 11, 13, 14</i>) › Quantum Mechanics (<i>Summers 2012, 13, 16</i>) › <i>Elective courses</i> <ul style="list-style-type: none"> › Biophysics (<i>Summers 2010, 11, 17</i>) › Theoretical Soft Matter (<i>Winter 2014</i>) › Computational Methods in Soft Matter and Biophysics (<i>Summer 2014, 2016</i>) › Interactions at Biological Membranes (<i>Summer 2014, within the RTG 1962</i>) › <i>Seminars offered in Theoretical Physics and in Integrated Life Sciences study programs</i> <ul style="list-style-type: none"> › Biophysics (<i>Winter 2010</i>) › Path Integral Approaches (<i>Summer 2011</i>) › Practicals in Computational Methods in Soft and Biophysics (<i>Summer 2015</i>)
Mar. 14	<ul style="list-style-type: none"> › Graduate Program of the Physics Department, EPFL, Lausanne, Switzerland <ul style="list-style-type: none"> › Course: <i>Introduction to Biological Membranes</i> (20 Lectures)
SUPERVISION DUTIES	
Previous PostDocs	<ul style="list-style-type: none"> › Karsten Goede <ul style="list-style-type: none"> › Project: Investigation of phase transitions in adherent lipid vesicles › FAU, Erlangen and CINAM, University of Marseille, France, 2010 › Zoran Miličević <ul style="list-style-type: none"> › MiPOMAT Project: Diffusion on solid-liquid interfaces › IRB Zagreb, 2015-2016 › Zlatko Brkljača <ul style="list-style-type: none"> › MiPOMAT Project: Interactions of amino acids with a calcite surface › IRB Zagreb, 2015-2016
Current PostDocs	<ul style="list-style-type: none"> › Robert Blackwell <ul style="list-style-type: none"> › Project: Emergent behaviour in membrane-coupled molecular motors › FAU, Erlangen, 2016-2018 › Maryam Alee <ul style="list-style-type: none"> › Project: Emergent behaviour cellular tissues subject to uniaxial strain › FAU, Erlangen, 2016-2018 › Adriana Lepur <ul style="list-style-type: none"> › Effects of local stress on the proliferation rate of cells in epithelial tissues › IRB Zagreb, 2016-2019

Completed PhD students

- › Karmen Čondić Jurkić
 - › Doctoral Thesis: Strategies in the Computational Modelling of Biological Systems: Case Studies with Radical Enzymes – 2014
 - › FAU, Erlangen and IRB, Zagreb, Croatia
- › Timo Bihl
 - › Doctoral thesis: Dynamics of cell adhesion by Langevin simulations – 2015
 - › FAU Erlangen, Germany
- › Zoran Miličević
 - › Doctoral thesis: Electrophoretic behaviour of hydrophobic molecules – 2016
 - › Graduate school Advanced Materials and Processes, FAU Erlangen
- › Zlatko Brkljača
 - › Doctoral thesis: Computation of circular dichroism spectra of small peptides – 2016
 - › Graduate school Advanced Materials and Processes, FAU Erlangen
- › Daniel Schmidt
 - › Doctoral thesis: Modeling of formation of micro-domains in adherent membranes – 2016
 - › RTG 1962 on Biological Membranes and Tissues, FAU Germany
- › Jayant Pande
 - › Doctoral thesis: Modelling self-propelled motion of small swimmers – 2016
 - › Graduate school Advanced Materials and Processes, FAU, Erlangen

Current PhD students

- › Sara Kaliman
 - › Doctoral thesis: Morphological analysis of cellular tissues
 - › Graduate school Advanced Materials and Processes, FAU, Erlangen
- › Damir Vurnek
 - › Doctoral thesis: Growth of epithelial tissues under stress
 - › FAU Erlangen
- › Mislav Cvitković
 - › Doctoral thesis: Obstructed diffusion of proteins in membranes
 - › RTG 1962 on Biological Membranes and Tissues at FAU Erlangen / IRB Zagreb
- › Robert Stepic
 - › Doctoral thesis: Computational study of the formation of organic-inorganic interfaces
 - › Graduate school Advanced Materials and Processes, FAU, Erlangen
- › Josip Vlajčević
 - › Doctoral thesis: Phase behaviour of proteins in adherent membranes
 - › Graduate school of FAU Erlangen / IRB Zagreb
- › Nataša Vučemilović-Alagić
 - › Doctoral thesis: Ionic liquids at interfaces – application to SILP catalysis
 - › Graduate school of FAU Erlangen / IRB Zagreb
- › Jakov Lovrić
 - › Doctoral thesis: Modelling the multiscale dynamics in epithelial tissues.
 - › Graduate school of FAU Erlangen / IRB Zagreb
- › Simone Gehrler
 - › Doctoral thesis: Tissue under stress.
 - › RTG 1962 on Biological membranes and Tissues, FAU Germany

Completed diploma/masters students	<ul style="list-style-type: none"> ‣ Henning Stumpf <ul style="list-style-type: none"> ‣ Doctoral thesis: Diffusion traps in membranes ‣ RTG 1962 on Biological membranes and Tissues, FAU Germany ‣ Josip Augustin Januš <ul style="list-style-type: none"> ‣ Doctoral thesis: Theory of Mechanosensing ‣ FAU Graduate School
	<ul style="list-style-type: none"> ‣ Daniel Schmidt Physics, Stuttgart University – 2009 ‣ Zoran Miličević, Chemistry, University of Zagreb – 2009 ‣ Sara Kaliman Physics, University of Zagreb – 2010 ‣ Wolfram Barfuß, Physics Advanced, FAU, Erlangen – 2015 ‣ Johannes Zirkelbach Physics Advanced, FAU, Erlangen – 2015 ‣ Matthias Spätt Physics Advanced, FAU, Erlangen – 2016 ‣ Thomas Kipf Physics Advanced, FAU, Erlangen – 2016 ‣ Jakov Lovrić Mathematics, University of Zagreb – 2016 ‣ Simone Gehrler ILS, FAU Erlangen – 2016 ‣ Henning Stumpf Physics, FAU Erlangen – 2016
Current master students	<ul style="list-style-type: none"> ‣ David Jung Physics, FAU Erlangen – 2017 ‣ Oleg Thorsman Physics, FAU Erlangen – 2017 ‣ Thomas Sheel Physics, FAU Erlangen – 2017 ‣ Andreas Baer Physics Advanced, FAU – 2018
LANGUAGES USED IN TEACHING	
Fluent Intermediate Basic	<ul style="list-style-type: none"> ‣ English, Croatian, and French ‣ German ‣ Russian

FUNDING ID – GENERATING 3.400,000 EUROS INCOME FOR THE PULS GROUP

Running Projects

- 2017-2018 > FAU Erlangen – Emerging field initiative: BIG-THERA–Big Data Modelling for the development of new paradigms in diagnostics and treatment of breast cancer
 - > Value: 800 000 Euro / Co-coordinator (80 000 Euros for the PULS Group)
- 2017-2022 > FAU Erlangen – Helmholtz-Institut Erlangen-Nürnberg für Erneuerbare Energien: Phoretic colloidal suspensions and surfaces.
 - > Value: 500 000 Euro / Principal investigator (250 000 for the PULS Group)
- 2017-2019 > IRB Zagreb, HR – Strategic development funds
 - > Value: ~85 000 Euro for 1 PhD student
- 2016-2021 > Croatian Science Foundation – PhD student funding
 - > Value / Role: 600 000Kn (cca 85 000 Euros) / Principle Investigator
- 2015-2017 > HRZZ project: *CompSoLS: The Importance of Molecular Flexibility* (Coordinator D. Smith)
 - > Value / Role: 900 000 Kuna (cca 120 000 Euros) / Researcher
- 2014-2019 > RTG 1962 Dynamic Interactions at Biological Membranes - from Single Molecules to Tissue
 - > Value / Role: cca 200 000 Euros / Principal Investigator
- 2013-2019 > ERC Starting Grant MembranesAct
 - > Value / Role: 1 500 000 Euro / Principal Investigator
- 2013-2018 > Cluster of Excellence: Engineering of Advanced Materials: Interactions at solid –liquid interfaces
 - > Value / Role: 288 500 Euro / Project leader
- 2015-2017 > Amidex - Cooperation Méditerranée: *AFFINITY*
 - > Value / Role: 200 000 Euro / Co-coordinator

Completed Projects

- 2015-2016 > European Social Fund project: *Network for professional development of young scientists: An interdisciplinary approach to innovative surfaces and materials* (Coordinator D. Smith)
 - > Value / Role: 2 000 000 Kn (cca 265 000 Euros) / Principle Investigator
- 2015 > Cooperation with AREVA on modelling cooling systems
 - > Value / Role: 10 500 Euro/ Coordinator
- 2011 – 2012 > KONWIR: *ParSwarm – Massive simulations of bacterial swarms*
 - > Value / Role: 25 000 Euro / Principal investigator
- 2009 – 2011 > Universitätsbund Erlangen-Nürnberg e.V.
 - > Value / Role: 12 000 Euro / Principal investigator
- 2009 – 2011 > Cluster of Excellence: Engineering of Advanced Materials: *Starting Grant*
 - > Value / Role: 100 000 Euro
 - > Role: Principal investigator
- 2010-2013 > Cluster of Excellence – Engineering of Advance Materials, Erlangen, Germany
 - > Program: Rising Star
 - > Value / Role: 350 000 Euro / Project leader
- 2006 – 2012 > Förderprogramm „ Neuberufene Professorinnen“ des Bayerischen Staatsministerium für Wissenschaft, Forschung und Kunst der Universität Bayern
 - > Value / Role: 12 000 Euro / Project leader
- 2009 – 2011 > Project DFG SE 1119/2-1: *A Self-Consistent Theory for Homogeneous and Discrete Interactions of Membranes with Elastic Substrates*. (Coordinator U. Seifert)
 - > Value / Role: ~200 000 Euro / Investigator (Writing and execution of the project)

2007 – 2011	<ul style="list-style-type: none"> ➤ Project for young investigators: <i>Protein Assisted DNA Monolayer Assembly</i> of the of The Unity through Knowledge Fund, Croatia. (with Tomislav Vuletic, Institut of Physics, Zagreb, Croatia) Value / Role: 50 000 Euro / Co-applicant
2006 – 2009	<ul style="list-style-type: none"> ➤ Project 098-1191344-2860: <i>Investigation of biological macromolecules by means of computational methods and development of new algorithms</i> of the Ministry of Sciences, Education and Sport, Croatia (with Sanja Tomić, Institute Ruđer Bošković, Croatia) Value / Role: 80 000 Euros / Investigator
2003-2008	<ul style="list-style-type: none"> ➤ Sixth Framework Program Project: <i>Reinforcement of the Centre for Computational Solutions in the Life Sciences</i>, Institute Ruđer Bošković, Croatia. (Coordinator David Smith) <ul style="list-style-type: none"> ➤ Value / Role: ~380 000 Euro / Associated member (Preparation of several work packages. ➤ Supervision of a PhD student on a collaborative research project)
Grants Under Consideration	
2017-2019	<ul style="list-style-type: none"> ➤ H2020 Widespread 2014–1 Teaming Project Phase I for the establishment of the Centre of Excellence for Biomedical Modelling and Applications Participants: Institute Rudjer Boskovic, Croatia, University of Zagreb and the University Hospital Zagreb, Croatia, FAU Erlangen and the University Clinic Erlangen, Germany Role: Coordinator of the FAU contribution, co-coordinator of the Croatian contribution Value: ~30 MEuro
2017-2020	<ul style="list-style-type: none"> ➤ SPP- Microswimmers: <i>Magnetocapillary microrobots: hunting, harvesting and transporting objects at fluid interfaces</i> – a project in collaboration with J. Harting
2018-	<ul style="list-style-type: none"> ➤ COST Action: <i>Cell adhesion complexes: from basic research to therapeutic targets</i> (CellAC); Secondary Proposer
2018-	<ul style="list-style-type: none"> ➤ COST Action: - Energy Oxides - Understanding Functionality for Emerging Technologies (COST-ENOX); Secondary Proposer
2018-2023	<ul style="list-style-type: none"> ➤ RTG: <i>Fracture and Fragmentation across Scales: Integrating Mechanics, Materials Science, Mathematics, Chemistry, and Physics</i> (FRA²SCAL); Principle investigator
Initiatives in Preparation	
2017-2025	<ul style="list-style-type: none"> ➤ SFB Initiative on Mechanotransduction Participants: FAU Erlangen (NatFak, MedFak+TekFak) Role: Coordinator

DISSEMINATION ACTIVITIES

Organization of Conferences

- 2009-2018 > **PhysCell**: EMBO Conference Series on Cell Biophysics
 - Chair of the International organizing committee
 - > *Physics of Cells: From the Edge to the Heart – PhysCell2009*, 1st conference Primošten, Croatia, chair of the local organizing committee, Sep. 2009
 - > *“De Gennes Days on the Physical Cell – PhysCell2012*, 2nd conference Marseille, France, Sep. 2012
 - > PhysCell2015, 3rd conference Kloster Banz, Germany, Sep. 2015
 - Executive Advisory Board
 - > PhysCell2018, 4th conference in the series, UK, 2018
- Sep. 2016 > **CMBBE 2016**, Tel Aviv, Israel
 - > Session organiser with B. Fabry (Modelling mechanical and frictional interactions of tissues and cells)
- Sep. 2015 > **Particle Simulations**, Erlangen, Scientific Committee
- 2012-2020 > **"Greta Pifat-Mrzljak" Summer schools**, Croatia, Program Committee
 - > Primošten, Croatia, Oct. 2012, 2014
 - > Adriatic, Croatia, Oct. 2016
- 2012-2020 > **"From Solid State to Biophysics"**, Advisory Board
 - > Cavtat, Croatia, Sep. 2012, 2014, 2016

Invited and Keynote Talks at Conferences

- Mar. 2017 > Soft Matter at Interfaces, Ringberg, Germany
- Mar. 2017 > ISINA Meeting, Chemnitz
- Feb.. 2017 > Dynamics of Interfaces in Complex Fluids and Complex Flows
- Oct. 2016 > Primosten THomas
- Oct. 2016 > Modeling Cellular Processes in Space and Time, Porquerolles, France
- Sep. 2016 > Venice meeting on fluctuations in small complex systems III, Venice, Italy
- Sep. 2016 > 14th International Symposium on Computer Methods in Biomechanics and Biomedical Engineering, Tel Aviv, Israel
- Sep. 2016 > 12th Greta Pifat-Mrzljak summer school, Adriatic Sea, Croatia
- July 2016 > Sommerschule Soft Matter Science, Mittelwihr, France
- June 2016 > Mechanotransduction : from molecules to tissues, Quy Nhon, Vietnam
- June 2016 > From Solid State to Biophysics VII, Cavtat, Croatia
- Mar. 2016 > Physics of Development and Disease, Aspen Center for Physics Winter Conference, USA
- Dec 2015 > Biophysics of slime molds, Göttingen, Germany
- Oct. 2015 > Deutsche Physikerinnentagung 2015, Göttingen, Germany
- July 2015 > PDE's in Physics for Cell Morphology, Motility and Pattern Formation, Cambridge UK
- Feb. 2015 > Advanced Materials and Nanotechnology Conference, Nelson, New Zealand

- Oct. 2014 > Venice Meeting on Fluctuations in Small Complex Systems II, Venice, Italy
- Sep. 2014 > Physics of Cancer, Leipzig, Germany
- Sep. 2014 > Physics Meets Biology, Oxford, UK
- Jun. 2014 > From Solid State to Biophysics VI, Cavtat, Croatia
- Jan. 2014 > Perspectives in Soft Matter, Assembly of EAM, Muggendorf, Germany

- Aug. 2013 > Physics of Emergent Behaviour, Brighton, England
- Mar. 2013 > Soft Matter at Interfaces, Ringberg, Germany

- Nov. 2012 > EAM Annual Meeting, Kloster Banz, Germany
- Oct. 2012 > 11th Greta Pifat-Mrzljak International School of Biophysics, Primosten, Croatia
- Sep. 2012 > ESF Exploratory Workshop on Physics of Cancer, Varenna, Italy
- Jun. 2012 > EAM Summer School, Kloster Banz, Germany
- Jun. 2012 > From Solid State to Biophysics VI, Cavtat, Croatia
- Mar. 2012 > Workshop on Multiscale Modelling and Simulation, Pommersfelden, Germany

- Nov. 2011 > EAM Symposium 2011, Oberhof, Germany
- Jun. 2011 > 7th Symposium on High-End Computing, Erlangen, Germany

- Oct. 2010 > Workshop on Multiscale Modeling, Simulation and Optimization, Germany
- Jun. 2010 > From Solid State to Biophysics V, Cavtat, Croatia
- Mar. 2010 > EAM Winterschool, Kirchberg, Austria
- Jan. 2010 > EAM Meeting, Muggendorf, Germany

- Oct. 2009 > Annual Meeting of the Croatian Physical Society, Croatia
- Aug. 2009 > Symposium Junior Research Group DKFZ–MPG, MPI for Metals Research, Stuttgart
- Jun. 2009 > Minisymposium on Engineering of Advanced Materials, EAM, Erlangen, Germany

- Jun. 2008 > From Solid State to Biophysics IV, Cavtat, Croatia

- Dec. 2007 > Christmas Workshop on Biophysics, Bled, Slovenia
- Sep. 2007 > Computational Solutions to Life Sciences, Opatija, Croatia
- Mar. 2007 > Spring meeting of the Deutsche Physikalische Gesellschaft, Regensburg, Germany

- Dec. 2006 > Christmas Workshop on Biophysics, Zagreb, Croatia
- June 2006 > From Solid State to Biophysics III, Cavtat, Croatia
- Mar. 2006 > Junior Research Groups – Symposium, Garching, Germany
- Feb. 2006 > Soft Matter at Interfaces 2006, Ringberg, Germany

- Oct. 2005 > Cells@Interfaces, Toscana, Italy
- Sep. 2005 > NTZ-Workshop: Soft Matters in Biological Physics, Leipzig, Germany
- Sep. 2005 > Annual Meeting of the Croatian Biophysical Society, Zagreb, Croatia.

Contributed Talks at Conferences

- Sep. 2016 > 3rd International Workshop on nonlinear response in complex matter, Primošten, Croatia.
- Dec. 2015 > PacificChem, Honolulu, USA
- Sep. 2015 > ShapeUp, Berlin, Germany
- July 2015 > IHW Symposium on "Collective Cell Migration" in Heidelberg
- Mar. 2014 > CelTisPhyBio, Paris, France
- Oct. 2012 > Active Soft and Biological Matter, Les Houches, France.
- Mar. 2008 > Collective Effects in Cell Biophysics, Les Houches, France.
- Mar. 2008 > Spring meeting of the Deutsche Physikalische Gesellschaft, Berlin, Germany
- Mar. 2004 > Annual Meeting of the American Physical Society, Montreal, Canada.
- Mar. 2002 > Winterschule des E22 Physik Department, Antholz, Italy.

Poster presentations at Conferences

- Apr. 2011 > German-American Frontiers of Science Symposium of the Kavli and the Humboldt foundation, Irvine, CA, USA
- Feb. 2010 > De Gennes Days: Physics of Cellular Mechanosensing, Rehovot and Dead Sea, Israel
- Mar. 2004 > German-Israeli Gentner Symposium: The physics of Biomaterials and Soft Matter.
- Sep. 2003 > VIII International Summer School of Biophysics, Rovinj, Croatia.
- Sep. 1999 > 21st Australian Colloid & Surface Chemistry Student Conference, Morpeth, Australia.
 - > Special prize for the poster presentation

Participation at Conferences

- Sep. 2016 > BioSoft Frontiers at Weizmann Institute, Tel Aviv, Invited guest.
- March 2016 > Biophysical Society Meeting, Los Angeles, USA, Editorial Board Member
- Mar. 2016 > Spring meeting of the Deutsche Physikalische Gesellschaft, Dresden, Germany.
- Mar. 2014 > Spring meeting of the Deutsche Physikalische Gesellschaft, Dresden, Germany, Chair
- Mar. 2013 > Spring meeting of the Deutsche Physikalische Gesellschaft, Dresden, Germany
Poster prize committee
- Sep. 2012 > ProstFest, Les Houches, France
- Mar. 2012 > Spring meeting of the Deutsche Physikalische Gesellschaft, Dresden, Germany
Poster prize committee
- Mar. 2011 > Spring meeting of the Deutsche Physikalische Gesellschaft, Dresden, Germany, Chair
- Oct. 2010 > 467th WE Heraeus Seminar: Biophysics of Membrane Transformations, Bad Honnef, Germany, Session chair
- Mar. 2010 > Spring meeting of the Deutsche Physikalische Gesellschaft, Regensburg, Germany, Chair
- Mar. 2002 > 273th WE-Heraeus Seminar: Micro to Macromechanics of Hierarchical Living Materials and Technical Structures, Bad Honnef, Germany
- Sep. 1997 > VI International Summer School of Biophysics, Rovinj, Croatia.

Invited Lectures

- Dec. 2016 > Wuertzburg University, Germany
- Oct. 2016 > University of Marseille, France
- Feb. 2016 > Leipzig University, Germany
- Jan. 2016 > Murdoch University, Perth, Australia
- Feb. 2015 > Mechanobiology Institute, University of Singapore, Singapore
- Apr. 2014 > Physics Colloquium, Leipzig, Germany
- Oct. 2013 > Seminar at the Institute for Fluid Dynamics, TekFak, Erlangen
- Apr. 2013 > Physics Colloquium, Heidelberg, Germany
- Feb. 2013 > Seminar at the Physics Department, Stuttgart, Germany
- Oct. 2012 > Institut Rudjer Boskovic, Zagreb Croatia
- May 2012 > APHELION study – Physics in Cancer Research in Europe, Munchen, Germany
- May 2012 > Seminar in the Material Science Department, University of Kiel, Germany
- Feb. 2012 > Seminar at the Max Plank Institute for Science of Light, Erlangen, Germany
- Jan. 2012 > Seminar at the University of Marseille
- Juni 2011 > Seminar of the Physics Department, University of Göttingen, Germany
- May 2011 > Inauguration lecture at the Bavarian Academy of Sciences, Munich, Germany
- Feb. 2011 > Institute for Physics, Zagreb, Croatia
- Feb. 2011 > Election talk, Bavarian Academy of Sciences and Humanities
- May 2010 > Colloquium of the Physics Department, University of Erlangen-Nürnberg, Germany
- Nov 2009 > Karlsruhe Institute of Technology, Karlsruhe, Germany
- June 2009 > Forschungszentrum Jülich, Jülich, Germany
- May 2009 > Theory Department, Max-Planck-Institut of Colloids and Interfaces, Golm, Germany
- Mar. 2008 > Colloquium of the Physics Department, EPFL, Lausanne, Switzerland
- Oct. 2007 > PhysicoChimie, Institut Curie, Paris, France
- Aug. 2007 > CENS, Ludwig-Maximilians-Universität, München, Germany

Mar. 2007	› Physics Department, Faculty for Natural Sciences, University of Zagreb, Croatia
Apr. 2006	› Physics Department, Institut for Solid State Physics, EPFL, Lausanne, Switzerland
Nov. 2005	› Institut 4: Biologische Schichten, Forschungszentrum Jülich, Jülich, Germany
Sept. 2005	› Theory Department, Max-Planck-Institut of Colloids and Interfaces, Golm, Germany
Aug. 2005	› Institute for Biophysical Chemistry, University of Heidelberg, Heidelberg, Germany
Aug. 2005	› I. Institut für Theoretische Physik, Universität Nürnberg-Erlangen, Germany
Apr. 2005	› Research School of Physics, Australian National University, Canberra, Australia
Feb. 2005	› School of Chemistry, University of Sydney, Sydney, Australia
Dec. 2004	› Institut für Biophysik E22, Technische Universität München, München, Germany
Nov. 2004	› II. Institut für Theoretische Physik, Universität Stuttgart, Stuttgart, Germany
May 2003	› Dept. of Applied Mathematics, Australian National University, Canberra, Australia
Jan. 2003	› Institut für Biophysik E22, Technische Universität München, München, Germany
Nov. 1999	› GROMACS Simulation Group, Chemistry Department, Groningen, The Netherlands
Sep. 1999	› Dept. of Applied Mathematics Australian National University, Canberra, Australia
Popularisation of Science	
Oct. 15	› Popular lecture on the Science Fair in Sinj, Croatia
Apr. 11	› Lecture on the position of women in science, Equal Opportunity office, FAU, Erlangen
Jan. 11, May 12	› Presentations on research in the field of Theoretical Biophysics, organized by the student section of the Physics department, FAU, Erlangen
Public Relations	
2010-2011	› Organizing the production and the dissemination of the promotional material for the Physics Advance study program (webpage, brochure, posters, etc.)
2010-	› Member of various committees (Bachelor and PhD exams, selection committees for a professorship positions, etc.)
2013-	› Several press releases regarding research and other activities
2013-	› Several TV appearances promoting research and biophysics
2008 -	› Several lectures to primary and high school students

PUBLICATION LIST

Published articles – (*h*-factor=16)

1. **A.-S. Smith**, E. Sackmann and U. Seifert: Effects of a Pulling Force on the Shape of a Bound Vesicle. *Euro. Phys. Lett.* **64**, 281 (2003).
2. **A.-S. Smith**, E. Sackmann and U. Seifert: Pulling Tethers from Adhered Vesicles. *Phys. Rev. Lett.* **92**, 208101 (2004).
3. **A.-S. Smith**, U. Seifert: Effective Adhesion Strength of Specifically Bound Vesicles. *Phys. Rev. E.* **71**, 61902 (2005).
4. **A.-S. Smith** and U. Seifert: Force-induced de-adhesion of specifically bound vesicles: Strong adhesion in competition with tether extraction. *Langmuir*, **21**, 11357-11367 (2005). Cover page of the November issue.
5. **A.-S. Smith**: The total solute-water correlation function for Lennard-Jones particles. *Fizika A*, **14**, 187-194, (2005).
6. **A.-S. Smith**, B. Lorz, U. Seifert, E. Sackmann: Antagonist induced unbinding of specifically adhered vesicles. *Biophys. J.*, **90**, 1064-80 (2006).
7. **A.-S. Smith**, B. Lorz, S. Goennenwein and E. Sackmann: Force-controlled equilibria of specific vesicle-substrate adhesion. *Biophys. J.* **90**, L52-L54 (2006).
8. **A.-S. Smith**, U. Seifert: Vesicles as a model for controlled (de-)adhesion of cells: a thermodynamic approach. *Soft Matter.* **3**, 275-289 (2007).
9. B. G. Lorz, **A.-S. Smith***, C. Gege and E. Sackmann: Adhesion of giant vesicles mediated by weak binding of sialyl-LewisX to E-selectin in the presence of repelling poly(ethylene glycol) molecules. *Langmuir* **23**, 12293-12300 (2007). Cover page of the November issue.
10. **A.-S. Smith**, K. Sengupta, S. Goennenwein, U. Seifert, E. Sackmann: Force-induced growth of adhesion domains is controlled by receptor mobility. *Proc. Natl. Acad. Sci. U.S.A.*, **105**, 6906–6911 (2008).
11. E. Reister Gottfried, K. Sengupta, B. Lorz, E. Sackmann, U. Seifert, **A.-S. Smith**: Dynamics of vesicle-substrate adhesion: From local events to global dynamics. *Phys. Rev. Lett.* **101**, 208103 (2008).
12. **A.-S. Smith**, E. Sackmann: Progress in mimetic studies of cell adhesion and the mechanosensing. *ChemPhysChem* **10**, 66-78 (2009).
13. **A.-S. Smith**, S. Fenz, K. Sengupta: Inferring spatial organization of bonds within adhesion clusters by exploiting fluctuations of soft interfaces. *Europhysics Letters* **89**, 28003:1–6 (2010).
14. **A.-S. Smith**: Cells - a new challenge for physics? *Nature Phys.* **6**, 1-4 (2010).



15. E. Reister, T. Bihl, U. Seifert, **A.-S. Smith**: Two intertwined facets of adherent membranes: Membrane roughness and correlations between ligand-receptors bonds. *New J. Phys.* **13**, 025003 (2011).
16. S. Fenz, **A.-S. Smith**, R. Merkel, K. Sengupta: Inter-membrane adhesion mediated by mobile linkers: Effect of receptor shortage. *Soft Matter* **7**, 952 (2011).
17. S. Fenz, T. Bihl, R. Merkel, U. Seifert, K. Sengupta, **A.-S. Smith**: Switching from ultra-weak to strong adhesion. *Adv. Mat.* **23**, 2622 (2011).
18. K. Čondić–Jurkić, **A.-S. Smith**, H. Zipse, D. M. Smith: Protonation States of Histidines in the Active Site of (6-4) Photolyase. *J. Chem. Theory Comput.* **8**, 1078–1091 (2012).
19. Z. Brkljača, K. Čondić–Jurkić, **A.-S. Smith***, D. M. Smith: Relating the conformational space of a peptide with its circular dichroism spectra by computational methods: The case of Metenkephalin and its unnatural analog. *J. Chem. Theory Comput.* **8**, 1694–1705 (2012).
20. K. Pickl, J. Götz, K. Iglberger, J. Pande, K. Mecke, **A.-S. Smith**, U. Rüde: All Good Things Come in Threes - Three Beads Learn to Swim with Lattice Boltzmann and a Rigid Body Solver. *J. Comput. Sci.* **3**, 374, (2012).
21. D. Schmidt, T. Bihl, U. Seifert, **A.-S. Smith**: Coexistence of dilute and densely packed domains of ligand-receptor bonds in membrane adhesion. *EPL* **99**, 38003, (2012)
22. T. Bihl, U. Seifert and **A.-S. Smith**: Nucleation of Ligand-Receptor Domains in Membrane Adhesion. *Phys. Rev. Lett.* **109**, 258101 (2012)
23. K. Pickl, M. Hofmann, T. Preclik, H. Köstler, **A.-S. Smith** and U. Rüde. Parallel Simulations of Self-propelled Microorganisms. In M. Bader, A. Bode, H.-J. Bungartz, M. Gerndt, G.R. Joubert, F. Peters (eds.): Parallel Computing: Accelerating Computational Science and Engineering (CSE). *Advances in Parallel Computing* **25**, IOS Press, (2014).
24. E. Sackmann and **A.-S. Smith** Physics of Cell Adhesion: Some Lessons from Cell-mimetic Systems. *Soft Matter*, **10**,1644 (2014).
25. H. Bao, T. Bihl, **A.-S. Smith**, and R. N. Klupp Taylor. Facile colloidal coating of polystyrene nanospheres with tunable gold dendritic patches. *Nanoscale* **6**, 3954 (2014).
26. Q. Shou, J. E. Smith, H. Mon, Z. Brkljača, **A.-S. Smith**, D. M. Smith, H. J. Griesserb, and H. Wohlmutha. Rhodomyrtals A–D, four unusual phloroglucinolsesquiterpene adducts from *Rhodomyrtus psidioides*. *RSC Advances* **4**,13514 (2014).
27. S. Kaliman, C. Jayachandran, F. Rehfeld, **A.-S. Smith**: Novel Growth Regime of MDCK II Model Tissues on Soft Substrates. *Biophys. J.* **106**, L25 (2014). Cover page.
28. C. Monzel, D. Schmidt, R. Merkel, U. Seifert, K. Sengupta, **A.-S. Smith**: Signature of a Non-harmonic Potential as Revealed from a Consistent Shape and Fluctuation Analysis of an Adherent Membrane. *Phys. Rev. X* **4**, 021023 (2014).
29. Z. Miličević, S. J. Marrink, **A.-S. Smith***, D. M. Smith: Establishing conditions for simulating hydrophobic solutes in electric fields by molecular dynamics. *J. Mol. Mod.* **20**, 2359, (2014).



30. Z. Brkljača, D. M. Smith*, **A.-S. Smith**: The Application of the TDDFT Methods for the Calculation of the CD Spectra of Flexible Peptides, *J. Chem. Theory Comput.* **10**, 3270 (2014).

31. T. Bihl, S. Fenz, R. Merkel, E. Sackmann, U Seifert, K. Sengupta, **A.-S. Smith**. Association rates of membrane-coupled cell adhesion molecules. *Biophys. J.* **107**, L33 (2014).

32. J. Pande and **A.-S. Smith**: Shape and forces as determinants of microswimming. *Soft Matter* **11**, 2364 (2015). Cover page.



33. Z. Brkljača, M. Klimczak, Z. Miličević, N. Taccardi, P. Wasserscheid, D. M. Smith, A. Magerl, **A.-S. Smith**. Complementary Molecular Dynamics and X-Ray Reflectivity Study of Ionic Liquids at Solid Interfaces. *J. Phys. Chem. Lett.* **6**, 549, (2015).

34. T. Bihl, U Seifert, **A.-S. Smith**. Multiscale approaches to protein-mediated interactions between membranes - Relating microscopic and macroscopic dynamics in radially growing adhesions. *New J. Phys.* **18**, 083016 (2015).

35. D. Schmidt, T. Bihl, S. Fenz, R. Merkel, U Seifert, K. Sengupta, **A.-S. Smith**. Receptor jamming induces ring-like adhesions in model membranes. *Biophysica Biochemica Acta* **1853**, 2984 (2015).

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38. **A.-S. Smith**: Alive and twitching. News&Views in *Nature Phys.* **12**, 378, (2016).

39. T. Bihl, F.-Z. Sada, U. Seifert, R. Klupp Taylor and **A.-S. Smith**. Radial growth in two dimensions revisited: The effect of finite density, binding affinity, reaction rates and diffusion. *Adv. Materials Interfaces* (2016). DOI: 10.1002/admi.201600310.

40. S. Kaliman, C. Jayachandran, F. Rehfeldt and **A.-S. Smith**. Limits of applicability of the Voronoi tessellation determined by centres of cell nuclei to epithelium morphology. *Frontiers in Physiology* **7**, 551, (2016).

41. K. Pickl, J. Pande, H. Köstler, U. Rüde, and **A.-S. Smith**. Fully resolved simulations of a three-sphere microswimmer and its swarm. *J. Phys.: Condens. Matter* (2016). Accepted for the special issue on Emergent Leaders.

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42. T. Bihl, S. Fenz, R. Merkel, U Seifert, K. Sengupta, **A.-S. Smith**. Membrane elasticity and fluctuations strongly affect the nucleation and growth of cadherin adhesions. *Nature Phys.* (2016). In review.

43. M. Cvitković, **A.-S. Smith*** and J. Pande. Expansions of the hypergeometric function with two large parameters – calculating the partition function of a lattice gas in the field of traps. *J. Phys. Chem A: Math Theor.* (2016). In review (arXiv: 1602.05146).

44. Z. Miličević; D. M. Smith, **A.-S. Smith**. Water in an electric field does not dance alone. *Phys. Rev. X* (2016). In review.

45. J. Pande, L. Merchant, T. Krüger, J. Harting, and **A.-S. Smith**. Effect of body deformability on microswimming. *Soft Matter* (2016). Submitted.
46. J. Pande*, K. Pickl*, O. Trosman, U. Rude, and **A.-S. Smith**. Microswimming with inertia. *New J. Phys.* (2016), Submitted.
47. J. Pande, L. Merchant, T. Krüger, J. Harting and **A.-S. Smith**: Setting the pace of microswimmers: when increasing viscosity speeds up self-propulsion. *NJP* (2016). Submitted.

Book Chapters

1. K. Sengupta and **A.-S. Smith**. "Physics of protein-mediated cell adhesion" in *Physics of Biological Membranes*, ed. P. Bassereau and P. Sens, Springer (*in preparation for 2017*).
2. **A.-S. Smith** and K. Sengupta. "Giant unilamellar vesicles" in "The Giant Vesicle Book" ed. C. Marques and R. Dimova, Taylor and Francis (*to appear in 2017*).