

# Curriculum Vitae: Ulrike Böhm

Laboratory of Receptor Biology & Gene Expression, NCI, National Institutes of Health  
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## Education

- 2016 - present      **Postdoctoral research fellow**, NCI, National Institutes of Health, Bethesda, United States of America
- 2011 - 2015        **Ph.D. in Physics**, University of Heidelberg, Germany  
Max Planck Institute for Biophysical Chemistry, Göttingen, Germany
- 2004 - 2010        **Diploma in Physics**, Technical University of Munich, Germany  
Max Planck Institute of Biochemistry, Martinsried/Munich, Germany

## Research experience

- 2016 - present      **Postdoctoral research fellow**  
NCI, National Institutes of Health, Laboratory of Receptor Biology & Gene Expression  
Advisors: Dr Daniel Larson, Dr Hari Shroff  
Research areas: super-resolution fluorescence microscopy, single-molecule imaging, gene expression, computational modeling and data analysis  
Research activities focus on:
- Design and construction of a novel imaging modality which will allow visualization of the genome at high resolution during transcription in time and space
  - Development of advanced fluorescence labeling strategies for the genome
  - Computational modeling and data analysis of 4D genome data
- 2011 - 2015        **Ph.D. student**  
Max Planck Institute for Biophysical Chemistry, Göttingen  
Department of NanoBiophotonics (Prof Stefan Hell)  
Dissertation title: "4Pi-RESOLFT nanoscopy"  
Advisor: Prof Stefan Hell  
Research areas: super-resolution fluorescence microscopy (STED, RESOLFT, 4Pi microscopy), nonlinear optics, computational modeling and data analysis  
Research activities focused on:
- Design and construction of a 4Pi-RESOLFT nanoscope, including optical and acquisition system. Controlling software was also developed.
  - System / sample testing and optimization
- 2009 - 2010        **Diploma student**  
Max Planck Institute of Biochemistry, Martinsried/Munich  
Department of Molecular Structural Biology (Prof Wolfgang Baumeister)  
Dissertation title: "Correlative microscopy at liquid nitrogen temperature"  
Advisors: Prof Wolfgang Baumeister, Prof Jürgen Plitzko  
Research areas: cryo-electron microscopy/tomography, cryo-fluorescence microscopy, correlative microscopy, computational modeling and data analysis  
Research activities focused on:
- Further development and testing of the construction of a cryo transfer shuttle (CryoStage<sup>2</sup>) for the reliable transfer of amorphous frozen-hydrated samples from a fluorescence to an electron microscope
  - Further development and testing of the software for the correlative microscopy approach

- 2005 - 2008      **Various research assistant positions**  
 Research areas: biophysics, optical physics, neutron scattering, computational modeling and data analysis
- 2008      Evaluation of the mechanical properties of actin filaments in combination with different actin binding proteins at the Physics Department of the Technical University of Munich, Germany - Prof Andreas Bausch
- 2008      Study of HEK cells with FLIC-microscopy at the Max Planck Institute of Biochemistry, Martinsried, Germany - Prof Peter Fromherz
- 2007      Analysis of Multi-SANS data (with MIRA) and data of Cytochrom C (with the Neutron Spin Echo RESEDA) at the FRM II – “research reactor Munich II”, Munich, Germany - Dr Robert Georgii and Prof Peter Böni
- 2006      Study of surfaces and DNA with an AFM at the Physics Department of the Technical University of Munich, Germany - Prof Thorsten Hugel
- 2006      Performance evaluation of an animal PET scanner at the university hospital ‚Rechts der Isar‘, Munich, Germany - Prof Sibylle Ziegler
- 2005      Data analysis of water levels of the Baltic Sea at the Leibnitz Institute for Baltic Sea Research, Warnemünde, Germany - Dr Torsten Seifert

## Research interests

Optical imaging and spectroscopy, advanced optical imaging techniques in particular super-resolution fluorescence microscopy, optical physics, nanotechnology, single-molecule biophysics and macromolecular biochemistry, single-molecule imaging, single-molecule (force) spectroscopy, biomolecular engineering, nucleic acid nanotechnology, gene expression, genetic engineering, next generation sequencing approaches, computational mathematical and biophysical modeling and data analysis

## Publications

**Böhm U**, Hell SW and Schmidt R (2016) “4Pi-RESOLFT nanoscopy.” Nat. Commun. 7, 10504

Ullal CK, Primpke S, Schmidt R, **Böhm U**, Egnér A, Vana P, Hell SW (2011) “Flexible Microdomain Specific Staining of Block Copolymers for 3D Optical Nanoscopy.” Macromolecules, 44, 7508–7510

Rigort A, Bäuerlein FJ, Leis A, Gruska M, Hoffmann C, Laugks T, **Böhm U**, Eibauer M, Gnaegi H, Baumeister W and Pitzko JM (2010) “Micromachining tools and correlative approaches for cellular cryo-electron tomography.” J. Struct. Biol. 172:169–179

## Awards

- 2017      Helmsley Fellowship
- 2010      Excellence award of the Max Planck Society
- 2009      Oskar Karl Forster Scholarship by the Technical University of Munich
- 2008      Study Career Scholarship by the Technical University of Munich

## Conference presentations

- 2017      “4Pi-RESOLFT nanoscopy: Nanometer scale 3D fluorescence imaging in whole living cells” **Böhm U**, Hell SW, Schmidt R. Oral presentation (*invited*). Seminar: Light Microscopy Interest Group Seminar Series. Bethesda, United States of America.
- 2017      “4Pi-RESOLFT nanoscopy: Nanometer scale 3D fluorescence imaging in whole living cells” **Böhm U**, Hell SW, Schmidt R. Oral presentation (*invited*). Workshop: “Chan Zuckerberg Initiative Imaging Workshop”. San Francisco, United States of America.
- 2017      “4Pi-RESOLFT nanoscopy” **Böhm U**, Hell SW, Schmidt R. Poster presentation. Conference: “Chesapeake Bay Area Single Molecule Biology Meeting”. Baltimore, United States of America.

- 2017 "4Pi-RESOLFT nanoscopy: Nanometer scale 3D fluorescence imaging in whole living cells" **Böhm U**, Hell SW, Schmidt R. Poster and oral presentation. Conference: "Frontiers in Imaging Science Conference". Ashburn, United States of America.
- 2017 "4Pi-RESOLFT nanoscopy" **Böhm U**, Hell SW, Schmidt R. Poster presentation. Conference: "Single Molecule Biophysics Conference". Aspen, United States of America.
- 2016 "4Pi-RESOLFT nanoscopy: Nanometer scale 3D fluorescence imaging in whole living cells" **Böhm U**, Hell SW, Schmidt R. Poster presentation. Conference: "Labeling and Nanoscopy Conference". Heidelberg, Germany.
- 2016 "4Pi-RESOLFT nanoscopy" **Böhm U**, Hell SW, Schmidt R. Poster presentation. Conference: "Biophysical Society 60th Annual Meeting". Los Angeles, United States of America.
- 2015 "4Pi-RESOLFT nanoscopy" **Böhm U**, Hell SW, Schmidt R. Poster and oral presentation. Conference: "Seeing Is Believing Symposium". Heidelberg, Germany.
- 2015 "Far-field optical nanoscopy: principles and recent advancements" **Böhm U**. Oral presentation (*invited*). Conference: "19. Deutsche Physikerinnen Tagung" Göttingen, Germany.
- 2015 "Live cell 4Pi nanoscopy" **Böhm U**, Schmidt R, Hell SW. Poster presentation. Conference: "10th European Biophysics Congress (EBSA)". Dresden, Germany.
- 2015 "Super-Resolution Fluorescence Microscopy: Overview and Stimulated Emission Depletion (STED) Microscopy" **Böhm U**. Oral presentation (*invited*). Conference: "XLAB. International Science Camp". Göttingen, Germany
- 2015 "Live cell 4Pi nanoscopy" **Böhm U**, Schmidt R, Hell SW. Oral presentation. Conference: "15th annual meeting of the European Light Microscopy Initiative (ELMI)". Sitges, Spain.
- 2015 "Live cell 4Pi nanoscopy" **Böhm U**, Schmidt R, Hell SW. Poster presentation. Conference: "Focus on microscopy". Göttingen, Germany.
- 2010 "Development of tools for investigating subcellular structures: Targeting of features in frozen-hydrated cells via correlative cryomicroscopy" **Böhm U**, Leis A, Rigort A, Bäuerlein F, Laugks, Baumeister W, Plietzko JM. Poster presentation. Conference: "PROSPECTS. First Plenary Meeting". Punta Negra, Majorca/Spain. (2010)

## Teaching experience

- 2018 **Summer intern journal club leader** - Topic: "Advanced Imaging Techniques in Biomedical Sciences" at the National Institutes of Health, Bethesda, United States of America
- 2018 **Science outreach co-coordinator** of the National Cancer Institute at the USA Science & Engineering Festival at the Walter E. Washington Convention Center in Washington DC, United States of America
- 2017 **Teaching assistant** of a microscopy course for graduate students at the University of Massachusetts Medical School, Worcester, United States of America - Prof. David Grunwald
- 2017 **Summer intern journal club leader** - Topic: "Optical Microscopy & Imaging in the Biomedical Sciences" at the National Institutes of Health, Bethesda, United States of America
- 2011 **Teaching assistant** of an advanced physics laboratory course for physics students at the University of Heidelberg, Germany
- 2011 **Teaching assistant** for Experimental Physics III: Optics at the University of Göttingen, Germany - Prof Jörg Enderlein
- 2010 **Teaching assistant** for Experimental Physics IV: Quantum, atomic and molecular physics at the University of Göttingen, Germany - Prof Arnulf Quadt
- 2009 **Teaching assistant** for Theoretical Physics I: Theoretical Mechanics at the Technical University of Munich, Germany - Prof Friedrich
- 2008 **Teaching assistant** for Theoretical Physics II: Electrodynamics at the Technical University of Munich, Germany - Prof Friedrich

## Conference organization

- 2018/11 **3<sup>rd</sup> Labeling and Nanoscopy Conference**, chief social officer, Heidelberg, Germany
- 2018/10 **International Opportunities EXPO 2016**, co-organizer, Bethesda, United States of America
- 2018/06 **Falling Walls Lab Washington DC**, organizer, Washington DC, United States of America
- 2018/04 **Division of International Services (DIS) Immigration Symposium, 2017**, co-organizer, Bethesda, United States of America
- 2017/05 **I, Scientist Conference**, co-organizer, Berlin, Germany

2016/10 **2<sup>nd</sup> Labeling and Nanoscopy Conference**, co-organizer, Heidelberg, Germany  
 Since 2015 **Focus on Microscopy Conferences**, chief social officer  
 2011/10 **PhDnet General Meeting**, co-organizer, Bonn, Germany

## Leadership / Service

Since 2018/05 **Accelerating Science and Publication in Biology (ASAPbio)**, ambassador  
 Since 2018/01 **eLife Early-Career Advisory Group**, ambassador for 2017-2018  
 Since 2018/01 **Laser Safety Advisory Committee**, committee member at the National Institutes of Health, Bethesda, United States of America  
 Since 2017/09 **Visiting Fellows Committee**, co-chair at the National Institutes of Health, Bethesda, United States of America  
 Since 2017/08 **Decode Chromatin Interest Group**, coordinator at the National Institutes of Health, Bethesda, United States of America  
 Since 2017/05 **German Physical Society**, member of the Social Media Team within the German Physical Society, Bad Honnef, Germany  
 Since 2017/01 **Visiting Fellows Committee**, committee member at the National Institutes of Health, Bethesda, United States of America  
 Since 2016/11 **Light Microscopy Interest Group**, coordinator at the National Institutes of Health, Bethesda, United States of America  
 Since 2016/10 **Arbeitskreis für Challengleichheit**, committee member in the German Physical Society, Bad Honnef, Germany  
 Since 2016/06 **Lindau Nobel Laureate Meetings**, Freelance Writer  
 2016/06 **66<sup>th</sup> Lindau Nobel Laureate Meeting**, participant and “Women in Science”-correspondent for the Lindau Nobel Laureate Meetings, Lindau, Germany  
 2016/04 **Lise Meitner Gesellschaft e.V.**, co-founder, Berlin, Germany  
 2011 - 2012 **Max Planck PhDnet**, member of the PhDnet steering group and deputy spokesperson in the Max Planck Society, Munich, Germany  
 2011 - 2014 **PhD/Postdoc Community**, PhD/Postdoc representative of the Max Planck Institute for Biophysical Chemistry, Göttingen, Germany

## Training and certificates

### Scientific methods training

2017/08 **Chromatin, Epigenetics and Gene Expression Course** at the Cold Spring Harbor Laboratory (CSHL) in Cold Spring Harbor, NY, United States of America, Course instructors: Prof Karen Adelman, Dr Luciano Di Croce, Prof Geeta Narlikar, Prof Ali Shilatifard  
 2017/06 **Bio Tech 2: Recombinant DNA Methodology** at the Foundation for Advanced Education in the Sciences at the NIH (FAES), Bethesda, United States of America  
 2017/02 **Ethics in Research Training for Postdocs** at the Office of Intramural Training and Education (OITE) at the National Institutes of Health, Bethesda, United States of America

### Professional development training

2018/05 **Scientists Teaching Science** at the Office of Intramural Training and Education (OITE) at the National Institutes of Health, Bethesda, United States of America (9-week online pedagogy course)  
 2018/05 **Research Mentor Training** at the Office of Intramural Training and Education (OITE) at the National Institutes of Health, Bethesda, United States of America by  
 2018/02 **Business of Science for Scientists** by SciPhD at the National Cancer Institute in Shady Grove, United States of America  
 2017/05 **Management Bootcamp for Postdocs** at the Office of Intramural Training and Education (OITE) at the National Institutes of Health, Bethesda, United States of America  
 2016/12 **Workplace Dynamics Series** (Self-Awareness, Conflict & Feedback, Team Skills, Diversity In A Multicultural Society) at the Office of Intramural Training and Education (OITE) at the National Institutes of Health, Bethesda, United States of America

## **Professional Affiliations**

American Physical Society  
Deutsche Physikalische Gesellschaft  
Lise Meitner Gesellschaft e.V.

## **Language Skills**

German	Native language
English	Fluent, spoken and written
French	Basic knowledge
Swedish	Basic knowledge