Biography and Curriculum Vitae

Thorsten Wohland studied Physics at the Technical University of Darmstadt and the University of Heidelberg in Germany from 1989-1995. During that time, he followed several international internships and exchange programs in Besancon (France; full-time language courses), at UC Berkeley (USA, summer session taking courses in philosophy of logic and quantum mechanics), and in the Polish Academy of Sciences Wroclaw (Poland, internship in superconductivity). He completed his diploma thesis in physics at the European Molecular Biology Laboratory (EMBL) in Heidelberg, Germany, where he worked on the influence of light polarization on the forces in optical tweezers under the supervision of Ernst H.K. Stelzer. This work included the measurement of the trapping force in three dimensions in dependence on light polarization and the spinning of asymmetric particles by continuously changing the polarization state. In 1996 he completed his national service at the National Research Institute for Environment and Health (GSF) in Munich, Germany, where he worked on single photon emission computer tomography (SPECT) with Wolfgang Kreyling. During this year he prepared a self-contained software program for the interactive, semi-automatic evaluation of SPECT data of lung perfusion studies for the investigation of the influence of microparticles on health. In 1997 he joined the research group of Prof. Horst Vogel at the Swiss Federal Institute of Technology in Lausanne (ETHL/EPFL), Switzerland. In the year 2000 he obtained his doctoral degree in the field of biophysics for the study of theoretical and practical aspects of fluorescence correlation spectroscopy (FCS) and its application to integral membrane proteins. Following another two years in the group of Richard N. Zare at Stanford in the USA working on single molecule detection and protein immobilization he started as Assistant Professor at the NUS in June 2002. In 2008 he was promoted to Associate Professor with tenure. In 2009 he went on sabbatical to the European Molecular Biology Laboratory (EMBL) to develop fluorescence spectroscopy in light sheet microscopes. He was awarded an Alexander von Humboldt fellowship and the Outstanding Scientist Award of the faculty of science at NUS. In 2016 he was promoted to Professor.

At NUS he developed two new fluorescence correlation methods, imaging fluorescence correlation spectroscopy (Imaging FCS) and single wavelength fluorescence cross-corrleation spectroscopy (SW-FCCS), which allowed for the first time to take correlation images of live cells and organisms and quantitatively measure affinity constants of bimolecular interactions in live organisms, respectvely. His biological work conentrates on the role of morphpgens in developmental biology, the organization and dynamics of cell membranes, and the molecular and particle dynamics of dengue virus during infection. Currently, he works on new data evaluation methods for single molecule fluorescence microscopy and spectroscopy based on Bayes inference and machine learning.

Over the years he also occupied several administrative positions, including Assitant Dean for Research and Graduate Sutdies and Vice Dean for Research and Space at the faculty of Science and, since 2022, the Directorship for Research Governance and Enablement at the Office of the Deputy President (Research and Technology).

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**ACADEMIC HISTORY:**

since 2016: Professor Departments of Biological Sciences (60%) and Chemistry (40%), National University of Singapore

2012-2016: Associate Professor, Departments of Biological Sciences (60%) and Chemistry (40%), National University of Singapore

06-12/2009: Sabbatical at the European Molecular Biology Laboratory (EMBL)

Heidelberg, Germany

2008-2011: Associate Professor, Department of Chemistry, National University of Singapore

2002-2008: Assistant Professor, Department of Chemistry, National University of Singapore

2000-2002: Postdoctoral Fellow, Department of Chemistry, Stanford University, USA

1997-2000: Department of Chemistry, École Fédéral Polytechnique de Lausanne (EPFL, Swiss Federal Institute of Technology), Switzerland, Dr. es sc. in Biophysics (equiv. PhD)

1992-1995: Department of Physics and Astronomy, University of Heidelberg, Diploma in Physics (Diploma thesis conducted at the European Molecular Biology Laboratory (EMBL))

1989-1991: Department of Physics, Technical University of Darmstadt, Pre-Diploma in Physics

**EMPLOYMENT HISTORY:**

1996-1997: Research Scientist, Institute of Inhalation Biology, GSF-Research Center for Environment and Health, Neuherberg, Germany (performed during national service)

**RESEARCH INTEREST:**

1. Technical developments in fluorescence spectroscopy, single molecule detection and quantitative bioimaging.
2. Theoretical developments in data treatment including statistical evaluations and deep learning.
3. Application of fluorescence spectroscopy for quantitative *in vitro* and *in vivo* measurements of protein dynamics, functions, and interactions: i) lipid bilayer and cell membrane structure and dynamics; ii) morphogen dynamics during development; iiI) virus dynamics and function mechanisms.

**SCIENTIFIC PRODUCTION**

Peer reviewed articles : 142

Books : 1

Book chapters : 8

Patents : 3

Invited talks at scientific meetings : 105

**AWARDS:**

2009/10: NGS Teaching Commendation Award

2009: Outstanding Scientist Award, Faculty of Science, NUS

2009: Alexander von Humboldt Fellowship for experienced researchers

2000: Postdoctoral scholarship of the Swiss National Foundation

1999: NATO Travel Scholarship

**SOCIETY MEMBERSHIP:**

Biophysical Society since 1999

Singapore National Institute of Chemistry since 2003

Singapore Microscopy Society since 2020

**COMMISSIONS OF TRUST**

since 2022: Director of Research Governance and Enablement at the Office of the Deputy President of Research and Technology

2018-2021: Vice Dean Research and Space, Faculty of Science, National University of Singapore

since 2018: Director of the Centre for Bioimaging Sciences (CBIS), National University of Singapore

2014-2018: Assitant Dean for Research and Graduate Studies, Faculty of Science, National University of Singapore

2012-2018: Associate Director of the Centre for Bioimaging Sciences (CBIS), National University of Singapore

**PUBLICATIONS**

[Google Scholar Profile](https://scholar.google.com.sg/citations?user=EG7w5uAAAAAJ&hl=en)