

Professor Dr. Wolfgang Knoll

born 1949 in Schwäbisch Hall, Germany



Professional Career

- 2008–date** **Scientific Managing Director**, AIT Austrian Institute of Technology
- 2004–date** **Visiting Principal Scientist** | Institute of Materials Research and Engineering, Singapore
- 1999–2003** **Temasek Professor** | National University of Singapore, Singapore
- 1999–date** **Adjunct Professor** | Hanyang University, Korea
- 1998–date** **Professor (by Courtesy)** | Chemistry Department, University of Florida, Gainesville, FL
- 1993–2008** **Director** | Max-Planck-Institut für Polymerforschung, Mainz
- 1992–date** **Consulting Professor** | Dept. of Chem. Eng., Stanford University, Stanford, CA
- 1991–1999** **Head of Laboratory for Exotic Nano-Material** | Frontier Research Program, RIKEN-Institute, Japan
- 1990|91** **Visiting Professor** | University of Erlangen
- 1990** **Visiting Scientist** | Dept. of Chem.& Nuc. Engineering, University of California, Santa Barbara, CA
- 1988** **Visiting Scientist** | Optical Sciences Center, Tucson, AZ
- 1986–1991** **Faculty Member/Associate Professor** | Max-Planck-Institut für Polymerforschung, Mainz
- 1985** **Visiting Scientist** | IBM Research Laboratory, San José, CA
- 1981–1986** **Assistant Professor** | Technical University of Munich
- 1981** **Visiting Scientist** | Institut Laue-Langevin, Grenoble, France
- 1980–1981** **Postdoctoral Fellow** | IBM Research Laboratory, San José, CA
- 1977–1980** **Postdoctoral Fellow** | University of Ulm
- 1976–1977** **Postdoctoral Fellow** | University of Konstanz

Degrees

- 1973** Diploma - Physics, Technical University of Karlsruhe
- 1976** Ph.D. - Biophysics, University of Konstanz
- 1986** Postdoctoral Degree: "Habilitation" - Physics, Technical University of Munich

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Biographical Sketch

Professional Preparation

Diploma - Physics | Technical University of Karlsruhe, 1973

Ph.D. - Biophysics | University of Konstanz, 1976

"Habilitation" - Physics | Technical University of Munich, 1986

Postdoctoral Fellow | University of Konstanz, 1976-1977

Postdoctoral Fellow | University of Ulm, 1977-1980

Postdoctoral Fellow | IBM Research Laboratory, San José, CA, 1980-1981

Visiting Scientist | Institut Laue-Langevin, Grenoble, France, 1981

Visiting Scientist | IBM Research Laboratory, San José, CA, 1985

Visiting Scientist | Optical Sciences Center, Tucson, AZ, 1988

Visiting Scientist | Dept. of Chem. Nuc. Engineering, University of California, Santa Barbara, CA, 1990

Visiting Professor | University of Erlangen, 1990/91

Visiting Professor | Stanford University, 1999/2000

Appointments

2004–date **Visiting Principal Scientist** | Institute of Materials Research & Engineering, Singapore

1999–2003 **Temasek Professor** | National University of Singapore, Singapore

1999–date **Adjunct Professor** | Hanyang University, Korea

1998–date **Professor (by Courtesy) Chemistry Department**
University of Florida, Gainesville, FL

1993–date **Director** | Max-Planck-Institut für Polymerforschung, Mainz

1992–date **Consulting Professor** | Dept. of Chem. Eng., Stanford University, Stanford, CA

1991–1999 **Head of Laboratory for Exotic Nano-Materials** | Frontier Research Program,
RIKEN Institute, Japan

1986–1991 **Faculty Member/Associate Professor** | Max-Planck-Institut für Polymerforschung, Mainz

1981–1986 **Assistant Professor** | Technical University of Munich

Synergistic Activities

- Serve as a member of the Executive Committee of the Biomaterials Interfaces Group implementing biofunctional surface science into the AVS
- Teach courses at Stanford University, University of Leuven (Belgium), Hanyang University (Korea), University of Florida in Gainesville, FL; National University of Singapore, Singapore; University of Venice, Italy
- Establish a research group at the Natl. University of Singapore
- Serve in various Editorial Boards of Intl. Journals
- Organize several Intl. Conferences on Biointerfaces and Nanotechnology

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Selected Publications

Liu, J.; Tian, S.; Tiefenauer, L.; Nielsen, P.; Knoll, W.; *PNA-DNA Hybridization Study Using Labeled-Streptavidin by Voltammetry and Surface Plasmon Fluorescence Spectroscopy*; Analytical Chemistry; **78**, 470-476 (2006)

Stefani, F.D.; Knoll, W.; Kreiter, M.; Zhong, X.; Han, M.; *Quantification of Photo-Induced and Spontaneous Quantum-Dot Luminescence Blinking*; Phys. Rev. B; **72**, 1-7 (2005)

Atanasov, V.; Knorr, N.; Duran, R.S.; Ingebrandt, S.; Offenhaeusser, A.; Knoll, W.; Köper, I.; *Membrane on a Chip. A Functional Tethered Lipid Bilayer Membrane on Silicon Oxide Surfaces.*; Biophys. J.; **89**, 1780-1788 (2005)

Xu, F.; Zheng, G.; Yu, F.; Kuennemann, E.; Textor, M.; Knoll, W.; *Combined Affinity and Catalytic Biosensor: In-Situ Enzymatic Activity Monitoring of Surface Bound Enzymes*; J. Am. Chem. Soc.; **127**, 13084-13085 (2005)
Kim, D.; Lau, A.K.H.; Robertson, J.W.; Lee O.K., ; Jeong, U.; Lee, J.I.; Hawker, C.J.; Russell, T.P.; Kim, J.K.; Knoll, W.; *Thin Films of Block Copolymers as Planar Optical Waveguides*; Advanced Materials; **17**, 2442-2446 (2005)

Kim, D.; Karan, P.; Göring, P.; Leclaire, J.; Caminade, A.-M.; Majoral, J.-P.; Gösele, U.; Steinhart, M.; Knoll, W.; *Formation of Dendrimer Nanotubes by Layer-by-Layer Deposition*; Small; **1**, 99-102 (2005)

Knoll, W.; Yu, F.; Neumann, T.; Niu, L.; Schmid, E.; *Principles and Applications of Surface-Plasmon Field-Enhanced Fluorescence Techniques*; Topics in Fluorescence Spectroscopy, Vol 8: Radiative Decay Engineering (Eds. J. R. Lakowicz, C. D. Geddes); **Chpt. 10**, 305-332 (2005)

Ataka, K.; Giess, F.; Knoll, W.; Naumann R., ; Haber-Pohlmeier, S.; Richter, B.; Heberle, J.; *Oriented Attachment and Membrane Reconstitution of His-tagged Cytochrome C Oxidase to a Gold Electrode: In-Situ Monitoring by Surface Enhanced Infrared Absorption Spectroscopy*; J. Am. Chem. Soc.; **126**, 16199-16206 (2004)

Robelek, R.; Niu, L.; Schmid, E.; Knoll, W.; *Multiplexed Hybridization Detection of Quantum Dot Conjugated DNA Sequences using Surface Plasmon Enhanced Fluorescence Microscopy and Spectrometry*; Analytical Chemistry; **15**, 6160-6165 (2004)

Schiller, S.; Naumann, R.; Lovejoy, K.; Kunz, H.; Knoll, W.; *Archaea Analogue Thiolipids for Tethered Bilayer Lipid Membranes on Ultrasoother Gold Surfaces*; Angewandte Chemie, Intl. Edition; **42**, 208-211 (2003)

Liebermann, T.; Knoll, W.; *Parallel Multispot Detection of Target Hybridization to Surface-Bound Probe Oligonucleotides of Different Base Mismatch by Surface-Plasmon Field-Enhanced Fluorescence Microscopy*; Langmuir; **19**, 1567-1572 (2003)

Offenhäusser, A.; Knoll, W.; *Cell-Transistor Hybrid Systems and their Potential Applications*; Trends in Biotechnology; **19**, 62-66 (2001)

Morigaki, K.; Baumgart, T.; Offenhäusser, A.; Knoll, W.; *Patterning Solid-Supported Lipid Bilayer Membranes by Lithographic Polymerization of a Diacetylene Lipid*; Angewandte Chemie, Intl. Edition; **40**, 172-174 (2001)

Ruhe, J.; Knoll, W.; *Functional Polymer Brushes*; Supramolecular Polymers (ed. Ciferri); **Chpt. 13**, 565-614 (2000)

Sekkat, Z.; Knoll, W.; *Photoreactive Organic Thin Films in the Light of Bound Electromagnetic Waves*; Adv. Mat. Commun.; **22**, 117-195 (1997)