

CV – Prof. Dr. Karl-Heinz Ernst

Prof. Dr. Karl-Heinz Ernst

Empa, Swiss Federal Laboratories for Materials Science and Technology

CH-8600 Dübendorf, Switzerland

<http://www.empa.ch/mss>

Professional Experience:

- since 1992 Distinguished Senior Researcher, Empa, Swiss Federal Laboratories for Materials Science and Technology, Dübendorf, Switzerland, since 1998 head of *Surface Technology Group*, (2003 renamed into *Molecular Surface Science Group*)
- 05/2025 Visiting Professor, Kunming University of Science and Technology, Kunming, China
- 11/2023 Visiting Scientist at the Center of Quantum Nanoscience QNS, Ewha Womans University, Seoul, South Korea (Prof. Andreas Heinrich)
- since 2021 Senior Scientist at the Czech Academy of Sciences, Prague, Institute of Physics
- 2018-2020 European Mobility Professor at the Czech Academy of Sciences, Prague, Institute of Physics, nanosurf Laboratory (Prof. Pavel Jelinek)
- 2012 Visiting scientist at IBM Almaden, San Jose, California, USA, w/ Dr. Andreas Heinrich
- Since 2010 Professor, Department of Chemistry, University of Zurich (since 2025 emeritus)
- 10/2017 Visiting Professor Université Angers, France
- 7/2009 Visiting Scientist Chinese Academy of Sciences, Institute of Physics, Prof. H.-J. Gao
- 9/2003-8/2004 On sabbatical leave to University of Washington, Seattle, USA, Department of Bioengineering, Group of Profs. Viola Vogel and Henry Hess
- 8/1999-5/2000 On sabbatical leave to UC Berkeley, Department of Physics and Lawrence Berkeley National Laboratory, California, USA, Group of Prof. Yuen-Ron Shen
- 1992 Visiting scientist at the Freie Universität Berlin, Sonderforschungsbereich (SFB 6) of the German National Science Foundation (DFG)
- 1990 - 1991 Post-Doctorate at the University of Washington, Seattle, USA, Department of Chemistry, Group of Prof. Charles Campbell

Education:

- 2007 Habilitation at University Zurich, Degree: **Private Docent (PD)**
- 1986 - 1990 Graduate Study at the Inst. f. Physical Chemistry, Freie Universität Berlin and at the Berlin Electron Storage Ring for Synchrotron Radiation (BESSY), Supervisor: Prof. Dr. Klaus Christmann, Thesis reviewers: Prof. Dr. Klaus Christmann, Prof. Dr. Gerhard Ertl, Degree: **Dr. rer. nat.** (magna cum laude)
- 1982 - 1986 Chemistry, Freie Universität Berlin (FUB), Degree: **Diplom-Chemiker**
- 1979 - 1982 Chemical Engineering at the University of Applied Sciences (Technische Fachhochschule, TFH) Berlin, Degree: **Chemie-Ingenieur (grad.)**
- 1978 - 1979 Compulsory military service, Gießen & Hann. Münden, Germany
- 1977 - 1978 College specialising in technical subjects, (Technische Fachoberschule), Braunschweig, Degree: **Fachhochschulreife**
- 1975 - 1977 Professional training, School of Chemistry Dr. Heinemann, Braunschweig, Degree: **Chemisch-Technischer Assistent (CTA)**
- 1966 - 1975 Primary and Secondary Schools

Awards:

- 2025 ICSOS Surface Structure Prize
- 2024 SASP Schrödinger Gold Medal
- 2024 975th IMS Colloquium Lecture, Institute of Molecular Science, Okazaki, Japan
- 2022 JVSS-Microbeam Analysis Award from the Japan Society of Vacuum and Surface Science (JVSS), Division of Microbeam Analysis (MBA)
- 2017 Peiyang Nobel Symposium Lecture
- 2016 Functionalized Nano-Materials Award for outstanding achievements in nano materials science
- 2014 Promotion to *Empa Distinguished Senior Researcher*
- 2014 Großes Naturwissenschaftliches Kolloquium, Universität Duisburg-Essen
- 2009 Bürgenstock Stereochemistry Conference Lecture
- 2009 Zhongguancun Forum Lecture, Beijing, China
- 2003 Empa Research Prize
- 1992 Habilitation Fellowship of the German National Science Foundation (Deutsche Forschungsgemeinschaft, DFG)
- 1990 Postdoctoral Fellowship of the German National Science Foundation (Deutsche Forschungsgemeinschaft, DFG)

Publications: 186, peer reviewed 148, h-citation index: 48 (Google scholar, > 8000 citations)

Presentations: 370 oral presentations, 310 invited

Professional memberships and honorary functions

- a) Supervisor of 17 PhD, 5 Master and 14 post-doctoral researchers
- b) Honorary member of the Japanese Society of Vacuum and Surface Science (JVSS, MBA division)
- c) President of the Swiss Working Group for Surface and Interface Science (SAOG) and Chair of the annual SAOG Meeting (since 2008, panel member since 1998)
- d) Member of the Deutsche Bunsengesellschaft (DBG) for Physical Chemistry (since 1987)
- e) Member of the Deutsche Physikalische Gesellschaft (DPG, since 1986)
- f) Member of the Swiss Chemical Society (SCG, since 2010)
- g) Member of the Swiss SSSTC Delegation to Chinese Academy of Science, Beijing, Sept. 2010
- h) External expert for appointments of professorships at European universities (>5)
- i) Reviewer of promotions to full and associate professorships at universities world-wide (>10)
- j) Panel Member for the European Research Council (ERC), consolidator grants, 2013 – 2017
- k) Panel Member for beam time allocation at BESSY II, Berlin, 2013 – 2016
- l) Reviewer for the European Research Council (ERC), startup, consolidator and advanced grants
- m) Reviewer for the Swiss-Korean Science & Technology programme
- n) Reviewer for NWO, the Nederlandse Organisatie voor Wetenschappelijk Onderzoek (NWO)
- o) Reviewer, examiner and official opponent for diploma and PhD theses and at PhD defenses at Aarhus and Aalborg University, DK; University of Groningen, NL; University Leuven, B, EPF Lausanne, and University of Zurich
- p) Member of the prize committee Gerhard Ertl Young Investor Award of the German Physical Society (DPG) 2014 (endowed by Elsevier)
- q) Lecturer at the Department of Chemistry, University Zurich (2007–2024)
- r) Lecturer at the Materials Science Department, ETH Zurich (2007–2024)
- s) Lecturer at the Chemistry Department, ETH Zurich (2005–2014)
- t) Lecturer in Physical Chemistry, University of Applied Sciences (TFH) Berlin (1988–1990)
- u) Editorial boards & guest editor:
 - *CCS Chemistry* (Editorial Advisory Board since 2024)
 - *Chirality* (since 2019)
 - *CHIMIA* (2012 – 2016)
 - *Helvetica Chimica Acta* (2016 – 2022)
 - *Surface Science* (2012 – 2014)
 - *J. Phys.: Condens. Matter*, Issue: 'From reciprocal space to real space in surface science'
 - *CHIMIA*, Issue: '30 Years of STM'
 - *J. Chem. Phys.*, Issue: 'Supramolecular Self-Assembly at Surfaces'
- v) Reviewer for international scientific journals such as *Angewandte Chemie*, *Advanced Materials*, *Nature*, *Nature Chemistry*, *Nature Nanotechnology*, *Nano Letters*, *ChemPhysChem*, *Advanced Functional Materials*, *Advanced Materials Interfaces*, *Journal of the American Chemical Society*, *ACS Nano*, *ACS Omega*, *Surface Science*, *Journal of Chemical Physics*, *Journal of Physical Chemistry*, *Journal of Physical Chemistry Letters*, *Surface and Interface Analysis*, *Langmuir*, *Zeitschrift f. Physikal. Chemie*, *Chemistry–A European Journal*
- w) Conference organisations:
 1. IMDONE Symposium, 23.–27. 2. 2025, St. Moritz, CH
 2. 40 Years of Surface Science and Nanotechnology (40Nano) Conference, 2023, Ascona, CH
 3. Chirality at the Nanoscale Symposium, 2019, Ascona, CH
 4. Symposium of Atomic and Surface Physics (SASP), 2.–7. 02. 2020, St. Moritz, CH
 5. Symposium 'Chirality at Surfaces', ECOSS 2014, Antalya, TR
 6. COST CM0601 ECCL – WG3 Meeting, 07. 03. 2009, Zürich, CH
 7. Two award symposia, National Meeting of the American Chemical Society 2008, Chicago
 8. 22nd Symposium of Surface Science (3S) in St. Moritz 2009
 9. 30th Symposium of Surface Science (3S) in St. Moritz 2017
 10. PIRE ECCI Workshop on Heterogeneous Catalysis, Dalian, China 2009
 11. European Conference on Surface Science ECOSS 2014, Antalya, TR (Program Committee)
 12. European Conference of Applied Surface and Interface Analysis – ECASIA 2003, Berlin (Scientific Advisory Board)
 13. Symposium of Surface Science - 3S (International Scientific Committee, since 2022)
 14. International Conference on Atomic Level Characterization (ALC) 2009: Maui, Hawaii; 2011: Seoul, Korea; 2013: Kona, Hawaii, 2015: Matsue, Japan, 2017: Kauai, Hawaii (Organizing Committee); Kyoto 2019, Okinawa 2022, Matsue 2024, Kenting 2026 (International Advisory Committee)