Curriculum Vitae

Thorsten Marco Bernhardt

Full Professor of Chemistry (W3)
University of Ulm
Institute of Surface Chemistry and Catalysis
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since 2023	Vice-Dean, Faculty of Natural Sciences, University of Ulm.
2019 – 2023	Dean of the Faculty of Natural Sciences and Senator of the University of Ulm.
2015 – 2019	Vice-Dean and Dean of Studies, Faculty of Natural Sciences, University of Ulm.
since 2005	Full Professor of Physical Chemistry at the University of Ulm, Germany.
2006	Habilitation in Experimental Physics, Physics Department, Free University of Berlin, Germany.
2000 – 2005	Research Associate, Physics Department, Free University of Berlin, Germany, with Prof. Dr. Ludger Wöste.
1998 – 1999	Post-Doctoral Scholar, California Institute of Technology, Pasadena, USA, with Prof. Dr. Ahmed H. Zewail.
1992 – 1997	Doctoral Thesis in Physical Chemistry, Humboldt University of Berlin with Prof. Dr. Klaus Rademann.
1992	Diploma in Physical Chemistry, Philipps University Marburg, Germany. Diploma Thesis with Prof. Dr. Friedrich Hensel.
1987 – 1992	Studies of Chemistry in Marburg, Germany, and in Lille, France.

Research Interests

Photo-induced chemical reactions and femtosecond laser spectroscopy.
Chemical reaction kinetics and catalysis of gas-phase metal clusters.
Infrared spectroscopy of free cluster complexes.
Scanning tunnelling microscopy of deposited clusters and nanostructures on surfaces.

Awards/Fellowships

Guest-Lecturer at Kyushu University, Fukuoka, Japan, 2018.
Guest-Professorship at the University of Tokyo, Japan, 2016.
Visiting-Fellowship of the Japanese Society for the Promotion of Science (JSPS) 2013.
University of Ulm Teaching Award 2012.
Feodor Lynen-Fellowship of the Alexander von Humboldt-Foundation 1997 – 1999.
Erasmus Fellowship of the European Union, studies in Lille, France, 1990 – 1991.

Conference Management

Chair of the "21st International symposium on small particles and inorganic clusters – ISSPIC XXI", Berlin, Germany, 2023.
Chair of the conference "Gas phase model systems for catalysis – GPMC 2018", an international Bunsen discussion meeting, Ulm, Germany, 2018.
Chair of the conference "Gas phase model systems for catalysis – GPMC 2014", an international Bunsen discussion meeting, Ulm, Germany, 2014.
Local Chair of the workshop "Chemical reactivity of size-selected clusters and matter with reduced dimensions", Berlin, Germany, 2003.

Selected Recent Publications

A. de Donato, B.-A. Ghejan, J. M. Bakker, T. M. Bernhardt, S. T. Bromley, S. M. Lang:
Gas-phase production of hydroxylated silicon oxide cluster cations: structure, infrared spectroscopy and astronomical relevance,
ACS Earth Space Chem. **8**, 1154 (2024).

S. M. Lang, T. M. Bernhardt, J. M. Bakker, R. N. Barnett, U. Landman:
Cluster size dependent coordination of formate to free manganese oxide clusters,
Phys. Chem. Chem. Phys. **25**, 32166 (2023).

S. M. Lang, I. Helzel, T. M. Bernhardt, R. N. Barnett, U. Landman:
Spin-gated selectivity of the water oxidation reaction mediated by free pentameric $Ca_xMn_{5-x}O_5^+$ clusters,
J. Am. Chem. Soc. **144**, 15339 (2022).

M. E. Vaida, T. B. Rawal, T. M. Bernhardt, B. M. Marsh, T. S. Rahman, S. R. Leone:
Non-metal to metal transition of magnesia supported Au clusters affects the ultrafast dissociation dynamics of adsorbed CH_3Br molecules,
J. Phys. Chem. Lett. **13**, 4747 (2022).

S. M. Lang, N. T. Zimmermann, T. M. Bernhardt, R. N. Barnett, B. Yoon, U. Landman:
Size, stoichiometry, dimensionality, and Ca-doping of manganese oxide-based water-oxidation cluster catalysts: An oxyl/hydroxy mechanism for oxygen-oxygen coupling,
J. Phys. Chem. Lett. **12**, 5248 (2021).

A. Mravak, M. Krstić, S. M. Lang, T. M. Bernhardt, V. Bonačić-Koutecký:
Intrazeolite CO methanation by small ruthenium carbonyl complexes: Translation from free clusters into the cage,
Chem. Cat. Chem. **12**, 3857 (2020).

S. Mauthe, I. Fleischer, T. M. Bernhardt, S. M. Lang, R. N. Barnett, U. Landman:
A gas phase $Ca_nMn_{4-n}O_4^+$ cluster model for the oxygen evolving complex of photosystem II,
Angew. Chem. Int. Ed. **58**, 8504 (2019).

K. Jochmann, T. M. Bernhardt:
The influence of metal cluster lattices on the screening of image potential state electrons on graphene,
J. Chem. Phys. **149**, 164706 (2018).

S. M. Lang, T. M. Bernhardt, V. Chernyy, J. M. Bakker, R. N. Barnett, U. Landman:
Selective C-H bond cleavage in methane by small gold clusters,
Angew. Chem. Int. Ed. **56**, 13406 (2017).

M. E. Vaida, T. M. Bernhardt:
Tuning the ultrafast photodissociation dynamics of CH_3Br on ultrathin MgO films by reducing the layer thickness to the 2D limit,
Chem. Phys. Lett. **688**, 106 (2017).

H. Heim, T. M. Bernhardt, S. M. Lang, R. N. Barnett, U. Landman:
The interaction of iron-sulfur clusters with N_2: Biomimetic systems in the gas phase,
J. Phys. Chem. C **120**, 12549 (2016).

S. M. Lang, T. M. Bernhardt, D. M. Kiawi, J. M. Bakker, R. N. Barnett, U. Landman:
The interaction of water with free $Mn_4O_4^+$ clusters: Deprotonation and adsorption-induced structural transformations,
Angew. Chem. Int. Ed. **54**, 15113 (2015).