

**Prof. Michael R. Hoffmann** received a BA from Northwestern University, a PhD degree from Brown University, and post-doctoral education at the California Institute of Technology. From 1975 to 1980, he was a professor at the University of Minnesota. Since 1980, he has been a member of the Engineering & Applied Science faculty at Caltech. From 2002 to 2009 he served as Caltech's Dean of Graduate Studies. Prof. Hoffmann has more than 43,000 citations according to Google Scholar. His H-Index is 94. On the ISI, he is cited more than 30,000 times with an H-Index of 80. Professor Hoffmann has also been recognized by the Web of Science as one of the most highly cited researchers in engineering in the world. Hoffmann was awarded the Alexander von Humboldt Prize in 1991 and the American Chemical Society Award for Creative Advances in 2001. The Jack E McKee Medal by the Water Environment Federation in 2003. He was honored as a Distinguished Chair Professor of Atmospheric Sciences, Chemistry, and Environmental Engineering at the National Taiwan University, Taipei in 2010. Prof. Hoffmann is a Member of the National Academy of Engineering and the De Tao International Master's Academy based in Beijing and Shanghai. In 2012, Prof. Hoffmann received a prize from Bill Gates for his group's work on solar-powered electrochemical treatment of human waste as applied to sanitation in the developing world. In 2012, he was recognized as a Distinguished Visiting Fellow of the British Royal Academy of Engineering and as a Global Vision Scholar by Tsinghua University. He has been named as Honorary Professor by the following universities: The Beijing University of Chemical Technology, the Beijing University of Science and Technology, and the Beijing University of Aeronautics and Astronautics (Beihang).

**University Degrees:**

Northwestern University, B.A., 1968

Brown University, Ph.D., 1974

California Institute of Technology, Post-Doctoral Scholar, 1973-75

**Academic Positions:**

James Irvine Professor of Environmental Science, 1996-

Dean of Graduate Studies, 2002-2009

Professor of Environmental Chemistry, Caltech, 1986-1995

Associate Professor of Environmental Science &amp; Engineering, Caltech, 1980-1985

Associate Professor (with tenure) – Civil &amp; Chemical Engineering, University of Minnesota, 1978-1980

Assistant Professor – Civil &amp; Mineral Engineering, University of Minnesota, 1975-1978

**Awards & Honors:**

Vodafone Americas Foundation Wireless Innovation Project Award (2015)

Honorary Professor of the University of Aeronautics and Astronautics, Beijing (2014)

Chinese Ministry of Education, Global Vision Scholar Award at Tsinghua University (2012-2017)

Distinguished Visiting Professor, Robert Gordon University, Aberdeen (2013 - 2016)

Honorary Professor of the Beijing University of Chemical Technology (2013)

Honorary Professor of the Beijing University of Science &amp; Technology (2013)

Gates Foundation Prize for Reinventing the Toilet (2012)

Member of the National Academy of Engineering (2011)

Distinguished Visiting Chair Professor, National Taiwan University, Taipei (2010)

Erudite Distinguished Scholar, State of Kerala, India (2010)

Distinguished Lecturer – National Taiwan University, Taiwan (2008)

Innolec Lecturer – Masaryk University, Brno, Czech Republic (2008)

Distinguished Visiting Scholar – Tsinghua University, Beijing (2008)

Alexander von Humboldt Foundation Senior Scientist Award (2004)

Jack Edward McKee Medal – Water Environment Federation (2003)

A. R. Gordon Distinguished Lecturer in Chemistry – University of Toronto (2003)



B. F. Dodge Distinguished Lecturer in Chemical Engineering – Yale University (2003)

American Chemical Society Creative Advances Award (2001)

Fellow of the International Union of Pure and Applied Chemistry (2000)

Lady Davis Distinguished Lecturer - Hebrew University - Jerusalem (1996)

E. Gordon Young Creative Advances Award, Chemical Society of Canada (1995)

Alexander Von Humboldt Prize, 1991

NCAA Athletic Scholarship – Track & Field (1964 – 1968)

#### **Current Research Interests:**

The Hoffmann research group explores many facets of environmental science and engineering including: cloud and aerosol chemistry, aquatic chemistry, semiconductor photo- and electrocatalysis, sonochemistry, electrochemistry, radiation chemistry, advanced oxidation-reduction techniques, chemical catalysis applied to pollution control, photochemistry, chemical kinetics and reaction mechanisms relevant to environmental systems, artificial photosynthesis and solar fuels production, and Li-Metal battery research.

**Five Highly-Cited Publications:** <http://scholar.google.com/citations?user=KPeon7UAAAAJ&hl=en>

(Hoffmann ISI H-index = 79, Total ISI Citations = 29,997; Google H-Index = 94; Total Google Scholar Citations = 43,864 Total Publications > 360)

Hoffmann, M. R., Martin, S. T., Choi W. Y., and Bahnemann, D. W., Environmental Applications of Semiconductor Photocatalysis., *Chem. Rev.* **1995**, *95*, 69-96. ISI Times Cited: 9,959 – Google Scholar Times Cited: 14,796.

Choi, W. Y.; Termin, A.; and Hoffmann, M. R., Role of Metal-Ion Dopants in Quantum-Sized TiO<sub>2</sub> - Correlation between Photoreactivity and Charge-Carrier Recombination Dynamics. *J. Phys. Chem.*, **1994**, *98*, 13669-13679. Times Cited: 2272 - Google Scholar Times Cited: 3294.

Kormann C., Bahnemann D. W., and Hoffmann M. R., Preparation and Characterization of Quantum-Size Titanium Dioxide, *J. Phys. Chem.*, **1988**, *92*, 5196-5201. ISI Times Cited: 700 – Google Scholar: 830.

Bahnemann D. W., Kormann C., and Hoffmann M. R., Preparation and Characterization of Quantum-Size Zinc Oxide - A Detailed Spectroscopic Study, *J. Phys. Chem.*, **1987** *91*, 3789-3798. ISI Times Cited: 575 – Google Scholar: 673

Kormann, C.; Bahnemann, D. W.; and Hoffmann, M. R., Photolysis of Chloroform and Other Organic Molecules in Aqueous TiO<sub>2</sub> Suspensions, *Environ. Sci. Technol.*, **1991**, *25*, 494-500. ISI Times Cited: 536 – Google Scholar: 702

#### **Recent Publications:**

Cho, K.; Hoffmann, M. R., Bi<sub>x</sub>Ti<sub>1-x</sub>O<sub>2</sub> Functionalized Heterojunction Anode with an Enhanced Reactive Chlorine Generation Efficiency in Dilute Aqueous Solutions, *Chem. Mater.*, **2015**, *27*, 2224-2233.

Park, H.; Ou, H.H.; Colussi, A.J.; Hoffmann, M. R. Artificial Photosynthesis of C1–C3 Hydrocarbons from Water and CO<sub>2</sub> on Titanate Nanotubes Decorated with Nanoparticle Elemental Copper and CdS Quantum Dots, *J. Phys. Chem. A*, ASAP, January 22, 2015 (Article) DOI: 10.1021/jp511329d

Enami, S.; Hoffmann, M. R.; Colussi, A. J. Stepwise Oxidation of Aqueous Dicarboxylic Acids by Gas-Phase OH Radicals, **2015**, *6*, 527-534.

Aryanfar, A.; Brooks, D.; Merinov, B. V.; Goddard, W. A.; Colussi, A. J.; Hoffmann, M. R. Dynamics of Lithium Dendrite Growth and Inhibition: Pulse Charging Experiments and Monte Carlo Calculations, *J. Phys. Chem. Lett.* **2014**, *5*, 1721-1726.

Cho, K.; Hoffmann, M. R. Urea Degradation by Electrochemically Generated Reactive Chlorine Species: Products and Reaction Pathways, *Environ. Sci. Technol.*, **2014**, *48*, 11504-11511.

Cho, K.; Qu, Y.; Kwon, D.; Zhang, H.; Cid, C. A.; Aryanfar, A.; Hoffmann, M. R. Effects of Anodic Potential and Chloride Ion on Overall Reactivity in Electrochemical Reactors Designed for Solar-Powered Wastewater Treatment, *Environ. Sci. Technol.* **2014**, *48*, 2377-2384.

Enami, S.; Hoffmann, M. R.; Colussi, A. J. In Situ Mass Spectrometric Detection of Interfacial Intermediates in the Oxidation of RCOOH(aq) by Gas-Phase OH-Radicals, *J. Phys. Chem. A* **2014**, *118*, 4130-4137.

Kameel, F. R.; Lee, S. H.; Hoffmann, M. R.; Colussi, A. J. Polarity and oxidation level of visible absorbers in model organic aerosol, *Chem. Phys. Lett.* **2014**, *603*, 57-61.