

Prof. Dr. Joachim Heberle

Born 01.10.1960 – Bietigheim
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Scientific vita

2009- W3 Professor of Experimental Molecular Biophysics, FU Berlin
2005 – 2009 W3-Professor of Biophysical Chemistry, Dept. of Chemistry, Bielefeld University
2002 Visiting scientist of the Nobel Institute for Chemistry, Gothenburg University
1998 Habilitation in Biophysical Chemistry (G. Büldt), Heinrich-Heine Universität Düsseldorf
1993-2005 group leader at the Research Center Jülich (IBI-2)
1991–1993 Postdoc, Hahn-Meitner Institute Berlin (N.A. Dencher)
1988–1991 PhD (N.A. Dencher), Biophysics, FU Berlin
1980–1988 enrolled for Chemistry curriculum at the Universities of Stuttgart and Würzburg

Fields of interest

time-resolved, surface-enhanced and near-field vibrational spectroscopy, photosensory and photosynthetic processes, membrane proteins, signal transduction, bioelectrochemistry, molecular biophysics, ion and electron transfer, surface structuring and functionalisation

Organizational activities (selection)

2019- Member of the executive board of the Cluster of Excellence “UniSysCat”
2017- Chairman of the collaborative research center SFB 1078 “Protonation dynamics in protein function”
2015- Associate Editor of *Chemical Reviews*
2014 Fellow of the Japan Society for the Promotion of Science
2014- Member of the Council “Ombudsman for Science” in Germany
2013-2016 Member of the Hertha-Sponer prize Committee of the German Physical Society
2010-2018 Member of the Excellence Council of the FU Berlin
2008-2012 Member of the Study Section in Chemistry of the German Research Foundation (FF 305-01, Biological and Biomimetic Chemistry)
2007- Organizer of the annual Manfred Eigen Winterseminar, Klosters, Switzerland

Funding

Funding has been raised from the DFG, BMBF, EU, JST within the last 10 years with a total volume of 4,979,700 €.

Scientific Output

153 publications in international peer-reviewed journals
h-index: 43 (ISI)

10 most relevant publications

1. Hu H, Ataka K, Menny A, Fourati Z, Sauguet L, Corringer PJ, Koehl P, Heberle J, Delarue M (2018). “Electrostatics, proton sensor, and networks governing the gating transition in GLIC, a proton-gated pentameric ion channel.” *Proc Natl Acad Sci USA*. In press. doi: 10.1073/pnas.1813378116.
2. Saita, M., F. Pranga-Sellnau, T. Resler, R. Schlesinger, J. Heberle and V. A. Lorenz-Fonfria (2018). "Photoexcitation of the P4(480) State Induces a Secondary Photocycle That Potentially Desensitizes Channelrhodopsin-2." *J Am Chem Soc* **140**(31): 9899-9903
3. Daldrop, J.O., Saita, M., Heyden, M., Lorenz-Fonfria, V. A., Heberle, J. & Netz, R. R. (2018) “Orientation of non-spherical protonated water clusters revealed by infrared absorption

- dichroism." Nature Commun. **9**: 311
4. Berntsson O, Diensthuber RP, Panman MR, Björling A, Gustavsson E, Hoernke M, Hughes AJ, Henry L, Niebling S, Takala H, Ihalainen JA, Newby G, Kerruth S, Heberle J, Liebi M, Menzel A, Henning R, Kosheleva I, Möglich A, Westenhoff S. (2017). "Sequential conformational transitions and α -helical supercoiling regulate a sensor histidine kinase." Nature Commun. **8**: 284
 5. Schnedermann C, Muders V, Ehrenberg D, Schlesinger R, Kukura P, Heberle J. (2016) "Vibronic Dynamics of the Ultrafast all-trans to 13-cis Photoisomerization of Retinal in Channelrhodopsin-1." J Am Chem Soc. **138**(14):4757-62
 6. Lorenz-Fonfria, V. A., C. Bamann, T. Resler, R. Schlesinger, E. Bamberg and J. Heberle (2015). "Temporal evolution of helix hydration in a light-gated ion channel correlates with ion conductance." Proc Natl Acad Sci USA **112**(43): E5796-5804.
 7. Lórenz-Fonfría, V.A., Schultz, B.J., Resler, T., Schlesinger, R., Bamann, C., Bamberg, E., Heberle, J. (2015). "Pre-Gating Conformational Changes in the ChETA Variant of Channelrhodopsin-2 Monitored by Nanosecond IR Spectroscopy." J. Am. Chem. Soc. **137**, 1850–1861
 8. Lorenz-Fonfria, V. A., T. Resler, N. Krause, M. Nack, M. Gossing, G. Fischer von Mollard, C. Bamann, E. Bamberg, R. Schlesinger and J. Heberle (2013). "Transient protonation changes in channelrhodopsin-2 and their relevance to channel gating." Proc Natl Acad Sci USA **110**(14): E1273-1281.
 9. Neumann-Verhoefen, M. K., K. Neumann, C. Bamann, I. Radu, J. Heberle, E. Bamberg and J. Wachtveitl (2013). "Ultrafast infrared spectroscopy on channelrhodopsin-2 reveals efficient energy transfer from the retinal chromophore to the protein." J Am Chem Soc **135**(18): 6968-6976.
 10. Radu, I., C. Bamann, M. Nack, G. Nagel, E. Bamberg and J. Heberle (2009). "Conformational changes of channelrhodopsin-2." J. Am. Chem. Soc. **131**(21): 7313-7319.