

CURRICULUM VITAE

PERSONAL INFORMATION

Name: Peter Hamm

ORCID: 0000-0003-1106-6032

Nationality: German and Swiss

Born: April 6, 1966, Munich, Germany

URL of web site: <http://www.chem.uzh.ch/research/hamm.html>

EDUCATION:

1991-1995 PhD Studies at the Ludwig Maximilians University Munich, Physics Department, PhD Thesis: "*Femtosecond Infrared Spectroscopy of Bacterial Reaction Centers of Rb. Sphaeroides*", Supervisor: Prof. W. Zinth
PhD Thesis with Summa Cum Laude (Distinction)

1985-1991 Undergraduate Studies of Physics at the Technical University of Munich, Diploma Thesis: "*Femtosecond Spectroscopy on Photosynthetic Reaction Centers of Rps. Viridis*", Supervisor: Prof. W. Zinth.
Final Grade: 1.0 (Distinction)

1972-1985 Elementary School and High School: Gymnasium Unterhaching/Germany
Abitur, Final Grade: 1.6

RESEARCH EXPERIENCE:

since 2007 Ordinary (Full) Professor, University of Zürich, Department of Chemistry

Research topics:

- Multidimensional spectroscopy, 2D-IR, 3D-IR and 2D-Raman-THz
- Dynamics of molecules at surfaces
- Allosteric protein dynamics
- Water structure and dynamics
- Artificial photosynthetic systems
- Peptide and protein folding
- Vibrational energy transport in proteins

2001-2007 Extraordinary (Associate) Professor, University of Zürich, Physical Chemistry Institute

Research topics:

- Transient 2D-IR spectroscopy to make molecular movies
- Ultrafast IR spectroscopy of metal carbonyls
- α -Helix folding
- Nonlinear excitations in hydrogen-bonded crystals
- IR-induced photochemistry

1999-2001 Independent Group Leader, *Max Born Institute for Nonlinear Optics and Short Pulse Spectroscopy*

Research topics:

- Conformational dynamics of peptides and proteins
- Dynamics of vibrational transitions and hydrogen bonds
- Development of ultrafast IR laser sources and measurement techniques

1996-1998 Postdoctoral Fellow, with Prof. R. M. Hochstrasser, University of Pennsylvania.

Research topics:

- Invention of 2D-IR spectroscopy
- Vibrational relaxation of small ions/molecules

1995-1996 Research Assistant, with Prof. W. Zinth, University of Munich

Research topics:

- Ultrafast photoisomerization reactions

PRIZES/AWARDS AND NAMED LECTURE SHIPS:

1991 Distinction, Diploma Studies of Physics

1995 Distinction, PhD Thesis

2001 Outstanding Young Investigator (Time-Resolved Vibrational Spectroscopy Conference)

2005 Stephanos Pnevmatikos International Award (see <http://www.physics.uoc.gr/Pnevmatikos/>) in recognition of our work on nonlinear phenomena in peptide models and model peptides.

2010 ERC Advanced Investigator Grant DYNALLO (Towards a Dynamical Understanding of Allostery)

2016 Frederick Kaufman Lecture Series, University of Pittsburgh, Pittsburgh, USA

2017 Elected as Fellow of The Optical Society of America

2018 Ellis R. Lippincott Award

2019 Bonus of Excellence, Swiss National Science Foundation

2019 Emory Chemmy Award

2020 Mordecai and Rivka Rubin Lecturer, Technion, Haifa, Israel

2020 Teacher of the Hour, nominated by the students in context of online-teaching in the Covid-19 pandemic

APPROVED RESEARCH PROJECTS

1999-2001 Project funding DFG kDM 566

2001- Continuous project funding from SNF, total kCHF 3'385

2011-2020 Subproject in various SNF Sinergia projects total kCHF 819

2010- Subproject in NCCR MUST, SNF total kCHF 3'252

2010-2015 ERC Advanced Grant DYNALLO kEUR 2'400

TEACHING ACTIVITIES

Taught courses: General Chemistry (Physical Chemistry Part), Mathematics for Chemist, Introduction into Mathematica, Molecular Quantum Mechanics, Spectroscopy, NMR Spectroscopy, Statistical Mechanics, Femtochemistry, Theory of Nonlinear Spectroscopy. In average 1.5 courses per semester, each 4-5h/week.

INSTITUTIONAL RESPONSIBILITIES

2008-2012 Director of the Institute of Physical Chemistry, University of Zurich

2010-2012 Head of the Department of Chemistry, University of Zurich

2020- Head of the Department of Chemistry, University of Zurich

EDITORIAL WORK

- Associate and Deputy Editor of the Journal of Chemical Physics, in charge of the complete reviewing process as well as of the strategic development of the journal (2013-2019)
- Editorial Boards: Chemical Physics, Chemical Physics Letters, Structural Dynamics

ORGANISATION OF CONFERENCES:

- 2005 *Telluride Workshop: Condensed Phase and Gas Phase Vibrational Dynamics* (together with David Leitner)

- *The 3rd International Conference on Coherent Multidimensional Spectroscopy*, May 2006 Rigi Kulm, Switzerland, see <http://www.pci.uzh.ch/conf2d06/>
- *Time Resolved Vibrational Spectroscopy XV Meeting*, June 2011, Ascona, Switzerland
- *The International Conference on Ultrafast Structural Dynamics III* (together with Steven Johnson), June 2015, Zurich, Switzerland, see <http://icusd2015.ethz.ch>

PROMOTION OF YOUNG ACADEMICS:

Supervised 30 PhD students and 24 postdocs over the years, many of whom are now in independent academic positions:

- Sander Woutersen, University of Amsterdam, The Netherlands, Professor, tenured
- Jens Bredenbeck, University of Frankfurt, Germany, Full (W3) Professor, tenured.
- Janne Ihalainen, University of Jyväskylä, Finland, Professor, tenured
- Hiroyuki Katsuki, Nara Institute of Science and Technology, Japan, Associate Professor, tenured
- Sean Garrett-Roe, University of Pittsburg, USA, Professor, tenured
- Esben Ravn Andresen, University of Lille, France, Associate Professor
- Ellen Backus, University of Vienna, Austria, Professor, tenured
- Foivos Perakis, Stockholm University, Sweden, Assistant Professor, tenure track
- Paul Donaldson, Rutherford Appelton Laboratory, Oxfordshire, UK, Instrument Scientist at the Cental Laser Facility
- Shabir Hassan, Havard University, USA, Early Career Investigator
- David Buhrke, FU Berlin, Germany, FCI Liebig-Fellow

Publications

The PI's work has received ≈ 13300 citations with an H-index of 63 (taken from the Web of Science as of August 2022). Publications marked with an asterisk (*) are considered to be key publications

1. S. M. Salehi, S. Käser, K Töpfer, P. Diamantis, R. Pfister, P. Hamm, U. Rothlisberger, and M. Meuwly, *Hydration Dynamics and IR Spectroscopy of 4-Fluorophenol*, submitted
2. K. Töpfer, A. Pasti, A. Das, S. M. Salehi, L. I. Vazquez-Salazar, D. Rohrbach, T. Feurer, P. Hamm, M. Meuwly, *Structure, Organization and Heterogeneity of Water-Containing Deep Eutectic Solvents*, *J. Am. Chem. Soc.*, 2022, 144, 14170–14180
3. D. Buhrke, N. Michael, P. Hamm, *Vibrational Couplings between Protein and Co-factor in Bacterial Phytochrome Agp1 revealed by 2D-IR Spectroscopy*, *Proc. Natl. Acad. Sci. USA*, 2022, 119, e2206400119
4. P. J. Heckmeier, J. Ruf, D. Buhrke, B. G. Jankovic, and P. Hamm, *Signal Propagation Within the MCL-1/BIM Protein Complex*, *J. Mol. Biol.*, 434 (2022) 167499
5. S. J. Mousavi, A. Berger, P. Hamm, and A. Shalit, *Low-frequency anharmonic couplings in bromoform revealed from 2D Raman-THz spectroscopy: from the liquid to the crystalline phase.*, *J. Chem. Phys.*, 2022, 156, 174501
6. D. Buhrke, J. Ruf, P. Heckmeier, and P. Hamm, *A Stop-Flow Sample Delivery System for Transient Spectroscopy*, *Rev. Sci. Instrum.*, 2021, 92, 123001
7. M. Duchi, S. Shukla, A. Shalit, and P. Hamm, *2D-Raman-THz Spectroscopy with Single-Shot THz Detection*, *J. Chem. Phys.*, 2021, 155, 174201
8. B. Jankovic, J. Ruf, C. Zanobini, O. Bozovic, D. Buhrke, and P. Hamm, *Sequence of Events During Peptide Unbinding from RNase S: A Complete Experimental Description*, *J. Phys Chem. Lett.* 2021, 21, 5201-5207
9. B. Jankovic, O. Bozovic and P. Hamm, *Intrinsic Dynamics of Protein-Peptide Unbinding*, *Biochemistry* 2021, 60, 1755-1763
10. *O. Bozovic, J. Ruf, C. Zanobini, B. Jankovic, D. Buhrke, P. J. M. Johnson, and P. Hamm, *The Speed of Allosteric Signaling Within a Single-Domain Protein*, *J. Phys. Chem. Lett.*, 2021, 12, 4262-4267
11. J. Ruf, P. Hamm, D. Buhrke, *Needles in a Haystack: H-bonding in an Optogenetic Protein observed with Isotope Labeling and 2D-IR Spectroscopy*, *Phys. Chem. Chem. Phys.*, 2021, 23, 10267-10273
12. Peter Hamm, *Transient 2D IR Spectroscopy from Micro- to Milliseconds*, *J. Chem. Phys.*, 2021, 154, 104201
13. B. Kutus, A. Shalit, P. Hamm, and J. Hunger, *Dielectric Response of Light, Heavy and Heavy-Oxygen Water: Isotope Effects on the Hydrogen-Bonding Network's Collective Relaxation Dynamics*, *Phys. Chem. Chem. Phys.*, 2021, 23, 5467-5473
14. Gökçen Tek and Peter Hamm, *Transient CO Desorption From Thin Pt Films Induced by Mid-IR Pumping*, *J. Chem. Phys.*, 2021, 154, 084706
15. K. T. Oppelt, L. Sevéry, M. Utters, S. D. Tilley, and P. Hamm, *Flexible to Rigid: IR Spectroscopic Investigation of a Rhenium-Tricarbonyl-Complex at a Buried Interface*, *Phys. Chem. Chem. Phys.*, 2021, 23, 4311-4316

16. A. Shalit, S. J. Mousavi, and P. Hamm, *2D Raman-THz spectroscopy of binary CHBr₃-MeOH solvent mixture*, J. Phys. Chem. B, 2021, 125, 581-586
17. D. Buhrke, K. Oppelt, P. J. Heckmeier, R. Fernández-Terán, and P. Hamm, *Nanosecond protein dynamics in a red/green Cyanobacteriochrome revealed by transient IR spectroscopy*, J. Chem. Phys., 2020, 153, 245101
18. *O. Bozovic, B. Jankovic and P. Hamm, *Sensing the Allosteric Force*, Nat. Commun., 2020, 11, 5841
19. K. M. Farrell, J. S. Ostrander, A. C. Jones, B. R. Yakami, S. S. Dicke, C. T. Middleton, P. Hamm, and M. T. Zanni, *Shot-to-shot 2D IR spectroscopy at 100 kHz using a Yb laser and custom designed electronics*, Optics Express, 2020, 28, 33584
20. R. Fernández-Terán and Peter Hamm, *A Closer Look into the Distance Dependence of Vibrational Energy Transfer on Surfaces Using 2D ATR-IR Spectroscopy*, J. Chem. Phys., 2020, 153, 154706
21. O. Bozovic, C. Zanobini, A. Gulzar, B. Jankovic, D. Buhrke, M. Post, S. Wolf, G. Stock and P. Hamm, *Real-time observation of ligand-induced allosteric transitions in a PDZ domain*, Proc. Natl. Acad. Sci. USA, 2020, 117, 26031-26039
22. D. Sidler and P. Hamm, *A Feynman Diagram Description of the 2D-Raman-THz Response of Amorphous Ice*, J. Chem. Phys., 2020, 153, 044502
23. G. Tek and P. Hamm, *A Correction Scheme for Fano Lineshapes in Two-Dimensional Infrared Spectroscopy*, 2020, J. Phys. Chem. Lett., 2020, 11, 6185-6190
24. K. Oppelt, M. Mosberger, J. Ruf, R. Fernández-Terán, B. Probst, R. Alberto, P. Hamm, *Shedding Light on the Molecular Surface Assembly at the Nanoscale Level: Dynamics of a Re(I) Carbonyl Photosensitizer with a Co-Adsorbed Cobalt Tetrapyrrolyl Water Reduction Catalyst on Metal Oxides*, J. Phys. Chem. C, 2020, 124, 12502-12511
25. R. Fernández-Terán, J. Ruf, and Peter Hamm, *Vibrational couplings in hydridocarbonyl complexes: a 2D-IR perspective*, Inorg. Chem. 2020, 59, 7721-7726
26. N. Weder, B. Probst, L. Sévery, R. J. Fernández-Terán, J. Beckord, O. Blacque, S. D. Tilley, P. Hamm, Jürg Osterwalder and R. Alberto, *Mechanistic insights into photocatalysis and over two days of stable H₂ generation in electrocatalysis by a molecular cobalt catalyst immobilized on TiO₂*, Catalysis Science & Technology, 2020, 10, 2020, 2549-2560
27. G. Ciardi, A. Berger, D. Sidler, A. Shalit, and P. Hamm, *Signatures of Intra-/intermolecular Vibrational Coupling in Halogenated Liquids Revealed by 2D Raman-THz Spectroscopy*, J. Phys. Chem. Lett., 2019, 10, 4463-4468
28. K. Oppelt, R. Fernández-Terán, R. Pfister and P. Hamm, *Geminate Recombination versus Cage Escape in the Reductive Quenching of a Re(I) Carbonyl Complex on Mesoporous ZrO₂*, J. Phys. Chem. C, 2019, 123, 19952-19961
29. *P. Hamm, *Velocity Echoes in Water*, J. Chem. Phys., 2019, 151, 054505
30. B. Jankovic, A. Gulzar, C. Zanobini, O. Bozovic, S. Wolf, G. Stock, and Peter Hamm, *Photocontrolling Protein-Peptide Interactions: From Minimal Perturbation to Complete Unbinding*, J. Am. Chem. Soc., 2019, 141, 10702-10710
31. *A. Berger, G. Ciardi, P. Hamm and A. Shalit, *The Impact of Nuclear Quantum Effects on the Structural Inhomogeneity of Liquid Water*, Proc. Natl. Acad. Sci. USA, 2019, 116, 2458-2463

32. D. Sidler, P. Hamm, *Feynman Diagram Description of 2D-Raman-THz Spectroscopy Applied to Water*, J. Chem. Phys. 2019, 150, 044202
33. C. Zanobini, O. Bozovic, B. Jankovic, K. L. Koziol, P. J. M. Johnson, P. Hamm, A. Gulzar, S. Wolf, and G. Stock, *Azidohomoalanine: A Minimally-Invasive, Versatile and Sensitive Infrared Label in Proteins to Study Ligand Binding*, J. Phys. Chem. B, 2018, 122, 10118–10125
34. S. Wellig, and P. Hamm, *Solvation Layer of Antifreeze Proteins Analyzed with a Markov State Model*, J. Phys. Chem. B, 2018, 22, 11014-11022
35. D. Sidler, M. Meuwly, and P. Hamm, *An efficient water force field calibrated against intermolecular THz and Raman spectra*, J. Chem. Phys., 2018, 148, 244504
36. S. Ahmed, A. Pasti, R. J. Fernández-Terán, G. Ciardi, A. Shalit, and P. Hamm, *Aqueous Solvation from the Water Perspective*, J. Chem. Phys., 2018, 148, 234505
37. D. Paleček, G. Tek, J. Lan, M. Iannuzzi, and P. Hamm, *Characterization of the platinum-hydrogen vibration by surface-sensitive time-resolved infrared spectroscopy*, J. Phys. Chem. Lett, 2018, 9, 1254-1259
38. J. P. Kraack, P. Hamm, *Solvent-controlled morphology of catalytic monolayers at solid-liquid interfaces*, J. Phys. Chem. C, 2018, 122, 2259-2267
39. J. P. Kraack, L. Sévery, S. D. Tilley, P. Hamm, *Plasmonic substrates do not promote vibrational energy transfer at solid-liquid interfaces*, J. Phys. Chem. Lett. 2018, 9, 49-56
40. B. Stucki-Buchli, P. J. M. Johnson, O. Bozovic, C. Zanobini, K. L. Koziol, P. Hamm, A. Gulzar, S. Wolf, S. Buchenberg and G. Stock, *2D-IR spectroscopy of an AHA labelled photoswitchable PDZ2 domain*, J. Phys. Chem. A, 2017, 121, 9435-9445
41. H. Tran, A. V. Cunha, J. J. Shephard, A. Shalit, P. Hamm, T. L. C. Jansen and C. G. Salzmann, *2D IR spectroscopy of high-pressure phases of ice*, J. Chem. Phys., 2017, 147, 144501
42. P. Hamm, G. S. Fanourgakis, and S. S. Xantheas, *A surprisingly simple correlation between the classical and quantum structural networks in liquid water*, J. Chem. Phys. 2017, 147, 064506
43. A. Berger, J. Savolainen, A. Shalit and P. Hamm, *Note: Deep UV-pump THz-probe spectroscopy of the excess electron in water*, J. Chem. Phys., 2017, 146, 246101
44. *J. P. Kraack, A. Frei, R. Alberto, and P. Hamm, *Ultrafast vibrational energy transfer in catalytic monolayers at solid-liquid interfaces*, J. Phys. Chem. Lett., 2017, 8, 2489-2495
45. P. J. M. Johnson, K. L. Koziol, and P. Hamm, *Quantifying biomolecular recognition with site-specific 2D infrared probes*, J. Phys. Chem. Lett., 2017, 8, 2280-2284
46. M. Kuss-Petermann, M. Oraziotti, M. Neuburger, P. Hamm, and O. S. Wenger, *Intramolecular light-driven accumulation of reduction equivalents by proton-coupled electron transfer*, J. Am. Chem. Soc., 2017, 139 5225-5232
47. J. P. Kraack, A. Kaeck and P. Hamm, *Molecule-specific interactions of diatomic adsorbates at metal-liquid interfaces*, Struct. Dynamics, 2017, 4, 044009
48. P. J. M. Johnson, K. L. Koziol, and P. Hamm, *Intrinsic phasing of heterodyne-detected multidimensional infrared spectra*, Optics Express, 2017, 25, 2928-2938
49. *A. Shalit, S. Ahmed, J. Savolainen, and P. Hamm *THz echoes reveal the inhomogeneity of water in aqueous salt solutions*, Nature Chem., 2017, 9, 273-278

50. P. Hamm, *Markov state model of the two-state behaviour of water*, J. Chem. Phys., 2016, 145, 134501
51. M. Oraziotti, M. Kuss-Petermann, P. Hamm and O. S. Wenger, *Light-driven electron accumulation in a molecular pentad*, Angew. Chem. Int. Ed., 2016, 55, 9407-9410 (English version) and Angew. Chem. 2016, 128, 9553-9556 (German version).
52. J. Windisch, M. Oraziotti, P. Hamm, B. Probst, and R. Alberto, *A general scheme for oxidative quenching of a Copper-bis-phenanthroline photosensitizer for light-driven hydrogen production*, ChemSusChem, 2016, 9, 1719–1726
53. J. P. Kraack and P. Hamm, *Communication: Vibrational ladder-climbing in surface-enhanced, ultrafast infrared spectroscopy*, Phys. Chem. Chem. Phys. 2016, 18, 16088-16093
54. A. Rodenberg, M. Oraziotti, M. Mosberger, C. Bachmann, B. Probst, R. Alberto and P. Hamm, *Quinones as reversible electron relays in artificial photosynthesis*, ChemPhysChem, 2016, 7, 1321-1328
55. M. Xu, A. Caffisch and P. Hamm, *Protein structural memory influences ligand binding mode(s) and unbinding rates*, J. Chem. Theory Comput., 2016, 12, 1393-1399
56. J. P. Kraack, A. Kaech and P. Hamm *Surface-enhancement in ultrafast 2D ATR IR spectroscopy at the metal-liquid interface*, J. Phys. Chem. C, 2016, 120, 3350-3359
57. D. Lotti, P. Hamm and J. Kraack, *Surface-sensitive spectro-electrochemistry using ultrafast 2D ATR IR spectroscopy*, J. Phys. Chem. C, 2016, 120, 2883-2892
58. P. Hamm and G. Stock, *Nonadiabatic vibrational dynamics in the $\text{HCO}_2^- \cdot \text{H}_2\text{O}$ complex*, J. Chem. Phys., 2015, 143, 134308
59. J. P. Kraack, D. Lotti and P. Hamm, *Surface-enhanced, multi-dimensional attenuated total reflectance spectroscopy*, Proc. of SPIE, 2015, 9549, 95490S
60. J. P. Kraack, D. Lotti and P. Hamm, *2D Attenuated total reflectance infrared spectroscopy reveals ultrafast vibrational dynamics of organic monolayers at metal-liquid interfaces*, J. Chem. Phys. 2015, 142, 212413
61. P.-A. Cazade, H. Tran, T. Bereau, A. K. Das, F. Kläsi, P. Hamm and M. Meuwly, *Solvation of Fluoroacetonitrile in water by 2D-IR spectroscopy: A combined experimental-computational study*, J. Chem. Phys. 2015, 142, 212415
62. M. L. Donten, S. Hassan, A. Popp, J. Halter, K. Hauser and P. Hamm *pH-Jump induced Leucine zipper folding beyond the diffusion limit*, J. Phys. Chem. B, 2015, 119, 1425-1432
63. A. Rodenberg, M. Oraziotti, B. Probst, C. Bachmann, R. Alberto, K. K. Baldrige and P. Hamm *Mechanism of photocatalytic hydrogen generation by a polypyridyl-based cobalt catalyst in aqueous solution*, Inorg. Chem., 2015, 54, 646-657
64. S. Buchenberg, V. Knecht, R. Walser, P. Hamm and G. Stock, *Long-range conformational transition of a photoswitchable allosteric protein: A molecular dynamics simulation study* J. Phys. Chem. B, 2014, 118, 13468-13476
65. P. Hamm *2D-Raman-THz spectroscopy: A sensitive test of polarizable water models* J. Chem. Phys., 2014, 141, 184201
66. S. A. Waldauer, B. Stucki-Buchli, L. Frey and P. Hamm *Effect of viscogens on the kinetic response of a photoperturbed allosteric protein* J. Chem. Phys., 2014, 141, 22D514

67. J. A. Borek, F. Perakis and P. Hamm, *Testing for memory-free spectroscopic coordinates by 3D IR exchange spectroscopy*, Proc. Natl. Acad. Sci. USA, 2014, 111, 10462-10467
68. J. Savolainen, F. Uhlig, S. Ahmed, P. Hamm and P. Jungwirth, *Direct observation of the collapse of the delocalized excess electron in water*, Nature Chem., 2014, 6, 697-701
69. J. P. Kraack, D. Lotti and P. Hamm, *Ultrafast multi-dimensional attenuated total reflectance spectroscopy of adsorbates at metal surfaces*, J. Phys. Chem. Lett., 2014, 5, 2325-2329
70. A. Shalit, F. Perakis and P. Hamm, *Communication: Disorder-suppressed vibrational relaxation in high-density amorphous ice*, J. Chem. Phys., 2014, 140, 151102
71. S. Hassan, M. Schade, C. P. Shaw, R. Lévy and P. Hamm *Response of villin headpiece-capped gold nanoparticles to ultrafast laser heating*, J. Phys. Chem. B, 2014, 118, 7954-7962
72. S. Ahmed, J. Savolainen and P. Hamm, *The effect of the Gouy phase in optical-pump-THz-probe spectroscopy*, Opt. Express 2014, 22, 4256-4266
73. S. Ahmed, J. Savolainen and P. Hamm, *Detectivity enhancement in THz electrooptical sampling*, Rev. Sci. Instrum. 2014, 85, 013114
74. A. Shalit, F. Perakis and P. Hamm, *Two-dimensional infrared spectroscopy of isotope-diluted low density amorphous ice*, J. Phys. Chem. B, 2013, 117, 15512-15518
75. *J. Savolainen, S. Ahmed and P. Hamm, *2D Raman-THz spectroscopy of water*, Proc. Natl. Acad. Sci. USA, 2013, 110, 20402-20407
76. P. Hamm and G. Stock, *Vibrational conical intersections in the water dimer*, Mol. Phys. 2013, 111, 2046-2056
77. M. Donten and P. Hamm, *pH-Jump induced α -helix folding of poly-L-glutamic acid*, Chem. Phys. 2013, 244, 124-130
78. M. W. Lee, J. K. Carr, M. Göllner, P. Hamm, and M. Meuwly, *2D IR spectra of cyanide in water investigated by molecular dynamics simulations*, J. Chem. Phys. 2013, 139, 054506
79. *B. Buchli, S. A. Waldauer, R. Walser, M. Donten, R. Pfister, N. Blöchliger, S. Steiner, A. Caffisch, O. Zerbe and P. Hamm, *Kinetic response of a photo-perturbed allosteric protein*, Proc. Natl. Acad. Sci. USA, 2013, 110, 11725-11730
80. F. Perakis, J. A. Borek and P. Hamm, *Three-dimensional infrared spectroscopy of isotope-diluted ice Ih*, J. Chem. Phys. 2013, 139, 014501
81. P. M. Donaldson and P. Hamm, *Structure, dynamics and surface field enhancement of gold nanoparticle capping layers measured using 2D infrared spectroscopy*, Angew. Chem. Int. Ed., 2013, 52, 634-638
82. M. Guttentag, A. Rodenberg, C. Bachmann, A. C. Senn, P. Hamm, R. Alberto, *A highly stable polypyridyl-based cobalt catalyst for homo-and heterogeneous photocatalytic water reduction*, Dalton Trans., 2013, 42, 334-337
83. R. Bloem, K. Koziol, S. Waldauer, B. Buchli, R. Walser, B. Samatanga, I. Jelesarov and P. Hamm, *Ligand binding studied by 2D IR spectroscopy using the azidohomoalanine label*, J. Phys. Chem. B 2013, 116, 13705-13712
84. P. Hamm and G. Stock, *Vibrational conical intersections as a mechanism of ultrafast vibrational relaxation*, Phys. Rev. Lett., 2012, 109, 173201

85. D. Prada-Gracia, R. Shevchuk, P. Hamm and F. Rao, *Towards a microscopic description of the free-energy landscape of water*, J. Chem. Phys. 2012, 137, 144504
86. S. A. Waldauer, S. Hassan, B. Paoli, P. M. Donaldson, R. Pfister, P. Hamm, A. Caflich, and R. Pellarin, *Photocontrol of reversible amyloid formation with a minimal-design peptide*, J. Phys. Chem B, 2012, 116, 8961-8973
87. P. Hamm, J. Savolainen, J. Ono and Y. Tanimura, *Note: Inverted time-ordering in 2D-Raman-THz spectroscopy of water*, J. Chem. Phys. 2012, 136, 236101
88. J. Borek, F. Perakis, F. Kläsi, S. Garrett-Roe and P. Hamm, *Azide-water intermolecular coupling measured by two-color two-dimensional infrared spectroscopy*, J. Chem. Phys. 2012, 136, 224503, Erratum: J. Chem. Phys. 2012, 137, 069902
89. P. M. Donaldson, H. Strzalka and P. Hamm, *High sensitivity transient infrared spectroscopy: A UV/Visible transient grating spectrometer with a heterodyne detected infrared probe*, Optics Express, 2012, 20, 12761-12770
90. P. Hamm and J. Savolainen, *2D-Raman-THz spectroscopy of water: Theory*, J. Chem. Phys. 2012, 136, 094516
91. F. Perakis, and P. Hamm, *Two-dimensional infrared spectroscopy of neat ice Ih*. Chem. Phys. Phys. Chem., 2012, 14, 6243 - 6249
92. J. Helbing, M. Devereux, K. Nienhaus, G. U. Nienhaus, P. Hamm and M. Meuwly, *Temperature dependence of the heat diffusivity of proteins*, J. Phys. Chem. A, 2012, 116, 2620-2628
93. M. Schade and P. Hamm, *Transition from IVR limited vibrational energy transport to bulk heat transport*, Chem. Phys., 2012, 393, 46-50
94. M. Guttentag, A. Rodenberg, R. Kopelent, B. Probst, C. Buchwalder, M. Brandstätter, P. Hamm, and R. Alberto, *Photocatalytic H₂ production with a rhenium/cobalt system in water under acidic conditions*, Eur. J. Inorg. Chem., 2012, 59-64
95. M. L. Donten and P. Hamm, *pH-Jump overshooting*. J. Phys. Chem. Lett., 2011, 2, 1607-1611
96. *S. Garrett-Roe, F. Perakis, F. Rao and P. Hamm, *3D IR spectroscopy of isotope substituted liquid water reveals heterogeneous dynamics*, J. Phys. Chem. B, 2011, 115, 6976-6984
97. F. Perakis, S. Widmer and P. Hamm, *Two-dimensional infrared spectroscopy of isotope-diluted ice Ih*. J. Chem. Phys. 2012, 134, 204505
98. F. Perakis and P. Hamm, *2D IR spectroscopy of supercooled water*. J. Phys. Chem. B 2011, 115, 5289-5293
99. B. Probst, M. Guttentag, A. Rodenberg, P. Hamm and R. Alberto, *Photocatalytic H₂ production from water with rhenium and cobalt complexes*, Inorg. Chem. 2011, 50, 3404-3412
100. M. L. Donten, P. Hamm and J. VandeVondele, *A consistent picture of the proton release mechanism of oNBA in water by ultrafast spectroscopy and ab initio molecular dynamics*. J. Phys. Chem. B, 2011, 115, 1075-1083
101. J. Helbing and P. Hamm, *A compact implementation of Fourier transform 2D-IR spectroscopy without phase ambiguity* J. Opt. Soc. Am. B 2011, 28, 171-178

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103. *F. Rao, S. Garrett-Roe, and P. Hamm *Structural inhomogeneity of water by complex network analysis* J. Phys. Chem. B 2010, 114, 15598-15604
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Outreach

- Children's University, University of Zurich, 2011: *Der Gummibär Laser (The Gummi Bear Laser)*. An audience of ca. 400 elementary school students
- Scientifica Zurich, 2013: *Eine exotherme Experimentalvorlesung (An exothermic experimental lecture)*, together with Roger Alberto and Greta Patzke, see www.scientifica.ch/archiv/was-wir-wannwagen/events/specials-2/chemieshow-risiko-energie-2/. A fun show mixed in with educational aspects about the worlds energy consumption and renewable energies. An audience of ca. 500 people each in three successive shows.
- Scientifica Zurich, 2015, in the context of the International Year of Light: *Kann man mit Gummibärchen einen Laser bauen? (Can one build a laser with gummi bears?)*, see www.news.uzh.ch/de/articles/2015/wie-das-gummibaerchen-zum-laser-wird.html. Show experiments explaining the function of a laser, eventually using gummi bears as the laser active medium. An audience of ca. 500 people each in three successive shows.
- Coauthored: "A Journey into Time in Powers of Ten", 2016 (www.nccr-must.ch/powers_of_ten_book.html). A popular science book illustrating the vast range of timescales that appear in natural processes.