Curriculum Vitae

Dr. J. Mathias Weber
Professor, Department of Chemistry
Fellow of JILA
University of Colorado
Boulder, Colorado 80309-0440
WeberJM@JILA.Colorado.EDU

1. Educational Background

1994 to 1998 – Graduate Student: Experimental Physics, Universität Kaiserslautern, Germany
(*summa cum laude* = with distinction)

1988 to 1994 – Undergraduate Student: Experimental Physics, Universität Kaiserslautern, Germany
Diploma (graduated with "excellent")

2. Academic Employment and Work History

Since July 2019: Professor, Department of Chemistry and Fellow of JILA, University of Colorado at Boulder, CO, USA
Research Topics: Spectroscopy of mass-selected ions *in vacuo*; cryogenic ion spectroscopy; supramolecular assemblies and materials under high pressure.

August 2012 – June 2019: Associate Professor, Department of Chemistry and Biochemistry (now Department of Chemistry) and Fellow of JILA, University of Colorado at Boulder, CO, USA
Research Topics: Spectroscopy of mass-selected ions *in vacuo*; cryogenic ion spectroscopy; supramolecular assemblies and materials under high pressure.

January 2006 – August 2012: Assistant Professor, Department of Chemistry and Biochemistry and Associate JILA Fellow, University of Colorado at Boulder, CO, USA
Research Topics: Spectroscopy of ions *in vacuo*; supramolecular assemblies under high pressure.

March 2002 to December 2005 Independent Junior Research Group Leader, Institut für Physikalische Chemie, Universität Karlsruhe, Germany
Fellow of the Emmy-Noether-Program of the Deutsche Forschungsgemeinschaft (DFG, the German equivalent of NSF), non-tenure-track position. Research Topics: Infrared spectroscopy of isolated ion-molecule complexes, experiments on multiply charged anions in the gas phase. Habilitation in November 2005, *venia legendi* in Physical Chemistry.

April 2001 to February 2002: Postdoctoral Associate, Universität Karlsruhe, Germany
Group of Prof. Manfred M. Kappes, Institut für Physikalische Chemie. Research Topics: Electronic spectroscopy of gold cluster cations, photoelectron spectroscopy of gas phase multiply charged anions.

April 1999 to March 2001: Postdoctoral Associate, Yale University, New Haven, CT, USA
Group of Prof. M. A. Johnson, Sterling Chemistry Laboratory, Department of Chemistry, Yale University. Research Topics: Infrared spectroscopy of solvated atomic and molecular anions, femtosecond photoelectron spectroscopy of water cluster anions.

January to March 1999: Postdoctoral Associate, Universität Kaiserslautern, Germany
Publishing the results of my doctoral dissertation.

September 1994 to December 1998: Graduate Student, Universität Kaiserslautern, Germany
Group of Prof. H. Hotop, Fachbereich Physik. Topic of the Doctoral Dissertation: "Anlagerung langsamer Elektronen an Moleküle und Cluster" (Attachment of Slow Electrons to Molecules and Clusters); Grade: *summa cum laude*.

March 1993 to May 1994: Diploma Student, Universität Kaiserslautern, Germany
Group of Prof. H. Hotop, Fachbereich Physik. Topic of the Diploma Thesis: "Laserspektroskopische Untersuchungen von Ar(ns,nd)-Rydbergzuständen und Diagnostik kleiner elektrischer Felder" (Laser spectroscopic Studies of Ar(ns, nd) Rydberg States and Diagnostics of Small Electric Fields).

3. Awards and Honors

2025 Elected Fellow of the American Physical Society

2023 Elected to the Chair Track of the Division of Chemical Physics of the American Physical Society

2013 - 2018 Member of Advisory Editorial Board for Chemical Physics Letters

2012 Kavli Fellow of the National Academy of Sciences of the United States of America

2012 Guest Professorship, Department of Physics and Astronomy, Aarhus University, Denmark

2010 Alfred P. Sloan Research Fellow

2009 CAREER Award of the National Science Foundation

2002 Emmy-Noether-Fellow of the Deutsche Forschungsgemeinschaft (DFG), March 2002 – December 2005

1999 Wolfgang-Paul-Award of the Deutsche Gesellschaft für Massenspektrometrie (German Society for Mass Spectrometry DGMS).

1999 Dissertation Award of the Freundeskreis der Universität Kaiserslautern

4. Past and Current Funding (only CU Boulder funding is reported here)

- PI on DOE Gas Phase Chemical Physics, "Static and Dynamic Effects in Water Network Formation and Water-PAH Interaction in PAH-Water Cluster Ions", 09/01/2024 – 08/31/2027, **US$ 869,899** (with Prof. Joel Eaves, CHEM; my allocation is ca. **US$ 513,000**)
- NSF Chemistry, "Cryogenic Ion Spectroscopy Studies of Ion-Receptor Interactions in Water Soluble Molecular Recognition Complexes and Their Hydrated Clusters", 09/01/2022 – 08/31/2026, **US$ 495,000**.
- JPL/NASA, "Unambiguous Detection of Biosignatures by Action Spectroscopy", 10/01/2022 – 09/30/2025, **US$ 150,000**.
- PI on DOE Gas Phase Chemical Physics, "Experimental and Computational Study of Quantum Nuclear and Many-Body Effects in Water Network Formation and Water-Surface Interaction in PAH-Water Cluster Ions", 09/01/2020 – 08/31/2024, **US$ 556,855** (with Prof. Joel Eaves, CHEM; my allocation is ca. US$ 333,000)
- Member of the NSF Atomic, Molecular and Optical Physics Frontier Center at JILA since August 2007 (current annual allocation for my program: **US$ 150,000**).
- NSF Chemistry, "Characterizing Structures and Intra-/Intermolecular Forces in Molecular CO_2 Reduction Catalysts and Reaction Intermediates by Infrared Spectroscopy of Cryogenic Ions", 09/01/2018 – 08/31/2022, **US$ 475,000**.

- Petroleum Research Fund of the American Chemical Society, “Pressure Response of Organic Photonic Materials at the Nano- and Mesoscale”, 2016 – 2019, **US$ 110,000**.
- NSF Chemistry, “SusChEM: Studying Catalysts and Reaction Intermediates for Water Oxidation by Spectroscopy of Cryogenic Mass-Selected Ions”, 2014 – 2019, **US$ 426,900**.
- NREL/DOE LDRD Grant for Collaboration with Dr. Arthur Nozik, “Synthesis and Characterization of Si XII Nanocrystals”, 2011, **US$ 33,700**.
- Alfred P. Sloan Research Fellowship, 2010 – 2013, **US$ 50,000**.
- NSF Chemistry, “CAREER: Spectroscopic Studies of Ionic Transition Metal Complexes”, 2009 – 2016, **US$ 617,500**.
- CU Innovative Grant Program, "Supramolecular Chemistry at High Pressures", 2008 – 2009, **US$ 43,500**.
- Petroleum Research Fund of the American Chemical Society, “Infrared Spectroscopy of Cluster Anions Containing Aromatic Molecules”, 2007 – 2009, **US$ 90,000**.

5. Current and Past Collaborations (last 5 years)

- P. Ballester (Institut Català d'Investigació Química, Tarragona, Spain)
- J. D. Eaves (Univ. of Colorado Boulder)
- R. Hodyss (Jet Propulsion Laboratory)
- M. M. Kappes (Karlsruhe Institute of Technology)
- A. I. Krylov (Univ. of Southern California)
- A. B. McCoy (Univ. of Washington)
- P. Mulvaney (Univ. of Melbourne, Australia)
- D. J. Nemchick (Jet Propulsion Laboratory)
- S. B. Nielsen (Aarhus Univ., Denmark)
- S. Sharma (Univ. of Colorado at Boulder)
- J. F. Stanton (Univ. of Florida at Gainesville)
- J. R. R. Verlet (Durham University, UK)

6. Memberships

- American Chemical Society
- American Physical Society
- Deutsche Physikalische Gesellschaft (German Physical Society)
- Deutsche Bunsen-Gesellschaft für Physikalische Chemie (German Bunsen-Society for Physical Chemistry)
- Deutscher Hochschulverband (German Association of University Teachers)

7. List of Publications

Remarks for interpreting the publication list and my contributions:

- This publication list is current as of January 13, 2025
- h-index: 36 (as of January 13, 2025)
- Interpretation of authorship positions: The people who have done the main laboratory work are first authors, while senior authors typically come last. If corresponding authorship is not with the last author, then the person who has corresponding authorship contributed the main ideas to the experiment and its interpretation. For #20 and higher, I have corresponding authorship for all entries except those printed in italics. Students or postdocs in the author list for whom I was primary mentor (during my Habilitation at the University of Karlsruhe) or supervisor (at the University of Colorado) are underlined.
- For Journals that have article numbers instead of page numbers, the number of pages for each article is included, otherwise, inclusive page citation is used.
- Articles #35 and higher are from work done at least partially at the University of Colorado, unless marked with an asterisk.

7.1. Peer-Reviewed Journal Articles:

1. D. Klar, K. Ueda, J. Ganz, K. Harth, W. Bußert, S. Baier, J. M. Weber, M.-W. Ruf, H. Hotop
   "High resolution measurement and quantum defect analysis for the Ne nd' J=1, 2 and 3 autoionizing resonances"
   J. Phys. B. At. Mol. Opt. Phys. **27** (1994) 4897 – 4907.
2. J. M. Weber, M.-W. Ruf, H. Hotop
   "Rydberg electron transfer to C_{60} and C_{70}"
   Z. Phys. D - Atoms, Molecules and Clusters **37** (1996) 351 – 357.
3. A. Schramm, J. M. Weber, J. Kreil, D. Klar, M.-W. Ruf, H. Hotop
   "Laser Photoelectron Attachment to Molecules in a Skimmed Supersonic Beam: Diagnostics of Weak Electric Fields and Attachment Cross Sections Down to 20 μeV"
   Phys. Rev. Lett. **81** (1998) 778 – 781.
4. J. M. Weber, K. Hansen, M.-W. Ruf, H. Hotop
   "Penning ionisation of C_{60} and C_{70}"
   Chem. Phys. **239** (1998) 271 – 286.
5. J. M. Weber, E. Leber, M.-W. Ruf, H. Hotop
   "Nuclear-Excited Feshbach Resonances in Electron Attachment to Molecular Clusters"
   Phys Rev. Lett. **82** (1999) 516 – 519.
6. Schramm, I. I. Fabrikant, J. M. Weber, E. Leber, M.-W. Ruf, H. Hotop
   "Vibrational resonance and threshold effects in inelastic electron collisions with methyl iodide molecules"
   J. Phys. B: At. Mol. Opt. Phys. **32** (1999) 2153 – 2171.

7. J. M. Weber, K. Ueda, D. Klar, J. Kreil, M.-W. Ruf, H. Hotop
"Odd Rydberg spectrum of ^{40}Ar(I): high resolution laser spectroscopy and multichannel quantum defect analysis of the J=2 and 3 levels"
J. Phys. B: At. Mol. Opt. Phys. **32** (1999) 2381 – 2398.

8. J. Bömmels, J. M. Weber, A. Gopalan, N. Herschbach, E. Leber, A. Schramm, K. Ueda, M.-W. Ruf, H. Hotop
"Odd Rydberg spectrum of ^{40}Ar(I): high resolution laser spectroscopy and MQDT analyses of the nd, J=4 levels and the ng', J=4 resonances"
J. Phys. B: At. Mol. Opt. Phys. **32** (1999) 2399 – 2414.

9. J. M. Weber, E. Leber, M.-W. Ruf, H. Hotop
"Formation of small water cluster anions by attachment of very slow electrons at high resolution"
Eur. Phys. J. D **7** (1999) 587 – 594.

10. J. M. Weber, J. A. Kelley, S. B. Nielsen, P. Ayotte, M. A. Johnson
"Isolating the Spectroscopic Signature of a Hydration Shell with the Use of Clusters: Superoxide Tetrahydrate"
Science **287** (2000) 2461 – 2463.

11. E. Leber, S. Barsotti, J. Bömmels, J. M. Weber, I. I. Fabrikant, M.-W. Ruf, H. Hotop
"Vibrational Feshbach resonances in electron attachment to nitrous oxide clusters: decay into heterogeneous and homogeneous cluster anions"
Chem. Phys. Lett. **325** (2000) 345 – 353.

12. J. M. Weber, I. I. Fabrikant, E. Leber, M.-W. Ruf, H. Hotop
"Effects of solvation on dissociative electron attachment to methyl iodide clusters"
Eur. Phys. J. D **11** (2000) 247 – 256.

13. J. A. Kelley, J. M. Weber, K. M. Lisle, W. H. Robertson, P. Ayotte, M. A. Johnson
"The infrared predissociation spectra of $Cl^-\cdot H_2O\cdot Ar_n$ (n = 1 – 5): experimental determination of the influence of Ar solvent atoms"
Chem. Phys. Lett. **327** (2000) 1 – 6.

14. E. Leber, S. Barsotti, I. I. Fabrikant, J. M. Weber, M.-W. Ruf, H. Hotop
"Vibrational Feshbach resonances in electron attachment to carbon dioxide clusters"
Eur. Phys. J. D **12** (2000) 125 – 131.

15. J. M. Weber, J. A. Kelley, W. H. Robertson, M. A. Johnson
"Hydration of a structured excess charge distribution: infrared spectroscopy of the $O_2^-\cdot(H_2O)_n$, $(1 \leq n \leq 5)$ clusters"
J. Chem. Phys. **114** (2001) 2698 – 2706.

16. J. M. Weber, J. Kim, E. A. Woronowicz, G. H. Weddle, I. Becker, O. Cheshnovsky, M. A. Johnson
"Observation of resonant two-photon photodetachment of water cluster anions via femtosecond photoelectron spectroscopy"
Chem. Phys. Lett. **339** (2001) 337 – 342.

17. J. Bömmels, E. Leber, A. Gopalan, J. M. Weber, S. Barsotti, M.-W. Ruf, H. Hotop
"Energy broadening due to photoion space charge in a high resolution laser photoelectron source"
Rev. Sci. Instrum. **72** (2001) 4098 – 4105.

18. J. M. Weber, W. H. Robertson, M. A. Johnson
"Argon predissociation and electron autodetachment spectra of size selected $CH_3NO_2^-\cdot Ar_n$ clusters"
J. Chem. Phys. **115** (2001) 10718 – 10723.

19. K. Arnold, T. S. Balaban, M. N. Blom, O. T. Ehrler, S. Gilb, O. Hampe, J. E. van Lier, J. M. Weber, M. M. Kappes
"Electron Autodetachment from Isolated Nickel and Copper Phthalocyanine-Tetrasulfonate-Tetraanions: Isomer Specific Rates"
J. Phys. Chem. A **107** (2003) 794 – 803.

20. A. Schweizer, J. M. Weber, S. Gilb, H. Schneider, D. Schooss, M. M. Kappes
"Electronic photodissociation spectroscopy of $Au_4^+\cdot Ar_n$ (n = 0 - 4): experiment and theory"
J. Chem. Phys. **119** (2003) 3699 – 3710.

21. *W. H. Robertson, E. A. Price, J. M. Weber, J.-W. Shin, G. H. Weddle, M. A. Johnson*
"Infrared Signatures of a Water Molecule Attached to Triatomic Domains of Molecular Anions: Evolution of the H-Bonding Configuration With Domain Length"
*J. Phys. Chem. A **107** (2003) 6527 – 6532.*

22. O. T. Ehrler, J. M. Weber, F. Furche, M. M. Kappes
"Photoelectron Spectroscopy of C_{84} Dianions"
Phys. Rev. Lett. **91** (2003) art. no. 113006 (4 pages).

23. J. M. Weber and H. Schneider
"Infrared Spectra of $X^-\cdot CO_2\cdot Ar$ Cluster Anions (X = Cl, Br, I)"
J. Chem. Phys. **120** (2004) 10056 – 10061, erratum in J. Chem. Phys. **122** (2005), 069901 (1 page).

24. J. M. Weber, I. N. Ioffe, K. M. Berndt, D. Löffler, J. Friedrich, O. T. Ehrler, (A. S. Danell), (J. H. Parks), M. M. Kappes
"Photoelectron Spectroscopy of Isolated Multiply Negatively Charged Oligonucleotides"
J. Am. Chem. Soc. **126** (2004) 8585 – 8589.

25. *E. G. Diken, G. H. Weddle, J. M. Headrick, J. M. Weber, M. A. Johnson*
"Argon Cluster-Mediated Trapping and Vibrational Spectroscopic Characterization of an $OH^-\cdot HCH_2^\bullet$ Intermediate in the $O^{\bullet-} + CH_4$ Reaction"
*J. Phys. Chem. A **108** (2004) 10116 – 10121.*

26. O. T. Ehrler, F. Furche, J. M. Weber, M. M. Kappes
"Photoelectron spectroscopy of fullerene dianions C_{76}^{2-} , C_{78}^{2-} , C_{84}^{2-}"
J. Chem. Phys. **122** (2005) art. no. 094321 (8 pages).

27. *J.-W. Shin, N. I. Hammer, M. A. Johnson, H. Schneider, A. N. Glöß, J. M. Weber*
"An Infrared Investigation of the $(CO_2)_n^-$ Clusters: Core Ion Switching from Both the Ion and Solvent Perspectives"
*J. Phys. Chem. A **109** (2005) 3146 – 3152.*

28. J. M. Weber
"A pulsed ion source for the preparation of metal containing cluster ions using supersonic entrainment of laser vaporized metal"
Rev. Sci. Instrum. **76** (2005) art. no. 043301 (5 pages).

29. A. D. Boese, H. Schneider, A. N. Glöß, J. M. Weber
"The infrared spectrum of $Au^{-}\cdot CO_2$"
J. Chem. Phys. **122** (2005) art. no. 154301 (7 pages).

30. I. N. Ioffe, S. M. Avdoshenko, O. V. Boltalina, L. N. Sidorov, K. N. Berndt, J. M. Weber
"Mass spectrometry, photoelectron spectroscopy, and quantum chemical studies of fluorofullerene dianions"
Int. J. Mass Spectrom. **243** (2005) 223 – 230.

31. H. Schneider, A. D. Boese, J. M. Weber
"Unusual hydrogen bonding behavior in binary complexes of coinage metal anions with water"
J. Chem. Phys. **123** (2005) art. no. 084307 (6 pages).

32. H. Schneider, A. D. Boese, J. M. Weber
"Infrared spectra of $O_2^{-}\cdot(CO_2)_n$ clusters (n = 1 – 6): asymmetric docking at the π^* orbital"
J. Chem. Phys. **123** (2005) art. no. 074316 (6 pages).

33. *M. Braun, S. Barsotti, S. Marienfeld, E. Leber, J. M. Weber, M.-W. Ruf, H. Hotop*
"High resolution study of anion formation in low-energy electron attachment to SF_6 molecules in a seeded supersonic beam"
Eur. Phys. J. D ***35*** *(2005) 177 – 191.*

34. D. Löffler, J. M. Weber, M. M. Kappes
"Photodetachment spectroscopy of $PtBr_4^{2-}$: Probing the Coulomb barrier of a doubly charged anion"
J. Chem. Phys. **123** (2005) art. no. 224308 (6 pages).

35. H. Schneider, J. M. Weber
"Infrared spectra of $HC_2^{-}\cdot(C_2H_2)_n$ and $O_2^{-}\cdot(C_2H_2)_n$ clusters (n = 2 – 5)"
J. Chem. Phys. **125** (2006) art. no. 094307 (7 pages).

36. H. Schneider, J. M. Weber, E. M. Myshakin, K. D. Jordan, J. Bopp, T. Herden, M. A. Johnson
"Theoretical and infrared spectroscopic investigation of the $O_2^{-}\cdot$benzene and $O_4^{-}\cdot$benzene complexes"
J. Chem. Phys. **127** (2007) art. no. 084319 (6 pages).

37. H. Schneider, K. M. Vogelhuber and J. M. Weber
"Infrared spectroscopy of anionic hydrated fluorobenzenes"
J. Chem. Phys. **127** (2007) art. no. 114311 (7 pages).

38. H. Schneider, K. M. Vogelhuber, F. Schinle, and J. M. Weber
"Aromatic Molecules in Anion Recognition: Electrostatics versus H-Bonding"
J. Am. Chem. Soc. **129** (2007) 13022 – 13026.

39. H. Schneider, J. M. Weber
"Infrared spectra of $SF_6^-\cdot(H_2O)_n$ (n = 1 – 3): Incipient reaction and delayed onset of water network formation"
J. Chem. Phys. **127** (2007) art. no. 244310 (7 pages).

40. *A. N. Gloess, H. Schneider, J. M. Weber, and M. M. Kappes*
"Electronically excited states and visible region photodissociation spectroscopy of $Au_m^+\cdot Ar_n$ Clusters (m = 7-9): Molecular dimensionality transition?"
*J. Chem. Phys. **128** (2008) art. no. 114312 (9 pages).*

41. H. Schneider, K. M. Vogelhuber, F. Schinle, J. F. Stanton, J. M. Weber
"Vibrational spectroscopy of nitroalkane chains using Ar predissociation and electron autodetachment"
J. Phys. Chem. A **112** (2008) 7498 – 7506.

42. J. C. Marcum, A. Halevi, and J. M. Weber
"UV Photodamage to Isolated Mononucleotides Photodissociation Spectra and Fragment Channels"
Phys. Chem. Chem. Phys. **11** (2009) 1740 – 1751.

43. C. L. Adams, H. Schneider, K. M. Ervin, J. M. Weber
"Low-energy photoelectron imaging spectroscopy of nitromethane anions: Electron affinity, vibrational features, anisotropies, and the dipole-bound state"
J. Chem. Phys. **130** (2009) art. no. 074307 (10 pages).

44. H. Schneider, K. Takahashi, R. T. Skodje, and J. M. Weber
"Infrared spectra of $SF_6^-\cdot HCOOH\cdot Ar_n$ (n = 0 – 2): Infrared-triggered reaction and Ar-induced inhibition"
J. Chem. Phys., **130** (2009) art. no. 174302 (10 pages).

45. J. C. Marcum, J. M. Weber
"Electronic photodissociation spectra and decay pathways of gas-phase $IrBr_6^{2-}$"
J. Chem. Phys., **131** (2009) art. no. 194309 (8 pages).

46. C. L. Adams, H. Schneider, J. M. Weber
"Vibrational Autodetachment – Intramolecular Vibrational Relaxation Translated Into Electronic Motion", J. Phys. Chem. A, **114** (2010) 4017 – 4030, Corrections: J. Phys. Chem. A, **114** (2010) 8021 and **115** (2010) 8588.

47. J. C. Marcum, J. M. Weber
"Microsolvation of nitromethane anions from both a solute and solvent perspective"
J. Phys. Chem A **114** (2010) 8933 – 8938.

48. J. C. Marcum, S. H. Kaufman, J. M. Weber
"UV-photodissociation of cyclic and non-cyclic nucleotides"
Int. J. Mass Spectrom. **303** (2011) 129 – 136.

49. J. C. Marcum, S. H. Kaufman, J. M. Weber
"Gas-phase experiments on Au(III) photochemistry"
J. Phys. Chem. A **115** (2011) 3006 – 3015.

50. C. L. Adams, J. M. Weber
"Photoelectron imaging spectroscopy of nitroethane anions"
J. Chem. Phys. **134** (2011) art. no. 244301 (8 pages).

51. J. C. Marcum, A. I. Krylov, J. M. Weber
"Spectroscopy and Fragmentation of Undercoordinated Bromoiridates"
J. Phys. Chem. A **115** (2011) 13482 – 13488.

52. C. L. Adams, B. J. Knurr, J. M. Weber
"Photoelectron spectroscopy of 1-nitropropane and 1-nitrobutane anions"
J. Chem. Phys. **136** (2012) art. no. 064307 (9 pages).

53. E. A. Pozzi, L. R. Schwall, R. Jimenez, J. M. Weber
"Pressure-Induced Changes in the Fluorescence Behavior of Red Fluorescent Proteins"
J. Phys. Chem. B **116** (2012) 10311 – 10316.

54. B. J. Knurr, C. L. Adams, J. M. Weber
"Infrared spectroscopy of hydrated naphthalene cluster anions"
J. Chem. Phys. **137** (2012) art. no. 104303 (9 pages).

55. B. J. Knurr, J. M. Weber
"Solvent-Driven Reductive Activation of Carbon Dioxide by Gold Anions"
J. Am. Chem. Soc. **134** (2012) 18804 – 18808.

56. S. H. Kaufman, J. M. Weber
"Spectroscopy and Photochemistry of Sodium Chromate Ester Cluster Ions"
J. Phys. Chem. A **117** (2013) 2144 – 2151.

57. J. Houmøller, S. H. Kaufman, K. Støchkel, L. C. Tribedi, S. B. Nielsen, J. M. Weber
"On the Photoabsorption by Permanganate Ions in Vacuo and the Role of a Single Water Molecule. New Experimental Benchmarks for Electronic Structure Theory"
ChemPhysChem **14** (2013) 1133 – 1137 (featured on journal cover).

58. B. J. Knurr, A. B. McCoy, J. M. Weber
"Vibrationally induced charge transfer in a bimolecular model complex *in vacuo*"
J. Chem. Phys. **138** (2013) 224301 (6 pages).

59. B. J. Knurr, J. M. Weber
"Solvent-Mediated Reduction of Carbon Dioxide in Anionic Complexes with Silver Atoms"
J. Phys. Chem. A **117** (2013) 10764 – 10771.

60. S. H. Kaufman, J. M. Weber, M. Pernpointner,
"Electronic structure and UV spectrum of hexachloroplatinate dianions in vacuo"
J. Chem. Phys. **139** (2013) art. no. 194310 (10 pages).

61. B. J. Knurr, J. M. Weber
"Infrared Spectra and Structures of Anionic Complexes of Cobalt with Carbon Dioxide Ligands"
J. Phys. Chem. A **118** (2014) 4056 – 4062.

62. B. J. Knurr, J. M. Weber
"Interaction of Nickel with Carbon Dioxide in $[Ni(CO_2)_n]^-$ Clusters Studied by Infrared Spectroscopy"
J. Phys. Chem. A, **118** (2014) 8753 – 8757.

63. S. H. Kaufman, J. M. Weber
"Photodissociation Spectroscopy of the Anionic Copper Nitrate Association Complex $Cu(NO_3)_3^-$"
J. Phys. Chem. A **118** (2014) 9687 – 9691.

64. J. M. Weber
"The interaction of negative charge with carbon dioxide - insight into solvation, speciation and reductive activation from cluster studies"
Int. Rev. Phys. Chem. **33** (2014) 489 – 519.

65. B. J. Knurr, J. M. Weber
"Structural Diversity of Copper-CO_2 Complexes: Infrared Spectra and Structures of $[Cu(CO_2)_n]^-$ Clusters"
J. Phys. Chem. A **118** (2014) 10246 – 10251.

66. *C. Skinnerup Byskov, J. M. Weber, S. Brøndsted Nielsen*
"Gas-phase spectroscopy of singly reduced tris(bipyridine)ruthenium ions, $Ru(bipy)_3^+$"
*Phys. Chem. Chem. Phys. **17** (2015) 5561 – 5564.*

67. B. J. Knurr, J. M. Weber
"Structures of $[CoO(CO_2)_n]^-$ and $[NiO(CO_2)_n]^-$ Clusters Studied by Infrared Spectroscopy"
J. Phys. Chem. A **119** (2015) 843 – 850.

68. M. C. Thompson, J. H. Baraban, D. A. Matthews, J. F. Stanton, J. M. Weber
"Heavy atom vibrational modes and low-energy vibrational autodetachment in nitromethane anions"
J. Chem. Phys. **142** (2015) art. no. 234304 (6 pages).

69. S. Xu, S. Gozem, C. R. Christopher, A. I. Krylov, J. M. Weber
"Ligand Influence on the Electronic Spectra of Monocationic Copper-Bipyridine Complexes"
Phys. Chem. Chem. Phys. **17** (2015) 31938 – 31946.

70. S. Xu, J. M. Weber
"Absorption Spectrum of a Ru(II)-Aquo Complex in Vacuo: Resolving Individual Charge Transfer Transitions"
J. Phys. Chem. A **119** (2015) 11509 – 11513.

71. M. C. Thompson, J. M. Weber
"Infrared spectroscopic studies on the cluster size dependence of charge carrier structure in nitrous oxide cluster anions"
J. Chem. Phys. **144** (2016) art. no. 104302 (7 pages).

72. S. Xu, J. E.T. Smith, J. M. Weber
"Ligand Influence on the Electronic Spectra of Dicationic Ruthenium-Bipyridine-Terpyridine Complexes"
J. Phys. Chem. A, **120** (2016) 2350 – 2356.

73. S. Xu, J. E.T. Smith, J. M. Weber
"The electronic spectrum of cryogenic ruthenium-tris-bipyridine dications *in vacuo*"
J. Chem. Phys. **145** (2016) art. no. 024304 (6 pages).

74. S. Xu, J. E.T. Smith, J. M. Weber
"Hydration of a Binding Site With Restricted Access: Solvatochromic Shift of the Electronic Spectrum of a Ruthenium Polypyridine Complex, One Molecule at a Time"
J. Phys. Chem. A **120** (2016) 7650 – 7658.

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"UV Spectra of Tris(2,2'-bipyridine)-M(II) Complex Ions in Vacuo (M = Mn, Fe, Co, Ni, Cu, Zn)"
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"Enhancement of infrared activity by moving electrons through bonds – The case of CO_2 anion and carboxylate"
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"Electronic Spectra of Tris(2,2′-Bipyridine)-M(II) Complex Ions in Vacuo (M = Fe and Os)"
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"Infrared Photodissociation Spectra of $[Sn(CO_2)_n]^-$ Cluster Ions"
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"Vibrational Autodetachment from Anionic Nitroalkane Chains - From Molecular Signatures to Thermionic Emission"
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7.2. Book Chapters (editorial review only)

1. J. Mathias Weber, J. C. Marcum, S. B. Nielsen
"UV Photophysics of DNA and RNA Nucleotides in Vacuo: Dissociation Channels, Time Scales, and Electronic Spectra", in "Photophysics of Ionic Biochromophores" (S. Brøndsted Nielsen, J. A. Wyer, eds.), pp. 181-207, Springer-Verlag, Berlin Heidelberg, 2013

2. J. Mathias Weber
"Gas Phase Chemistry of Gold", in "The Chemistry of Organogold Compounds" (Zvi Rappoport, Ilan Marek, Joel Liebman, eds.), John Wiley and Sons, Chichester, UK, 2014, pp. 41–56

7.3. Other Articles (not peer-reviewed):

1. J. Kreil, J. M. Weber, D. Klar, A. Schramm, M.-W. Ruf, H. Hotop
"Attachment of Very Slow Electrons to Molecules and Clusters"
Symp. Atomic, Cluster and Surface Physics 1994 Contributions pp. 339-342 (T. D. Märk, R. Schrittwieser, D. Smith, eds.) Maria Alm, Austria, 20-26 March 1994
2. H. Hotop, D. Klar, J. Kreil, M.-W. Ruf, A. Schramm, J. M. Weber
"Studies of Low Energy Electron Collisions at Sub-meV Resolution"
in "The Physics of Electronic and Atomic Collisions", Proc. 19th ICPEAC, Whistler, Canada, 26 July - 1 August 1995, Eds: L. J. Dubé, J. B. A. Mitchell, J. W. McConcey, C. E. Brion, AIP Conference Proceedings **360** (1995) AIP Press, New York
3. J. M. Weber, K. Ueda, J. Kreil, M.-W. Ruf and H. Hotop
"High-Resolution Laser Spectroscopy and Multichannel Quantum Defect Analysis on Odd Rydberg Levels of ^{40}Ar"
XIX ICPEAC, Whistler, British Columbia, Canada, 26 July - 1 August 1995, Abstracts of Contributed Papers, p. 648 (J. B. A Mitchell, J. W. McConcey, C. E. Brion, eds.)
4. E. Leber, I. I. Fabrikant, J. M. Weber, M.-W. Ruf, H. Hotop
"Resonance and Threshold Phenomena in Electron Attachment to Molecules and Clusters"
Proc. 4th Int. Conf. on Diss. Recombination: Theory, Experiment, and Applications, June 16 - 20, 1999, Nässlingen (Sweden), World Scientific, Singapore
5. E. Leber, J. M. Weber, I. I. Fabrikant, A. Gopalan, S. Barsotti, M.-W. Ruf, H. Hotop
"Vibrational Feshbach Resonances in Electron Attachment to Molecular Clusters"
XXI ICPEAC, Sendai, Japan, 1999, Abstracts of Contributed Papers
6. E. Leber, J. M. Weber, S. Barsotti, M.-W. Ruf, H. Hotop
"Narrow Vibrational Feshbach Resonances in Low-Energy Electron Attachment to Molecular Clusters", Int. Symposium on Electron-Molecule Collisions and Swarms, July 18 – 20, 1999, Koto-ku, Tokyo, Japan, Contributed Papers
7. E. A. Woronowicz, A. R. Keimowitz, G. H. Weddle, J. M. Weber, M. A. Johnson
"Observation of resonant two-photon photodetachment of water cluster anions via femtosecond photoelectron spectroscopy". Abst. Pap. Am. Chem. Soc. 222: 217 Part 2 (PHYS) 2001
8. J. M. Weber, O. T. Ehrler, (F. Furche), M. M. Kappes
"Photoelectron spectroscopy of gas phase fullerene dianions"
Abst. Pap. Am. Chem. Soc. **227**: 215 Part 2 (PHYS) 2004.
9. J. M. Weber, H. Schneider, K. M. Vogelhuber
"Interaction of water with extended anionic charge distributions"
Abst. Pap. Am. Chem. Soc. **234**: 242-PHYS, 2007.

10. J. M. Weber
    "One Ring to Rule Them All", JILA: Light & Matter, Winter 2008, 6 – 7

11. J. M. Weber
    Infrared spectroscopic probes of molecular interactions in anionic complexes and clusters
    Abst. Pap. Am. Chem. Soc. **236**: 48-PHYS, 2008

12. J. M. Weber
    "Low-energy photoelectron spectroscopy of nitroalkane anions"
    Abst. Pap. Am. Chem. Soc. **238**: 291-PHYS, 2009

13. J. C. Marcum, J. M. Weber
    "Electronic photodissociation spectra and decay pathways of gas-phase $IrBr_6^{2-}$"
    Abst. Pap. Am. Chem. Soc. **239**: 397-PHYS, 2010

14. J. C. Marcum, S. H. Kaufman, J. M. Weber
    "Exploring the photoreduction of Au(III) complexes in the gas-phase"
    Abst. Pap. Am. Chem. Soc. **240**: 72-AEI, 2010

8. Invited Talks

1. "Anlagerung langsamer Elektronen an Moleküle und Cluster", Conference of the German Science Foundation on Molecular Clusters, Niederpöcking, Germany, June 1998

2. "Resonanzen und Schwelleneffekte bei der Anlagerung langsamer Elektronen an Moleküle und Cluster", Seminar, Department of Physics, University of Freiburg, Germany, Jan. 1999

3. "Anlagerung langsamer Elektronen an Moleküle und Cluster", Main Talk, DPG Spring Meeting, Heidelberg, Germany, March 1999

4. "Attachment of slow electrons to molecules and clusters", Physical Chemistry Graduate Student Seminar, Yale University, New Haven, CT, USA, April 1999

5. "Anlagerung langsamer Elektronen an Moleküle und Cluster", Award Winner's Talk on the occasion of receiving the Wolfgang-Paul-Award of the Deutsche Gesellschaft für Massenspektrometrie (DGMS), 32. DGMS Conference, Carl-von-Ossietzky-University, Oldenburg, Germany, May 1999

6. "Attachment of slow electrons to molecules and clusters at very high resolution", Gordon Research Conference on Photoions, Photoionization, and Photodetachment, Plymouth, NH, USA, July 1999

7. "Ions on the Rocks: Infrarotspektroskopie an kalten hydratisierten Anionen in der Gasphase", Physical Chemistry Group Seminar (Prof. Dr. F. Merkt) at the ETH Zürich, Switzerland, Nov. 1999

8. "Ions on the Rocks: Infrarotspektroskopie an kalten hydratisierten Anionen in der Gasphase", Special Seminar of the Research Group "Low Energy Electron Collisions", University of Kaiserslautern, Germany, Nov. 1999

9. “Ions on the Rocks: IR-Spektroskopie an kalten Clusteranionen in der Gasphase“, Physical Chemistry Group Seminar (Prof. Dr. B. Brutschy) at the Johann-Wolfgang-Goethe-University, Frankfurt / Main, Germany, April 2000

10. “Ions on the Rocks: IR-Spektroskopie an kalten Clusteranionen in der Gasphase“, Physical Chemistry Group Seminar (Prof. Dr. M. M. Kappes), University of Karlsruhe, April 2000

11. “Infrarotspektroskopie an kalten molekularen Clusteranionen“, Clustersymposium 2001, Herzogenhorn, Germany, Oct. 2001

12. “Ions on the Rocks: Infrarotspektroskopie an kalten anionischen Clustern in der Gasphase“, Group Seminar (Prof. Dr. Drs. h. c. H. Schwarz), Technical University of Berlin, Germany, April 2002

13. “Experiments on multiply-charged anions in the gas phase“, Workshop of the Research Group “Low Energy Electron Collisions”, University of Kaiserslautern, Germany, April 2003

14. “Photoelectron spectroscopy of gas phase fullerene dianions“, National Meeting of the American Chemical Society, Anaheim, CA, USA, April 2004

15. “Photoelectron spectroscopy of isolated multiply negatively charged oligonucleotides“, Molecules of Biological Interest in the Gas Phase, Exeter, United Kingdom, April 2004

16. “Experiments on Isolated Multiply Charged Anions“, Institut für Physikalische Chemie, Universität Heidelberg, Germany, April 2004

17. “Untersuchungen an negativen Ionen: Photoelektronen-Spektroskopie und Infrarot-Spektroskopie“, Physical Chemistry Seminar, University of Kaiserslautern, Germany, May 2004

18. “Laserspektroskopie an isolierten Ionen – Von kleinen Aggregaten und großen Molekülen“, Physics Colloquium, Johann-Wolfgang-Goethe Universität Frankfurt, Germany, Nov. 2004

19. “Laserspektroskopie an negativen Clusterionen – Strukturaufklärung molekularer Aggregate“, Special Colloquium in Physics, Technische Universität Berlin, Germany, Dec. 2004

20. “Infrared Spectra of Molecular Cluster Anions“, Special Symposium in Physical Chemistry, Yale University, New Haven, CT, USA, Dec. 2004

21. “Laser Spectroscopy of Ions – Small Aggregates and Large Molecules“, Special Colloquium, JILA and Department of Chemistry and Biochemistry, University of Colorado, Boulder, CO, USA, Dec. 2004

22. “Infrarot-Spektroskopie an negativ geladenen Ion-Molekül-Komplexen und Cluster-Anionen“, Physikalisch-Chemisches Kolloquium, University of Karlsruhe, Germany, May 2005

23. “Infrarot-Spektroskopie an negativ geladenen Ion-Molekül-Komplexen und Cluster-Anionen“, Physikalisch-Chemisches Kolloquium, University of Marburg, Germany, June 2005

24. “Infrarot-Spektroskopie an negativ geladenen Ion-Molekül-Komplexen und Cluster-Anionen“, Physikalisch-Chemisches Kolloquium, Johann-Wolfgang-Goethe-Universität, Frankfurt am Main, Germany, July 2005

25. “Photoelectron spectroscopy of isolated multiply negatively charged oligonucleotides“, Low Energy Electron-Molecule Interaction, Smolenice, Slovakia, Oct. 2005

26. “Photodetachment from doubly charged anions – from small molecules to nanoparticles“, Gordon Research Conference on Photoions, Photoionization, and Photodetachment, Ventura, CA, USA, Feb. 2006

27. “Infrared spectroscopy of gas-phase anions“, OSEP Seminar Series, JILA, University of Colorado, Boulder, CO, USA, March 2006

28. “Gas phase experiments on nucleotides“, Department of Pharmacology, University of Colorado Health Sciences Center, Aurora, CO, USA, Sept. 2006

29. “Probing the molecular structure of ions by photodissociation spectroscopy“, New Laser Scientists Conference, Rochester, New NY, USA, Oct. 2006

30. “Good vibrations – Infrared spectroscopy of anions by photodissociation and photodetachment“, AMOP Seminar, Department of Physics, University of Nebraska, Lincoln, NE, USA, Nov. 2006

31. “Infrared spectroscopy of anions by photodissociation and photodetachment“, Workshop “Horizons in Vibrational Spectroscopy with Free Electron Lasers”, Ringberg, Germany, Feb. 2007

32. “Infrared spectroscopy of anions by photodissociation and photodetachment“, Workshop “Vibrational Dynamics”, Telluride, CO, USA, Aug. 2007

33. “Good vibrations – Infrared spectroscopy of anions by photodissociation and photodetachment“, Physical Chemistry Colloquium, University of Texas at Austin, TX, USA, Sept. 2007

34. “Infrared spectroscopic probes of molecular interactions in anionic complexes and clusters“, National Meeting of the American Chemical Society, Philadelphia, PA, USA, Aug. 2008

35. “Gas Phase Ion Spectroscopy - Clusters, Chains, and Biomolecules”, Workshop of the Physical & Chemical Graduate School Göttingen and the Dahlem Research School of Molecular Science, Berlin, Germany, Sept. 2008

36. “Vibrational Autodetachment in Molecular Anions“, Control of Molecular Processes Induced by Electrons and Photons, Rome, Italy, Oct. 2008

37. “Ion spectroscopy of small and "large" molecules”, Physical Chemistry Colloquium, University of Notre Dame, Notre Dame, IN, USA, Feb. 2009

38. “Infrared spectroscopy of cluster anions“, Gordon Research Conference on Gaseous Ions, Galveston, TX, USA, March 2009

39. “Ion spectroscopy of small and "large" molecules” Physical Chemistry Colloquium, Colorado State University, Fort Collins, CO, USA, April 2009

40. “Ion spectroscopy of small and "large" molecules” Physical Chemistry Colloquium, University of Illinois, Urbana-Champaign, IL, USA, April 2009

41. “Ion spectroscopy of small and "large" molecules” Physical Chemistry Colloquium, University of Indiana, Bloomington, IN, USA, April 2009

42. “Ion spectroscopy of small and "large" molecules”, Physical Chemistry Colloquium, Yale University, New Haven, CT, USA, May 2009

43. “Clusters”, Introductory talk on cluster spectroscopy, Dynamics of Molecular Collisions Meeting, Snow Bird, UT, USA, July 2009

44. “Vibrational Autodetachment from Nitroalkane Anions”, ACS National Meeting, Washington (DC), Aug. 2009

45. “Infrared and Photoelectron Spectroscopy of Anions”, Physical Chemistry Colloquium, University of Nevada, Reno, NV, USA, Sept. 2009

46. “Infrared and Photoelectron Spectroscopy of Anions”, Chemistry Colloquium, Baylor University, Waco, TX, USA, Oct. 2009

47. “Photoelectron Imaging Studies on Vibrational Autodetachment”, Gordon Research Conference on Photoions, Photoionization & Photodetachment, Galveston, TX, USA, Feb. 2010

48. “Infrared spectroscopic probes of the hydration of large anionic charge distributions using clusters”, 4th Jekyll Island Conference on Clusters and Nanostructures, Jekyll Island, GA, USA, Feb. 2010

49. “Infrared spectroscopic probes of the hydration of large anionic charge distributions using clusters”, ACS National Meeting, San Francisco, CA, USA, March 2010

50. “Spectroscopic Probes of Molecular and Cluster Ions”, Physical Chemistry Colloquium, Universität Würzburg, Germany, July 2010

51. “Photodissociation and Photoelectron Spectroscopy of Anions”, Molecular Physics Seminar, Fritz-Haber-Institut, Berlin, Germany, July 2010

52. “Photodissociation and Photoelectron Spectroscopy of Anions”, Molecular Physics Seminar, Aarhus University, Denmark, July 2010

53. “Solution chemistry of ions outside the beaker – Gas phase spectroscopy of anionic molecules and clusters”, Physical Chemistry Colloquium, University of Southern California, Los Angeles, CA, USA, Oct. 2010

54. “Solution chemistry of ions outside the beaker – Gas phase spectroscopy of anionic molecules and clusters”, Physical Chemistry Colloquium, University of Utah, Salt Lake City, UT, Oct. 2010

55. “Solution chemistry of ions outside the beaker – Gas phase spectroscopy of anionic molecules and clusters”, Physical Chemistry Colloquium, University of Pennsylvania, Philadelphia, PA, USA, Oct. 2010

56. “The molecular picture – Vibrational and electronic processes studied by gas phase ion spectroscopy”, Physical Chemistry Colloquium, University of British Columbia, Vancouver, BC, Canada, Oct. 2010

57. “Solution chemistry of ions outside the beaker – Gas phase spectroscopy of anionic molecules and clusters”, Physical Chemistry Colloquium, University of California, Berkeley, CA, USA, Oct. 2010

58. “Solution chemistry of ions outside the beaker – Gas phase spectroscopy of anionic molecules and clusters”, Chemistry Colloquium, University of Kentucky, Lexington, KY, Oct. 2010

59. “Solution chemistry of ions outside the beaker – Gas phase spectroscopy of anionic molecules and clusters”, Physical Chemistry Colloquium, University of California, Santa Barbara, CA, USA, Nov. 2010

60. “Solution chemistry of ions outside the beaker – Gas phase spectroscopy of anionic molecules and clusters”, Physical Chemistry Colloquium, The Ohio State University, Columbus, OH, USA, Nov. 2010

61. “Solution chemistry of ions outside the beaker – Gas phase spectroscopy of anionic molecules and clusters”, Physical Chemistry Colloquium, Brown University, Providence, RI, USA, Dec. 2010

62. “UV Response of Nucleotide Ions in the Gas Phase”, Astrobiology Seminar, University of Colorado, Boulder, CO, USA, Jan. 2011

63. “Spectroscopy of Hydrogen Bonded Clusters”, Gordon Research Conference on Gaseous Ions, Introductory Talk for Session on Clusters, Galveston, TX, USA, Feb. 2011

64. “Vibrational autodetachment: Intramolecular vibrational relaxation to electronic motion”, 4th International Workshop on Electrostatic Storage Devices (ESD 2011), Gatlinburg, TN, USA, June 2011

65. “Gas Phase Studies of Ion-Solvent Interactions – Water Networks, Ion Reactivity and Photochemistry”, Special Colloquium, Department of Chemistry & Biochemistry, University of Colorado at Boulder, CO, Oct. 2011

66. “Light-triggered reactions in small molecular ions”, Physical Chemistry Colloquium, Johns Hopkins University, Baltimore, MD, USA, Nov. 2011

67. “Vibrational Spectroscopy of Cluster Anions”, 59th Western Spectroscopy Association Meeting, Asilomar, CA, USA, Jan. 2012

68. “Vibrational Spectroscopy of Cluster Anions”, Gordon Research Conference on Molecular and Ionic Clusters, Ventura, CA, USA, Jan. 2012

69. “Vibrational activation of electron emission and transfer”, Telluride Workshop "Spectroscopy and Dynamics on Multiple Potential Energy Surfaces," Telluride, CO, USA, July 2012

70. “Charge redistribution and charge transfer reactions in clusters”, Gordon Research Conference on Vibrational Spectroscopy, Biddeford, MN, USA, Aug. 2012

71. “Fragile Electronic States - Detaching Weakly Bound Electrons from Molecular Anions”, Atomic, Molecular and Optical Physics Seminar, Aarhus University, Denmark, Sept. 2012

72. “Good Vibrations – Spectroscopy of Ion-Molecule Complexes and Clusters”, Chemistry Colloquium, University of Copenhagen, Denmark, Sept. 2012

73. “Transition Metal Complexes *In Vacuo*”, Chemistry Seminar, Washington University, St. Louis, MO, USA, Nov. 2012

74. “Molecular Level Insight into the Chemistry of Transition Metal Complexes – Spectroscopy of Mass-Selected Clusters in Vacuo”, University of Wisconsin, Madison, WI, USA, April 2013

75. “Solvent-Driven Reductive Activation of CO_2 by Gold and Silver Anions”, International Conference on Chemical Bonding, Kauai, HI, USA, July 2013

76. “Effects of Solvation on Transition Metal Complexes”, Physical Chemistry Colloquium, Universität Kaiserslautern, Germany, July 2013

77. “Vibrationally Triggered Autodetachment and Electron Transfer from Nitroalkane Anions” Gordon Research Conference on Photoionization and Photodetachment, Galveston, TX, USA, February 2014

78. “Anionic Transition Metal Complexes with CO_2”, Telluride Workshop "Spectroscopy and Dynamics on Multiple Potential Energy Surfaces," Telluride, CO, USA, July 2014

79. “Photodissociation of Mass-Selected Ions – Spectroscopy and Fragmentation Channels” - 24th Winter I-APS Conference, Lido Beach Resort, Sarasota, FL, USA, January 2015

80. “Molecular Level Insight into the Chemistry of Transition Metal Complexes – Spectroscopy of Mass-Selected Ions *in Vacuo*”, Hebrew University, Jerusalem, Israel, February 2015

81. “Solvation Effects on Structure and Charge Distribution in Anionic Clusters”, March Meeting of the American Physical Society, San Antonio, TX, USA, March 2015

82. “Molecular Level Insight into the Chemistry of Transition Metal Complexes – Spectroscopy of Mass-Selected Ions *in Vacuo*”, Hiroshima University, Japan, June 2015

83. “Trap-Aided Spectroscopy of Transition Metal Complexes”, 6th International Workshop on Electrostatic Storage Devices, Tokyo, Japan, June 2015

84. “Infrared spectroscopy of metal-CO_2 complexes – Candidates for large amplitude vibrations?” ACS National Meeting, San Diego, CA, USA, March 2016

85. “Molecular Level Insight into the Chemistry of Transition Metal Complexes – Spectroscopy of Mass-Selected Ions *in Vacuo*”, Universität Würzburg, Würzburg, Germany, July 2016

86. “Molecular Level Insight into the Chemistry of Transition Metal Complexes – Spectroscopy of Mass-Selected Ions *in Vacuo*”, University of Florida, Gainsville, FL, USA, November 2016

87. “Effects of excited state dynamics on the linewidth of electronic spectra of large molecular ions”, Workshop From Ultrafast to Ultraslow Dynamics in Molecules and Clusters, Weizmann Institute of Science, Rehovot, Israel, January 2017

88. “Molecular Level Insight into the Chemistry of Transition Metal Complexes and Catalysis – Spectroscopy of Mass-Selected Ions in Vacuo”, Frontiers in Physical Chemistry Lecture, Department of Chemistry, University of Wyoming, Laramie, WY, USA, March 2017

89. “UV Photofragmentation of Nucleotides ... and Others”, Workshop Photophysics of Biomolecular Ions, Telluride, CO, USA, July 2017

90. “Metal-Ligand Motifs in Metal-CO_2 Cluster Anions”, Gordon Research Conference on Molecular & Ionic Clusters, Barga, Italy, February 2018

91. “Molecular Level Insight into the Chemistry of Transition Metal Complexes - Spectroscopy of Mass Selected Ions”, Wilhelm-Ostwald-Institut, Universität Leipzig, Leipzig, Germany, June 2018

92. “Molecular Level Insight into the Chemical Physics of Ions – Spectroscopy of Mass Selected Ions in Vacuo”, Institut für Ionenphysik, Universität Innsbruck, Innsbruck, Austria, June 2018

93. “Molecular Level Insight into the Chemistry of Transition Metal Complexes - Spectroscopy of Mass Selected Ions”, Fritz-Haber-Institut, Berlin, Germany, June 2018

94. “Interaction of CO_2 with transition metal atoms – from models for CO_2 reduction catalysis to metal-organic complexes”, Gordon Research Conference on Molecular Interactions, Stone Hill College, Easton, MA, USA, July 2018

95. “Electronic Spectra of Ionic Molecules and Complexes Prepared in a Cryogenic Ion Trap”, Gordon Research Conference on Gaseous Ions, Ventura, CA, USA, February 2019

96. “Electronic and Vibrational Information on Solution Species from Cryogenic Ion Spectroscopy”, National Meeting of the American Chemical Society, Orlando, FL, USA, April 2019

97. ”Cryogenic Ion Spectroscopy of Biochromophores”, Tokyo Institute of Technology, Yokohama, Japan, October 2019

98. ”Cryogenic Ion Spectroscopy of Biochromophores”, Karlsruhe Institute of Technology, Karlsruhe, Germany, November 2019

99. ”Cryogenic Ion Spectroscopy of Biochromophores”, Radboud University, Nijmegen, Netherlands, November 2019

100. “Cryogenic Ion Spectroscopy of Phenolate Chromophores, University of Colorado, Boulder, CO, USA, October 2020

101. “Spectra of Biochromophores Prepared in a Cryogenic Ion Trap”, Physics Frontier Center Colloquium, JLA, University of Colorado, Boulder, CO, March 2022

102. “Cryogenic Ion Spectroscopy of Metal-EDTA Complexes”, Workshop on Spectroscopy and Dynamics on Multiple Potential Energy Surfaces, Telluride, CO, July 2022

103. “Cryogenic Ion Spectroscopy of Metal-EDTA Complexes”, Physics Frontier Center Colloquium, JLA, University of Colorado, Boulder, CO, March 2023

104. “Combining Mass and Spectral Analysis – Photodissociation Spectroscopy of Mass-Selected Ions”, Jet Propulsion Laboratory, Pasadena, CA, March 2023

105. “Structure and Dynamics of Water Networks and Water-Surface Interactions in PAH-Water Cluster Anions”, 42nd Annual Gas Phase Chemical Physics PI Meeting, Rockville, MD, May 2023

106. “Host-Guest Interactions in Chelation and Molecular Recognition Probed by Cryogenic Ion Vibrational Spectroscopy”, International Conference on Molecular Bonding, Kapa’a, HI, July 2023

107. “Investigating Anion Molecular Recognition Complexes with Cryogenic Ion Vibrational Spectroscopy”, Workshop on Spectroscopy and Dynamics on Molecular Potential Surfaces, Telluride, CO, July 2024

108. “A New Perspective on Chelation and Molecular Recognition of Ions – Spectroscopy of Isolated Supramolecular Ion Complexes in Vacuo and Solution”, Department of Chemistry, Brown University, Providence, RI, February 2025

109. “Vibrational Spectroscopy of Ions in Astrochemical Context”, Physics Frontier Center Colloquium, JLA, University of Colorado, Boulder, CO, March 2025

9. Teaching Experience

Entries in Italics pertain to teaching experience before joining the University of Colorado

Classes:

- *Advanced Physical Chemistry Laboratory Class in Physical Chemistry, including Student's Seminar (University of Karlsruhe, Winter 2001 – Summer 2003, 4 semesters). At the end of my time coaching this class, I headed a committee improving the content, procedures and grading concepts of the Student's Seminar.*
- *Molecular Spectroscopy II (University of Karlsruhe, special class for advanced chemistry students, 2 hours per week, Summer 2004; this class had not been taught previously)*
- *Molecular Spectroscopy I (University of Karlsruhe, regular class for advanced chemistry students, 2 hours per week, 1st half of Winter 2005/06)*
- CHEM 1134: General Chemistry 2 Laboratory (Freshman/Sophomore Undergraduate Level, University of Colorado, Fall 2020, Fall 2021)
- CHEM 4511: Physical Chemistry 1 (Junior/Senior Undergraduate Level, University of Colorado, Spring 2015, Fall 2016, Fall 2017, Spring 2023)
- CHEM 4531: Physical Chemistry 2 (Junior/Senior Undergraduate Level, University of Colorado, Spring 2007, Spring 2008, Spring 2010, Spring 2011, Fall 2011)
- CHEM 4581/4591: Physical Chemistry Laboratory I and II (Undergraduate Level, University of Colorado, Spring 2013, Spring 2016, Fall 2018, Fall 2022, Fall 2023)
- CHEM 5501/CHEM 6411: Advanced Topics in Physical Chemistry (Graduate Level, University of Colorado, Fall 2009, team-taught with Prof. David Nesbitt in Fall 2010)
- CHEM 5541: Chemical Dynamics (Graduate Level, University of Colorado, Fall 2023)
- CHEM 5581: Graduate Level Introductory Quantum Chemistry (University of Colorado, Fall 2006, Fall 2007, Fall 2008, Fall 2014, Fall 2015)
- CHEM 5591: Advanced Molecular Spectroscopy (Graduate Level, University of Colorado, Spring 2012, Spring 2013, Spring 2014, Spring 2018, Spring 2019, Spring 2020, Spring 2021, Spring 2022)
- CHEM 6401: Physical Chemistry Seminar (Graduate Level Seminar, University of Colorado, Fall 2008, Spring 2009, Fall 2016, Spring 2017)

Coaching Students:

- *Coaching Diplom Students during my PhD work, University of Kaiserslautern (Pascal Marinkovic, Jürgen Bömmels)*
- *Undergraduate Students (University of Karlsruhe): Oliver Ehrler (2001/02), Dimitri Rappoport (2002), Andreas Reisinger (2001/02), Holger Schneider (2002-2004), Daniel Löffler (2003), Katia Berndt (2003/04), Anne Lechtken (2003/04)*
- *Diplom Students (University of Karlsruhe): Alexia Schweizer (2001/02), Oliver Ehrler (2002), Holger Schneider (2004), Katia Matheis (2005)*

- *Graduate Students (University of Karlsruhe): Alexia Glöß (nee Schweizer, 04/2002 – 12/2005), Oliver Ehrler (10/2002 – 12/2005), Holger Schneider (01/2005 – 12/2005, continued at CU Boulder)*

- Undergraduate Students in Independent Study (University of Colorado, 11 total): Elisabeth C. Holick (nee Saenim) (Fall 2007), Florian Schinle (visiting undergraduate student from the University of Karlsruhe, Fall 2007), Allan Wun (Spring 2008), Amit Halevi (Spring and Summer 2008), Robert D. Warner, (Fall 2008), Eric A. Pozzi (Summer 2009-Summer 2011), Grant G. Gogul (Fall 2010-Spring 2012), Caitlin E. Majlinger (Spring 2011 – Spring 2012), Luke Long (Spring 2013-Fall 2015), Martin Meissner (Jan – March 2014), Kenneth D. Wilson (Summer 2018- Summer 2020), Patrick Yehle (Spring/Fall 2019), Luke Walther (Spring/Fall 2019)

- Graduate Students (University of Colorado, 15 total): Holger Schneider (01/2005 – 12/2008, transferred from University of Karlsruhe, PhD 2008), Jesse Marcum (01/2006 – 05/2011, PhD 2011), Kristen M. Vogelhuber (Rotation Student, Fall 2006), Christopher L. Adams (11/2006 – 07/2011, PhD 2011), Sydney H. Lienemann (nee Kaufman, 11/2008-07/2013, PhD 2013), Benjamin J. Knurr (11/2009–12/2014, PhD 2014), Casey Christopher (11/2010 – 05/2013, MS 2013), Dennis B. Rahbek (Visiting Student, 09/2011 – 12/2011), Shuang Xu (08/2012 – 12/2016, PhD 2016), Michael C. Thompson (12/2013 – 05/2018), James E. T. Smith (12/2014 – 12/2016), Jacob S. Ramsay (visiting graduate student, 01/2015 – 05/2015), J. Curtis Beimborn (05/2015 – 11/2020, PhD 2020), Liang-Chun Lin (12/2016-12/2017), Wyatt Zagorec-Marks (12/2016 – 05/2021), Madison Foreman (12/2018 – 05/2023), Rebecca Hirsch (12/2018 – 08/2021), River Leversee (since 11/2020), Heinrich Salzmann (12/2020 – 05/2025), Lane Terry (since 12/2021), Madeline Klumb (since 11/2023), Eli Katz (since 01/2024), Shannon Ganley (since 11/2024).

Postdoctoral Associates

- Dr. Leah G. Dodson (08/2016 – 06/2019)

10. Service (only service activities since joining the University of Colorado are listed)

Departmental and Institute Committees

- Chair of the Committee for Disbursement of Instructional Fees of the Departments of Chemistry & Biochemistry since Fall 2016
- Chair of the Rules Committee for Graduate Student Representation (Fall 2020)
- Chair of the Departmental Committee for Graduate Admissions and Recruitment Fall 2017 – Spring 2019
- Chair of the Undergraduate Scholastic Committee of the Department of Chemistry Spring 2021 – Spring 2023
- Program Assessment Committee of the Department of Chemistry Fall 2022 – Spring 2023
- Executive Committee of the Department of Chemistry July 2020 – July 2022
- Executive Committee of the Department of Chemistry & Biochemistry July 2014 – July 2016
- Executive Committee of JILA, 2015 – 2017, January 2024 – June 2025
- Chemical Physics Graduate Program Committee Fall 2014 – Spring 2023
- JILA Chemical Safety Advisor Fall 2010 – Spring 2023
- Fellow Advocate for JILA Building Systems since 2015
- Fellow Advisor for JILA Instrument Shop 2021 – 2023
- JILA Space Committee 2008, 2011, 2016 – 2019
- Organizer of Physical Chemistry & Chemical Physics Colloquium in AY 2008/09 and AY 2016/17
- Space Committee of the Department of Chemistry & Biochemistry July 2014 – July 2015
- Physical Chemistry Division Coordinator Fall 2013 – Spring 2016, Fall 2020 – Spring 2022
- Organized JILA Colloquium Series from Fall 2007 – Fall 2009
- Representative of the Physical Chemistry Program on Departmental Committee for Graduate Admissions and Recruitment 2007 – 2010
- JILA Building Extension Project Plan Committee 2007 and Steering Committee 2008-2011
- Physical Chemistry Graduate Program Advisor and Member of Scholastic Committee Fall 2013 – Spring 2015
- Several personnel committees and mentoring committees for junior faculty, supervisor for some departmental personnel
- Thesis Committees, Comprehensive Exam Committees, Graduate Student Progress Committees

Journals

- Reviewer for
    - Advanced Optical Materials
    - Astrophysical Journal
    - Angewandte Chemie International Edition
    - Chemical Physics Letters
    - Chemistry – A European Journal
    - ChemPhysChem,
    - Journal of Chemical Theory and Computation

- Journal of Chemical Physics
- Journal of Molecular Spectroscopy
- Journal of Organic Chemistry
- Journal of Physical Chemistry A
- Journal of Physical Chemistry Letters
- Journal of the American Chemical Society
- International Journal of Mass Spectrometry
- Physical Chemistry Chemical Physics
- Rapid Communications in Mass Spectrometry
- Science Advances
- Topics in Catalysis

- Member of Advisory Editorial Board for Chemical Physics Letters (Jan. 1, 2013 – April 30, 2018)

Reviewer for Funding Agencies

- Department of Energy
- National Science Foundation
- Petroleum Research Fund of the American Chemical Society
- Research Corporation for Science Advancement

Conferences and Professional Societies:

- Co-Organizer, Telluride Workshop on Molecular Spectroscopy and Dynamics, planned for July 2026, Telluride, CO
- Co-Organizer, W. Carl Lineberger Symposium, Boulder, CO June 2025
- Chair Elect, Division of Chemical Physics, American Physical Society (2024)
- Vice Chair, Division of Chemical Physics, American Physical Society (2023)
- Discussion Leader at the Gordon Research Conference on Molecular & Ionic Clusters, Ventura, CA, January 2020
- Co-Organizer of Workshop on Photophysics of Biomolecules, July 2017 in Telluride, CO
- Chair of Gordon Research Conference on Molecular & Ionic Clusters, January 2016, Ventura, CA (jointly with Prof. Otto Dopfer, TU Berlin)
- Member of the International Advisory Committee for International Symposium on Molecular Spectroscopy July 2015 – July 2018
- Chair of the Workshop "Defining New Directions in Cold Chemical Physics", July 2015, Boulder, CO, USA (jointly with Prof. Heather Lewandowski, CU Boulder)
- Chair of 2nd US-Israel Kavli Frontiers of Science Symposium, Feb. 2015, Jerusalem, Israel (jointly with Prof. Eran Rabani, Tel Aviv University)
- Vice Chair of Gordon Research Conference on Molecular & Ionic Clusters, April 2014, Barga, Italy (jointly with Prof. Otto Dopfer, TU Berlin)
- Organizing Team for First US-Israeli Kavli Frontiers of Science Symposium, June 2013, Irvine, CA, USA

- Co-Organizer of Symposium "Electrons in Biomolecules" at National Meeting of the American Chemical Society, 08/2010, Boston, MA (with Prof. Jack Simons, Univ. of Utah)
- Discussion Leader at the OSU International Symposium on Molecular Spectroscopy, 06/06, 06/08, 06/10, 06/11, 06/12, 06/16
- Discussion Leader at the Spring Meeting of the American Physical Society, 03/07, Denver, CO
- Discussion Leader at the Annual Meeting of the American Chemical Society, 08/07 (Boston, MA), 08/08 (Philadelphia, PA), 08/09 (Washington, DC)
- Discussion Leader at the Gordon Research Conference on Photoions, Photoionization, and Photodetachement, 02/08, Il Ciocco, Italy
- Organized the poster session at the "40 Years of Ion Chemistry" Conference held in honor of Professor Carl Lineberger in 06/09
- Discussion Leader at the Dynamics of Molecular Collisions Conference, Snowbird, UT, 07/09
- Discussion Leader at the Gordon Research Conference on Gaseous Ions, 02/2011, Galveston, TX
- Judge for the Poster Awards in Physical Chemistry at Annual Meeting of the American Chemical Society, 08/07 and 08/10, Boston, MA
- Judge for Rao-Prize at the 66th OSU International Symposium on Molecular Spectroscopy, June 2011, Columbus, OH, and at the 69th and 70th International Symposium on Molecular Spectroscopy, June 2014 and June 2015, Champaign-Urbana, IL.

Other:

- Outreach Activity: Presented the CU Wizards Show "Sink or Swim" to ca. 100 children and their parents per show; shows performed on April 2010, January 2014, April 2018, December 2022.
- JILA Chemical Safety Lecture, May 2010, December 2010, November 2017, March 2018, September 2019, December 2020.
- Member of Review Panel for the Innovative Grant Program of the University of Colorado at Boulder 2009 – 2011 and 2016.
- Representative of the Department of Chemistry on the Arts & Sciences Faculty Senate of the University of Colorado Boulder since Fall 2023.