

The Saykally Group

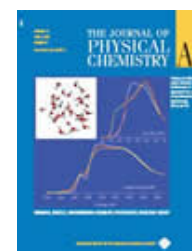
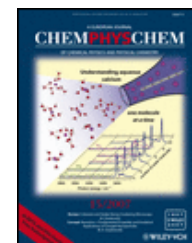
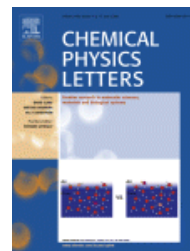
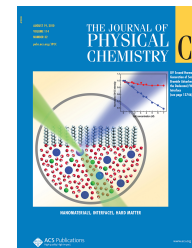
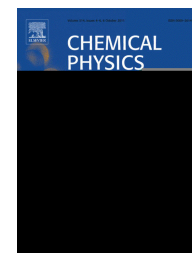
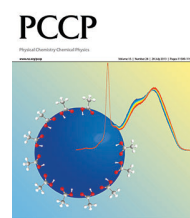
[Experimental and Theoretical Physical Chemistry](#)
([index.html](#))

([index.html](#))

[MAIN](#)
 [RICH SAYKALLY](#)
 [RESEARCH](#)
 [PUBLICATIONS \(PUBLICATIONS.HTML\)](#)
 [PEOPLE](#)
 [OUTREACH](#)
 [PHOTOS \(GROUPPHOTOS.HTML\)](#)

Publications

- In Press. Saykally, R. J. "[Mid-IR Laser Action in the H3 Rydberg Molecule and Some Possible Astrophysical Implications](#)" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2011/IP1_Saykally.pdf); AIP Conference Proceedings ICCMSE: Spectroscopy of Molecular Ions in the Laboratory and in Extraterrestrial Space, (Kos, Greece: Oct, 2010)-In Press.
392. Shih, O., England, A.H., Dallinger, G.C., Smith, J.W., Duffey, K.C., Cohen, R.C., Prendergast, D., and Saykally, R. J. "[Cation-Cation Contact Pairing in Water: Guanidinium](#)" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2013/392_Shih.pdf) *J. Chem. Phys.*, **2013**, 139 - In Press.
391. Kelly, D.N., Lam, R.K., Duffin, A., and Saykally, R. J. "[Characterization of Dilute Aqueous Interfaces with Liquid Microjet Electrokinetics](#)" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2013/391_Kelly.pdf) *J. Phys. Chem. C.*, **2013**, 117 (24), 12702-12706.
390. Richardson, J.O., Wales, D.J., Althorpe, S. C., McLaughlin, Shih, O. and Saykally, R.J. "[Investigation of Terahertz Vibration–Rotation Tunneling Spectra for the Water Octamer](#)" (<http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2012/richardson.pdf>) *J. Phys. Chem. A* **2013**, 117 (32), 6960-6966
389. *Duffey, K.C., Shih, O., Wong, N.L., Drisdell, W.S., Saykally, R.J., and Cohen, R.C. "[Evaporation kinetics of aqueous acetic acid droplets: effects of soluble organic aerosol components on the mechanism of water evaporation](#)" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2013/389_Duffey.pdf) *Phys. Chem. Chem. Phys.* **2013**, 15 (28), 11634-11639. *Cover Article. (http://www.cchem.berkeley.edu/rjsgrp/images/covers/PCCP_Duffey.jpg)
388. Saykally, R.J. "[Viewpoint: Simplest Water Cluster Leaves Behind its Spectral Fingerprint](#)" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2013/388_Saykally.pdf) *Physics*. **6**, 22 February 2013.
387. Saykally, R.J. "[Air/Water Interface: Two Sides of the Acid Base Story](#)" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2011/inpress_saykally.pdf) *Nature Chem.* **5**, 82-84 January 2013.
386. Saykally, R.J. and D. J. Wales, "[Pinning Down the Water Hexamer](#)" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2011/386_Saykally.pdf), *Science* **336**, 814-815 (2012).
385. D.E. Otten, P. Shaffer, P. Geissler, R. J. Saykally "[Elucidating the Mechanism of Selective Ion Adsorption to the Liquid Water Surface](#)" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2011/385_otten.pdf), *PNAS* **109** (3), 701-



705 (2012).

384. D.E. Otten, R. Onorato, R. Michaels, J. Goodknight, R. J. Saykally "Strong Surface Adsorption of Aqueous Sodium Nitrite as an Ion Pair, (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2012/384_Otten.pdf)" *Chem. Phys. Letters* **519-520**, 45-48 (2012).

383. *A. H. England, A. M. Duffin, C. P. Schwartz, J. S. Uejio, D. Prendergast, and R. J. Saykally "On the Hydration and Hydrolysis of Carbon Dioxide (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2011/383_England.pdf)," *Chem. Phys. Letters* **514**, 187-195 (2011) *Cover Article. (http://www.cchem.berkeley.edu/rjsgrp/images/covers/CPL_England.jpg)

382. *A. M. Duffin, A. H. England, C. P. Schwartz, J. S. Uejio, G. C. Dallinger, O. Shih, D. Prendergast, and R. J. Saykally "Electronic Structure of Aqueous Borohydride: A Potential Hydrogen Storage Medium (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2011/382_Duffin.pdf)" *Phys. Chem. Chem. Phys.*, **13**, 17077 - 17083 (2011) *Cover Article (http://www.cchem.berkeley.edu/rjsgrp/images/covers/PCCP_Duffin.jpg).

381. A. M. Duffin, C. P. Schwartz, A. H. England, J. S. Uejio, D. Prendergast, and R. J. Saykally "pH-Dependent X-ray Absorption Spectra of Aqueous Boron Oxides, (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2011/382_Duffin.pdf)" *J. Chem. Phys.* **134**, 154503 (2011).

380. A. E. Miller, P. B. Peterson, C. W. Hollars, R. J. Saykally, J. Hyeda and P. Jungwirth "Behavior of β -Amyloid 116 at the Air/Water Interface at Varying pH by Nonlinear Spectroscopy and Molecular Dynamics Simulation (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2011/381_Miller.pdf)" *J. Phys. Chem. A* **115**, 5873-5880 (2011).

379. R. J. Saykally, E. A. Michael, J. Wang and Chris H. Greene "Recombination-pumped Triatomic Hydrogen Infrared Lasers (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2010/379_Saykally.pdf), *J. Chem. Phys.* **133**, 234302 (2010).

378. C. P. Schwartz, S. Fatehi, R. J. Saykally and D. Prendergast "Importance of Electronic Relaxation for Inter-Coulombic Decay in Aqueous Systems (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2010/378_Schwartz.pdf)" *Phys. Rev. Lett.* **105**, 198102 (2010).

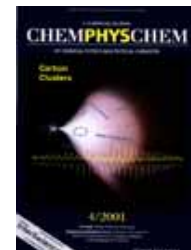
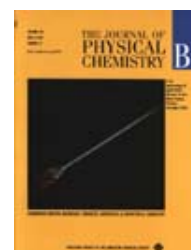
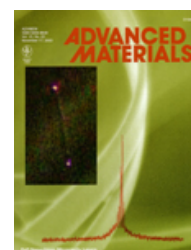
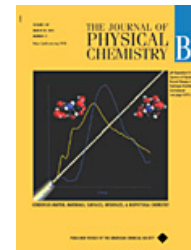
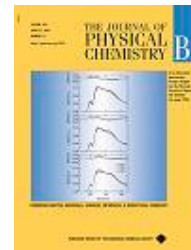
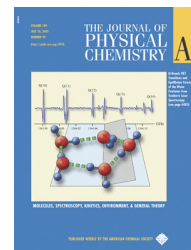
377. C. P. Schwartz, R. J. Saykally and D. Prendergast "An analysis of the NEXAFS spectra of a molecular crystal: alpha-glycine (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2010/377_Schwartz.pdf)" *J. Chem. Phys.* **133**, 044507 (2010).

376. W. S. Drisdell, R. J. Saykally, R. C. Cohen "Effect of Surface Active Ions on the Rate of Water Evaporation (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2010/376_Drisdell.pdf)" *Phys. Chem. C* **14**, 11880-11885 (2010).

375. D. N. Kelly, C. P. Schwartz, J. S. Uejio, A. M. Duffin, A. H. England, and R. J. Saykally "Near edge x-ray absorption fine structure spectroscopy of aqueous adenosine triphosphate at the carbon and nitrogen K-edges (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2010/375_kelly_JCP_2010.pdf)" *J. Chem. Phys.* **133**, 101103-101106 (2010).

374. C. P. Schwartz, J. S. Uejio, A. M. Duffin, A. H. England, D. N. Kelly, D. Prendergast, R. J. Saykally "Investigation of protein conformation and interactions with salts via X-ray absorption spectroscopy (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2010/374_Schwartz_PNAS_2010.pdf)" *PNAS*, **107**, 14008-14013 (2010).

373. R. M. Onorato, D. E. Otten, and R. J. Saykally, "Measurement of Bromide Affinities for the Air/Water



and Dodecanol/Water Interfaces at Molar Concentrations by UV Second Harmonic Generation Spectroscopy. (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2010/372_onorato_JPCC.pdf)" *J. Phys. Chem. C* **114**, 13746-13751 (2010).

372. G. N. I. Clark, C. D. Cappa, J. D. Smith, R. J. Saykally, T. Head-Gordon "The Structure of Ambient Water, (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2010/373_Saykally_JMolPhys.pdf)" *J. Mol. Phys* **108**, 1415-1433 (2010).

371. C. P. Schwartz, J. S. Uejio, A. M. Duffin, W. S. Drisdell, J. D. Smith, and R. J. Saykally, "Soft X-Ray Absorption Spectra of Aqueous Salt Solutions with Highly Charged Cations in Liquid Microjets (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2010/371_Schwartz.pdf)," *Chem. Phys. Lett.* **493**, 94-96 (2010).

370. P. Peng, B. Sadtler, A. P. Alivisatos, and R. J. Saykally, "Exciton Dynamics in CdS-Ag₂S Nanorods with Tunable Composition Probed by Ultrafast Transient Absorption Spectroscopy," (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2010/370_peng_JPCC_2010.pdf) *J. Phys. Chem. C* **114**, 5879-5885 (2010).

369. J. S. Uejio, C. P. Schwartz, A. M. Duffin, A. H. England, D. Prendergast, and R. J. Saykally, "Monopeptide versus Monopeptoid: Insights on Structure and Hydration of Aqueous Alanine and Sarcosine via X-ray Absorption Spectroscopy," (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2010/369_uejio_JPCB_2010.pdf) *J. Phys. Chem. B* **114**, 4702-4709 (2010).

368. S. Fatehi, C. P. Schwartz, R. J. Saykally, and D. Prendergast, "Nuclear quantum effects in the structure and lineshapes of the N₂ near-edge x-ray absorption fine structure spectrum," (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2010/368_schwartz_JCP_2010.pdf) *J. Chem. Phys.* **132**, 094302-094309 (2010).

367. W. S. Drisdell, R. J. Saykally, and R. C. Cohen, "On the Evaporation of Ammonium Sulfate Solution," (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2009/367_drisdell_2009.pdf) *PNAS* **106**, 18897-18901 (2009). LBNL-TBA

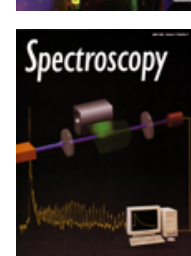
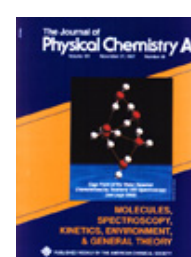
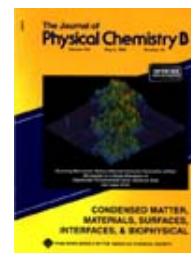
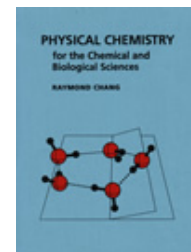
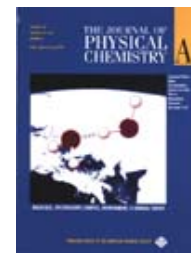
366. C. P. Schwartz, J. S. Uejio, A. M. Duffin, A. H. England, D. Prendergast, and R. J. Saykally, "Auto-oligomerization and Hydration of Pyrrole Revealed by X-ray Absorption Spectroscopy," (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2009/366_schwartz-2009.pdf) *J. Chem. Phys.* **131**, 114509-114516 (2009). LBNL-2651

365. M. F. Bush, J. T. O'Brien, J. S. Prell, C.-C. Wu, R. J. Saykally, and E.R. Williams, "Hydration of Alkaline Earth Metal Dications: Effects of Metal Ion Size Determined Using Infrared Action Spectroscopy," (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2009/365_bush_2009.pdf) *J. Am. Chem. Soc.* **131**, 13270-13277 (2009).

364. R. M. Onorato, D. E. Otten, and R. J. Saykally, "Adsorption of Thiocyanate Ions to the Dodecanol/Water Interface Characterized by UV Second Harmonic Generation," (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2009/364_onorato_2009.pdf) *PNAS* **106**, 15176-15180 (2009).

363. C. P. Schwartz, J. S. Uejio, R. J. Saykally, and D. Prendergast, "On The Importance of Nuclear Quantum Motions in Near Edge X-ray Absorption Fine Structure Spectroscopy of Molecules," (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2009/363_schwartz_2009.pdf) *J. Chem. Phys.* **130**, 184109-184120 (2009). LBNL-1885E

362. J.S. Uejio, C.P. Schwartz, R.J. Saykally and D. Prendergast, "Effects of Vibrational Motion on Core-level Spectra of Prototype Organic Molecules," (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2008/362_uejio_2008.pdf) *Chem. Phys. Lett.* **467**, 195-199 (2008). LBNL-1403E



361. A.M. Duffin and R.J. Saykally, "Electrokinetic Power Generation from Liquid Water Microjets." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2008/361_duffin_2008.pdf). *J. Phys. Chem. C* **112**, 17018-17022 (2008). LBNL-1180E

360. M.F. Bush, R.J. Saykally, and E.R. Williams, "Infrared Action Spectra of Ca²⁺ (H₂O)₁₁₋₆₉ Exhibit Spectral Signatures for Condensed-Phase Structures with Increasing Cluster Size." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2008/360_bush_2008.pdf). *J. Am. Chem. Soc.* **130**, 15482–15489 (2008).

359. K. Didriche, C. Lauzin, P. Macko, W.J. Lafferty, R.J. Saykally, and M. Herman, "On the Role of Molecular Clustering on Infrared Absorption Line Shapes of Acetylene In a Supersonic Expansion." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2008/359_didriche_2008.pdf). *Chem. Phys. Lett.* **463**, 345-348 (2008).

358. M.F. Bush, J. Oomens, R.J. Saykally, and E.R. Williams, "Alkaline Metal Ion Binding to Glutamine and Glutamine Derivatives Investigated by Infrared Action Spectroscopy and Theory." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2008/358_bush_2008.pdf). *J. Phys. Chem. A* **112**, 8578-8584 (2008).

357. M.F. Bush, R.J. Saykally, and E.R. Williams, "Reactivity and Infrared Spectroscopy of Gaseous Hydrated Trivalent Metal Ions." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2008/357_bush_2008.pdf). *J. Am. Chem. Soc.* **130**, 9122-9128 (2008).

356. * P.B. Petersen, and R. J. Saykally, "Is the Liquid Water Surface Basic or Acidic? Macroscopic vs. Molecular-scale Investigations." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2008/356_petersen_2008.pdf). *Chem. Phys. Lett.* **458**, 255-261 (2008).

*Cover Article. (http://www.cchem.berkeley.edu/rjsgrp/images/covers/Petersen_cover_356_large.gif)

355. W.S. Drisdell, C.D. Cappa, J.D. Smith, R.J. Saykally, and R.C. Cohen "Determination of the Evaporation Coefficient of D₂O." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2008/355_drisdell_2008.pdf). *Atmos. Chem. Phys. Discuss.* **8**, 6699-6706 (2008). LBNL-1182E

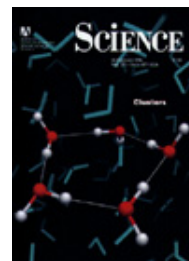
354. J.S. Uejio, C.P. Schwartz, A.M. Duffin, W.S. Drisdell, R.C. Cohen, and R.J. Saykally, "Characterization of Selective Binding of Alkali Cations with Carboxylate by X-ray Absorption Spectroscopy of Liquid Microjets." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2008/354_uejio_2008.pdf). *PNAS* **105**, 6809-6812 (2008). LBNL-894E

353. M.F. Bush, J. Oomens, R.J. Saykally, and E.R. Williams, "Effects of Alkaline Earth Metal Complexation on Amino Acid Zwitterion Stability: Results from Infrared Action Spectroscopy." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2008/353_bush_2008.pdf). *J. Am. Chem. Soc.* **130**, 6463-6471 (2008).

352. C.D. Cappa, J.D. Smith, K.R. Wilson, and R.J. Saykally, "Revisiting the Total Ion Yield X-ray Absorption Spectra of Liquid Water microjets." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2008/352_cappa_2008.pdf). *J. Phys.: Condens. Matter* **20**, 205105 (2008). LBNL-189E

351. W. Lin, J.-X. Han, L.K. Takahashi, H.A. Harker, F.N. Keutsch, and R.J. Saykally "Terahertz Vibration-rotation-tunneling Spectroscopy of the Water Tetramer-d₈: Combined Analysis of Vibrational Bands at 4.1 THz and 2.0 THz." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2008/351_lin_2008.pdf). *Chem. Phys.* **128**, 094302 (2008).

350. D.E. Otten, P.B. Petersen, and R. J. Saykally, "Observation of Nitrate Ions at the Air/Water Interface by UV-second Harmonic Generation" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2007/350_otten_2007.pdf). *Chem. Phys. Lett.* **449**, 261-265 (2007).



349. J.D. Smith, R.J. Saykally, and P.L. Geissler, "[The Effects of Dissolved Halide Anions on Hydrogen Bonding in Liquid Water](http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2007/349_smith_2007.pdf)" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2007/349_smith_2007.pdf), *J. Am. Chem. Soc.* **129**, 13847-13856 (2007). LBNL- 63579
348. M.F. Bush, J.S. Prell, R.J. Saykally, and E.R. Williams, "[One Water Molecule Stabilizes the Cationized Arginine Zwitterion](http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2007/348_bush_2007.pdf)" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2007/348_bush_2007.pdf), *J. Am. Chem. Soc.* **129**, 13544-13553 (2007).
347. R.M. Onorato, N. Muraki, K.P. Knutsen, and R.J. Saykally, "[Chirped Coherent Anti-Stokes Raman Scattering as a high-spectral- and Spatial-resolution Microscopy.](http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2007/347_onorato_2007.pdf)" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2007/347_onorato_2007.pdf) *Optics Letters* **32**, 2858-2860 (2007).
- 346.* M.F. Bush, R.J. Saykally, and E.R. Williams, "[Hydration of the Calcium Dication: Direct Evidence for Second Shell Formation from Infrared Spectroscopy](http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2007/346_bush_2007.pdf)" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2007/346_bush_2007.pdf), *ChemPhysChem* **8**, 2245-2253 (2007).
*Cover Article. (http://www.cchem.berkeley.edu/rjsgrp/images/covers/Bush_Cover_346.jpg)
345. W. Lin, J.-X. Han, L.K. Takahashi, J.G. Loeser, and R.J. Saykally, "[Terahertz Vibration-Rotation-Tunneling Spectroscopy of the Ammonia Dimer. II. A-E States of an Out-of-plane Vibration and an In-Plane Vibration](http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2007/345_lin_2007.pdf)" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2007/345_lin_2007.pdf), *J. Phys. Chem. A* **111**, 9680-9687 (2007).
344. A.M. Duffin and R.J. Saykally, "[Electrokinetic Hydrogen Generation from Liquid Water Microjets](http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2007/344_duffin_2007.pdf)" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2007/344_duffin_2007.pdf), *J. Phys. Chem. C* **111**, 12031-12037 (2007).
343. M.F. Bush, M.W. Forbes, R.A. Jockusch, J. Oomens, N.C. Polfer, R.J. Saykally, and E.R. Williams, "[Infrared Spectroscopy of Cationized Lysine and e-N-methyllysine in the Gas Phase: Effects of Alkali Metal Ion Size and Proton Affinity on Zwitterion Stability](http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2007/343_bush_2007.pdf)" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2007/343_bush_2007.pdf), *J. Phys. Chem. A* **111**, 7753-7760 (2007).
- 342.* Y. Nakayama, P.J. Pauzauskie, A. Radenovic, R.M. Onorato, W. Liang, R.J. Saykally, J. Liphardt, and P. Yang, "[Tunable Nanowire Nonlinear Optical Probe](http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2007/342_onorato_2007.pdf)" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2007/342_onorato_2007.pdf), *Nature* **447**, 1098-1102 (2007). LBNL- 63801
*Cover Article. (http://www.cchem.berkeley.edu/rjsgrp/images/covers/cover_nature.jpg)
- 341.* C.D. Cappa, J.D. Smith, B.M. Messer, R.C. Cohen, and R.J. Saykally, "[Nature of the Aqueous Hydroxide Ion Probed by X-ray Absorption Spectroscopy](http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2007/341_cappa_2007.pdf)" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2007/341_cappa_2007.pdf), *J. Phys. Chem. A* **111**, 4776-4785 (2007). LBNL-62752
*Cover Article (http://www.cchem.berkeley.edu/rjsgrp/images/covers/jpca_2007.jpg).
340. C.D. Cappa, J.D. Smith, W.S. Drisdell, R.J. Saykally, and R.C. Cohen, "[Interpreting the H/D Isotope Fractionation of Liquid Water During Evaporation Without Condensation](http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2007/340_cappa_2007.pdf)" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2007/340_cappa_2007.pdf), *J. Phys. Chem. C* **111**, 7011-7020 (2007). LBNL-62751
339. H.A. Harker, F.N. Keutsch, C. Leforestier, Y. Scribano, J.-X. Han, and R.J. Saykally, "[Refinements in the Description of Excited VRT States of the Water Dimer](http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2007/339_harker_2007.pdf)" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2007/339_harker_2007.pdf), *Molecular Physics* **105**, 513-527 (2007).

338. H.A. Harker, F.N. Keutsch, C. Leforestier, Y. Scribano, J.-X. Han, and R.J. Saykally, "Toward a Precise Determination of the Acceptor Switching Splitting in the Water Dimer" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2007/338_harker_2007.pdf), *Molecular Physics* **105**, 497-512 (2007).
337. M.F. Bush, R.J. Saykally, and E.R. Williams, "Evidence for Water Rings in the Hexahydrated Sulfate Dianion from IR Spectroscopy" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2007/337_bush_2007.pdf), *J. Am. Chem. Soc.* **129**, 2220-2221 (2007).
336. M.F. Bush, J.T. O'Brien, J.S. Prell, R.J. Saykally, and E.R. Williams, "Infrared Spectroscopy of Cationized Arginine in the Gas Phase: Direct Evidence for the Transition from Nonzwitterionic to Zwitterionic Structure" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2007/336_bush_2007.pdf), *J. Am. Chem. Soc.* **129**, 1612-1622 (2007).
335. J.D. Smith, C.D. Cappa, W.S. Drisdell, R.C. Cohen, and R.J. Saykally, "Raman Thermometry Measurements of Free Evaporation from Liquid Water Droplets" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2006/335_smith_2006.pdf), *JACS* **128**, 12892-12898 (2006). LBNL-61735
334. J.D. Smith, C.D. Cappa, B.M. Messer, W.S. Drisdell, R.C. Cohen, and R.J. Saykally, "Probing the Local Structure of Liquid Water by X-ray Absorption Spectroscopy" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2006/334_smith_2006.pdf), *J. Phys. Chem. B* **110**, 20038-20045 (2006). – C.B. Harris special issue. LBNL-61736
333. A.E. Miller, A.J. Fischer, T. Laurence, C.W. Hollars, R.J. Saykally, J.C. Lagarias, and T. Huser, "Single-molecule Dynamics of Phytochrome-bound Fluorophores Probed by Fluorescence Correlation Spectroscopy" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2006/333_miller_2006.pdf), *PNAS* **103**, 11136-11141 (2006).
332. P.B. Petersen and R.J. Saykally, "Comment on "Interfacial pH at an Isolated Silica-Water Surface" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2006/332_petersen_2006.pdf)", *J. Phys. Chem. B* **110**, 15037-15038 (2006).
331. M.F. Bush, R.J. Saykally, and E.R. Williams, "Formation of Hydrated Triply Charged Metal Ions from Aqueous Solutions Using Nanodrop Mass Spectrometry" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2006/331_bush_2006.pdf), *Int'l. J. Mass. Spec.* **253**, 256-262 (2006).
330. P.B. Petersen and R.J. Saykally, "Probing the Interfacial Structure of Aqueous Electrolytes with Femtosecond Second Harmonic Generation Spectroscopy" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2006/330_petersen_2006.pdf), *J. Phys. Chem. B* **110**, 14060-14073 (2006) – **Feature Article**.
329. W. Lin, J.-X. Han, L.K. Takahashi, J.G. Loeser, and R.J. Saykally, "Terahertz Vibration-Rotation-Tunneling Spectroscopy of the Ammonia Dimer: Characterization of an Out of Plane Vibration" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2006/329_wei_2006.pdf), *J. Phys. Chem. A* **110**, 8011-8016 (2006).
328. J.-X. Han, L.K. Takahashi, W. Lin, E. Lee, F.N. Keutsch, and R.J. Saykally, "Terahertz Vibration-Rotation-Tunneling (VRT) Spectroscopy of the d6-Water trimer: Complete Characterization of the 2.94 THz Torsional Band ($k_n = \pm 21 - 00$)" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2006/328_han_2006.pdf), *Chem. Phys. Lett.* **423**, 344-351 (2006).
327. Y. Scribano, N. Goldman, R.J. Saykally, and C. Leforestier, "Water Dimers in the Atmosphere III: Equilibrium Constant from a Flexible Potential" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2006/327_goldman_2006.pdf), *J. Phys. Chem.*

A **110**, 5411-5419 (2006).

326. C.D. Cappa, J.D. Smith, B.M. Messer, R.C. Cohen, and R.J. Saykally, "Effects of Cations on the Hydrogen Bond Network of Liquid Water: New Results from X-ray Absorption Spectroscopy of Liquid Microjets" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2006/326_cappa_2006.pdf), "J. Phys. Chem. B" **110**, 5301-5309 (2006). LBNL-59955

325. P.B. Petersen and R.J. Saykally, "On the Nature of Ions at the Liquid Water Surface" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2006/325_petersen_2006.pdf), "Ann. Rev. Phys. Chem." **57**, 333-364 (2006) – Invited Paper.

324. K.P. Knutsen, B.M. Messer, R.M. Onorato, and R.J. Saykally, "Chirped Coherent Anti-Stokes Raman Scattering for High Spectral Resolution Spectroscopy and Chemically Selective Imaging" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2006/324_knutsen_2006.pdf), "J. Phys. Chem. B" **110**, 5854-5864 (2006).

323. C.D. Cappa, J.D. Smith, B.M. Messer, R.C. Cohen, and R.J. Saykally, "The Electronic Structure of the Hydrated Proton: A Comparative X-ray Absorption Study of Aqueous HCl and NaCl Solutions" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2006/323_cappa_2006.pdf), "J. Phys. Chem. B" **110**, 1166-1171 (2006). LBNL-59504

322. Christopher D. Cappa; Walter S. Drisdell; Jared D. Smith; Richard J. Saykally, and Ronald C. Cohen; "Isotope Fractionation of Water during Evaporation without Condensation" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2005/322_cappa_2005.pdf) J. Phys. Chem. B.; 109 (51), 24391 (2005).

321. Messer, B. M.; Cappa, C. D.; Smith, J. D.; W. S. Drisdell; C. P. Schwartz, R. C. Cohen, and Saykally, R. J.; "Local Hydration Environments of Amino Acids and Dipeptides Studied by X-ray Spectroscopy of Liquid Microjets" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2005/321_messer_2005.pdf) J. Phys. Chem. B.; 109 (46), 21640-21646 (2005).

320. Poul B. Petersen and Richard Saykally; "Adsorption of Ions to the Surface of Dilute Electrolyte Solutions: The Jones-Ray Effect Revisited." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2005/320_poul_2005.pdf) J. Am. Chem. Soc.; 127 (44), 15446-15452 (2005).

319. Jared D. Smith, Christopher D. Cappa, Kevin R. Wilson, Ronald C. Cohen, Phillip L. Geissler, and Richard J. Saykally, "Unified Description of Temperature-Dependent Hydrogen-Bond Rearrangements in Liquid Water." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2005/319_smith_2005.pdf) PNAS; 102 (40) 14171 (<http://www.pnas.org/cgi/reprint/102/40/14171>) (2005).

318. P. Peng, D. J. Milliron, S. M. Hughes, Justin C. Johnson, A. Paul Alivisatos, and Richard J. Saykally; "Femtosecond Spectroscopy of Carrier Relaxation Dynamics in Type II CdSe/CdTe Tetrapod Heteronanostructures." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2005/318_peng_2005.pdf) Nano Lett. 5 (9) 1809-1813 (2005).

317. Stephenson, Serena K.; Saykally, R. J.; "Velocity Modulation Spectroscopy of Ions." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2005/317_serena_2005.pdf) Chem. Rev.; 105, 3220-3234 (2005).

316.* Harker, H. A.; Viant, M. R.; Keutsch, F. N.; Michael, E. A.; McLaughlin, R. P.; Saykally, R. J.; "Water Pentamer: Characterization of the Torsional-Puckering Manifold by Terahertz VRT Spectroscopy." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2005/316_harker_2005.pdf) J. Phys. Chem. A.; 109 (29), 6483-6497 (2005). **cover** (<http://www.cchem.berkeley.edu/rjsgrp/images/covers/harkerCov.jpg>)

315. Petersen, P. B.; Saykally, R. J.; Mucha, M.; Jungwirth, P.; "Enhanced Concentration of Polarizable Anions at the Liquid Water Surface: SHG Spectroscopy and MD Simulations of Sodium Thiocyanide." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2005/315_petersen_2005.pdf) J. Phys. Chem.

B.; 109 (21), 10915-10921 (2005).

314. Matt Law, Lori E. Greene, Justin C. Johnson, Richard Saykally, and Peidong Yang; "Nanowire Dye-Sensitized Solar Cells," (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2005/314_law_2005.pdf) Nature Materials; 4, 455-459 (<http://www.nature.com/nmat/journal/v4/n6/full/nmat1387.html>) (2005).

313. Donald J. Sirbuly, Matt Law, Peter Pauzaskie, Haoquan Yan, Alex V. Maslov, Kelly Knutsen, Cun-Zheng Ning, Richard Saykally, and Peidong Yang; "Optical Routing and Sensing with Nanowire Assemblies," (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2005/313_sirbuly_2005.pdf) PNAS: 102 (22), 7800-7805 (http://www.pnas.org/cgi/reprint/102/22/7800?maxtoshow=&HITS=10&hits=10&RESULTFORMAT=&fulltext=matt%2Blaw&searchid=1120834039228_3589&stored_search=&FIRSTINDEX=0&journalcode=pnas) (2005).

312.* Kevin R. Wilson, Metteo Cavalleri, Bruse S. Rude, R. D. Schaller, T. Catalon, A. Nilsson, R. J. Saykally, and L. G. M. Pettersson; "X-ray Absorption Spectroscopy of Liquid Methanol Microjets: Bulk Electronic Structure and Hydrogen Bonding Network" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2005/312_wilson_2005.pdf) J. Phys. Chem. B.; 109 (20), 10194-10203 (2005). **cover** (<http://www.cchem.berkeley.edu/rjsgrp/images/covers/wilsonCov.jpg>)

311. Smith, J. D.; Cappa, C. D.; Messer, B. M.; Cohen R. C. and Saykally, R. J.; Response to Comment on "Energetics of Hydrogen Bond Network Rearrangements in Liquid Water," (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2005/311_smithReply_2005.pdf) Science: 308 (5723), 793 (<http://www.sciencemag.org/cgi/content/full/308/5723/793b>) (2005).

310. Stephenson, S. K. and Saykally, R. J.; "Terahertz Laser Velocity Modulation Spectroscopy of Ions," (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2005/310_serena_2005.pdf) J. Mol. Spec.: 231 (2), 145-153 (http://www.sciencedirect.com/science?_ob=IssuURL&tockey=%23TOC%236900%232005%23997689997%23594451%23FLA%23Volume_231_Issue_2_Pages_99-191_%28June_2005%29&auth=y&view=c&acct=C000059607&version=1&urlVersion=0&userid=4420&md5=193eec6d879091ad576779bb44435b10) (2005).

309. Petersen, P.; Saykally, R. J.; "Evidence for an Enhanced Hydronium Concentration at the Liquid Water Surface," (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2005/309_poul_2005.pdf) J. Phys. Chem. B.; 109 (16), 7976-7980 (2005).

308.* Cappa, C.; Smith, J. D.; Wilson, K. R.; Messer, B. M.; Gilles, M. K.; Cohen, R. C.; Saykally, R. J.; "Effects of Alkali Metal Halide Salts on the Hydrogen Bond Network of Liquid Water," (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2005/308_cappa_2005.pdf) J. Phys. Chem. B.; 109(15), 7046-7052 (2005). **cover** (<http://www.cchem.berkeley.edu/rjsgrp/images/covers/cappaCov.jpg>)

307.* Messer, B. M.; Cappa, C. D.; Smith, J. D.; Wilson, K. R.; Gilles, M. K.; Cohen, R. C. and Saykally, R. J.; "pH Dependence of the Electronic Structure of Glycine," (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2005/307_messer_2005.pdf) J. Phys. Chem. B.; 109 (11), 5375-5382 (2005). **cover** (<http://www.cchem.berkeley.edu/rjsgrp/images/messerCover.jpg>)

306. Nir Goldman, Claude Leforestier, and R.J. Saykally, "A First Principles' Potential Energy Surface for Liquid Water from VRT Spectroscopy of Water Clusters," (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2005/306_goldman_2005.pdf) Phil. Trans. R. Soc. A.; 363, 493-508 (<http://www.journals.royalsoc.ac.uk/app/home/contribution.asp?wasp=2cc19a22783f4933af41513761c174bf&referrer=parent&backto=issue,11,17;journal,6,111;linkingpublicationresults,1:102021,1>) (2005).

305. F. Lagugné-Labarthe, C. Sourisseau, R.D. Schaller, R.J. Saykally, and P. Rochon, "Chromophore Orientations in a Nonlinear Optical Azopolymer Diffraction Grating: Even and Odd Order Parameters from Far-field Raman and Near-field Second Harmonic Generation Microscopies" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2004/305_schaller_2004.pdf), J. Phys. Chem. B 108, 17059-17068 (2004).

304. R.N. Casaes, J.B. Paul, R.P. McLaughlin, T. van Mourik, and R.J. Saykally, "Infrared Cavity Ringdown Spectroscopy of Jet-Cooled Nucleotide Base Clusters and Water Complexes" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2004/304_casaes_2004.pdf), J. Phys. Chem. A 108, 10989-10996 (2004).

303. B.J. McCall, A.J. Huneycutt, R.J. Saykally, N. Djuric, G.H. Dunn, J. Semaniak, O. Novotny, A. Al-Khalili, A. Ehlerding, F. Hellberg, S. Kalhori, A. Neau, R.D. Thomas, A. Paal, F. Österdahl, and M. Larsson, "Dissociative Recombination Rate of Rotationally Cold H₃⁺" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2004/303_mcCall_2004.pdf), *Physical Review A* **70**, 052716 (2004).
302. J.D. Smith, C.D. Cappa, K.R. Wilson, B.M. Messer, R.C. Cohen, and R.J. Saykally, "Energetics of Hydrogen Bond Network Rearrangements in Liquid Water" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2004/302_smith_2004.pdf), *Science* **306**, 851-853 (<http://www.sciencemag.org/cgi/content/abstract/306/5697/851?etoc>). LBNL-56349 (2004).
301. K.P. Knutsen, J.C. Johnson, A.E. Miller, P.B. Petersen, and R.J. Saykally, "High spectral resolution multiplex CARS spectroscopy using chirped pulses." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/301_knutsen_2004.pdf?fuseaction=DetailPaper&ProductId=527830&coden=) *Proceedings of SPIE Conferences, Photonics West BiOS 2004*, Proc. of SPIE Vol. **5323**, p. 230-239, Multiphoton Microscopy in the Biomedical Sciences IV; A. Periasamy, P.T.C. So; Eds. (June 2004).
300. P.B. Petersen and R.J. Saykally, "Confirmation of enhanced anion concentration at the liquid water surface" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2004/300_poul_2004.pdf), *Chem. Phys. Lett.* **397**, 51-55 (<http://dx.doi.org/10.1016/j.cplett.2004.08.049>) (2004).
299. P.B. Petersen, J.C. Johnson, K.P. Knutsen, and R.J. Saykally, "Direct experimental validation of the Jones-Ray effect" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2004/299_poul_2004.pdf), *Chem. Phys. Lett.* **397**, 46-50 (<http://dx.doi.org/10.1016/j.cplett.2004.08.048>) (2004).
298. M. Law, D.J. Sirbully, J.C. Johnson, J. Goldberger, R.J. Saykally, and P.Y. Yang, "Nanoribbon Waveguides for Subwavelength Photonics Integration" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2004/298_law_2004.pdf), *Science* **305**, 1269-1273 (<http://dx.doi.org/10.1126/science.1100999>)(2004).
297. C.D. Cappa, K.R. Wilson, B.M. Messer, R.J. Saykally, and R.C. Cohen, "Optical cavity resonances in water micro-droplets: Implications for shortwave cloud forcing" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2004/297_cappa_2004.pdf), *Geophysical Research Letters* **31**, L10205 (2004).
296. L.H. Haber, R.D. Schaller, J.C. Johnson, and R.J. Saykally, "Shape control of near-field probes using dynamic meniscus etching" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2004/296_haber_2004.pdf), *J. Microsc.* **214**, 27-35 (<http://dx.doi.org/10.1111/j.0022-2720.2004.01308.x>) (2004).
295. K.P. Knutsen, J.C. Johnson, A.E. Miller, P.B. Petersen and R.J. Saykally, "High spectral resolution multiplex CARS spectroscopy using chirped pulses" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2004/295_knutsen_2004.pdf), *Chem. Phys. Lett.* **387**, 436-441 (<http://dx.doi.org/10.1016/j.cplett.2004.02.049>)(2004).
294. A.J. Huneycutt, R.N. Casaes, B.J. McCall, C.-Y. Chung, Y.-P. Lee and R.J. Saykally, "Infrared Cavity Ringdown Spectroscopy of Jet-cooled Polycyclic Aromatic Hydrocarbons" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2004/294_huneycutt_2004.pdf), *ChemPhysChem* (<http://dx.doi.org/10.1002/cphc.200300776>) **5**, 321-326 (<http://dx.doi.org/10.1002/cphc.200300776>) (2004).
293. N. Goldman and R.J. Saykally, "Elucidating the role of many-body forces in liquid water. I. Simulations of water clusters on the VRT(ASP-W) potential surfaces" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2004/293_goldman_2004.pdf), *J. Chem. Phys.* (<http://scitation.aip.org/getabs/servlet/GetabsServlet?prog=normal&id=JCPA6000120000010004777000001&idtype=cvips&gifs=yes>) **120**, 4777-4789 (<http://dx.doi.org/10.1063/1.1645777>) (2004).

292. F.N. Keutsch, N. Goldman, H.A. Harker, C. Leforstier and R.J. Saykally, "Complete characterization of the water dimer vibrational ground state and testing the VRT(ASP-W)III, SAPT-5st, and VRT(MCY-5f) surfaces" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2004/292_keutsch_2004.pdf), *Molecular Physics* **101**, 3477-3492 (2004).

291. K.R. Wilson, B.S. Rude, J. Smith, C.D. Cappa, D.T. Co, R.D. Schaller, M. Larsson, T. Catalano, and R.J. Saykally, "Investigation of volatile liquid surfaces by synchrotron x-ray spectroscopy of liquid microjets," *Rev. Sci. Instrum.* **75**, 725-736 (2004).

290.* J.C. Johnson, K.P. Knutsen, H. Yan, M. Law, Y. Zhang, P. Yang, and R.J. Saykally, "Ultrafast Carrier Dynamics in Single ZnO Nanowire and Nanoribbon Lasers" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2004/290_johnson_2004.pdf), *Nano Lett.* (http://pubs3.acs.org/acs/journals/doi/lookup?in_doi=10.1021/nl034780w) **4**(2), 197-204 (2004).

*Cover Article.

289.* N. Goldman, C. Leforestier, and R.J. Saykally, "Water Dimers in the Atmosphere II: Results from the VRT(ASP-W)III Potential Surface" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2004/289_goldman_2004.pdf), *J. Phys. Chem. A* **108**, 787-794 (2004).

*Cover Article.

288. J.C. Johnson, H. Yan, H.-J. Choi, K.P. Knutsen, P.B. Petersen, M. Law, P. Yang, and R.J. Saykally, "Single nanowire waveguides and lasers," *Proceedings of SPIE 48th Annual Meeting 2003, Proc. of SPIE Vol. 5223*, p. 187-196, *Physical Chemistry of Interfaces and Nanomaterials II*; T. Lian, H.-L. Dai; Eds. (December 2003) — *Invited Paper*.

287.* H. Yan, J. Johnson, M. Law, R. He, K. Knutsen, J.R. McKinney, J. Pham, R. Saykally, and P. Yang, "ZnO Nanoribbon Microcavity Lasers" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2003/287_johnson_2003.pdf), *Adv. Mater.* **15**, 1907-1911 (2003).

*Cover Article.

286. R.D. Schaller, J.C. Johnson, and R.J. Saykally, "Time-Resolved Second Harmonic Generation (TRSHG) Near-field Scanning Optical Microscopy (NSOM)" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2003/286_schaller_2003.pdf) *ChemPhysChem* **4**, 1243-1247 (2003).

285. F.N. Keutsch, L.B. Braly, M.G. Brown, H.A. Harker, P.B. Petersen, C. Leforestier, and R.J. Saykally, "Water dimer hydrogen bond stretch, donor torsion overtone, and "in-plane bend" vibrations," (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2003/285_keutsch_2003.pdf) *J. Chem. Phys.* **119**, 8927-8937 (2003).

284. J.C. Johnson, H. Yan, P. Yang, and R.J. Saykally, "Optical Cavity Effects in Single Zinc Oxide Nanowire Lasers and Waveguides" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2003/284_johnson_2003.pdf), *J. Phys. Chem. B* **107**, 8816-8828 (2003).

283.* H.J. Choi, J.C. Johnson, R. He, S.-K. Lee, F. Kim, P. Pauzauskie, J. Goldberger, R.J. Saykally, and P. Yang,, "Self-Organized GaN Quantum Wire UV Lasers," (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2003/283_johnson_2003.pdf) *J. Phys. Chem. B* **107**, 8721-8725 (2003).

*Cover Article.

282. R.D. Schaller, L.F. Lee, T.-Q. Nguyen, P.T. Snee, and R.J. Saykally, "Characterization of Domain Ordering in Polymer and Dendrimer Thin Films using Photoluminescence and Third Harmonic Generation (THG) Near-field Scanning Optical Microscopy (NSOM)" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2003/282_schaller_2003.pdf), *Jpn. J. Appl. Phys.* **42**, 4799-4803 (2003).

281. B. J. McCall, R. N. Casaes, M. Adamkovic, and R.J. Saykally, "A re-examination of the 4051 Å band of C3 using cavity ringdown spectroscopy of a supersonic plasma." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2003/281_mccall_2003.pdf) Chem. Phys. Lett. **374**, 583-586 (2003).
280. L.E. Greene, M. Law, J. Goldberger, F. Kim, J.C. Johnson, Y.F. Zhang, R.J. Saykally, and P.D. Yang, "Low-temperature wafer-scale production of ZnO nanowire arrays." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2003/280_johnson_2003.pdf) Angewandte Chemie-International Edition **42** (26): 3031-3034 (2003).
279. R.D. Schaller, R.J. Saykally, Y.R. Shen, and F. Lagugné-Labarthe, "Poled polymer thin-film gratings studied with far-field optical diffraction and second-harmonic near-field microscopy." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2003/279_schaller_2003.pdf) Optics Letters **28**, 1296-1298 (2003).
278. F.N. Keutsch, J.D. Cruzan, and R.J. Saykally, "The Water Trimer." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2003/278_keutsch_2003.pdf) Chem. Rev. **103**, 2533-2578 (2003).
277. H. Yan, R. He, J. Johnson, M. Law, R.J. Saykally, and P. Yang, "Dendritic Nanowire Ultraviolet Laser Array." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2003/277_johnson_2003.pdf) J. Am. Chem. Soc. **125**, 4728-4729 (2003).
276. B.J. McCall, A.J. Huneycutt, R.J. Saykally, T.R. Geballe, N. Djuric, G.H. Dunn, J. Semaniak, O. Novotny, A. Al-Khalili, A. Ehlerding, F. Hellberg, S. Kalthori, A. Neau, R. Thomas, F. Osterdahl, and M. Larsson, "An enhanced cosmic-ray flux towards zeta-Persei inferred from a laboratory study of the H3⁺-e⁻ recombination rate." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2003/276_mccall_2003.pdf) Nature **422**, 500-502 (2003).
275. H.-S. Kim, and R.J. Saykally, "An ion beam reflectron/ single photon infrared emission (SPIRE) spectrometer for the study of gas phase PAH ions: testing proposed carriers of the unidentified infrared emission bands (UIRs)." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2003/275_saykally_2003.pdf) Rev. Sci. Instrum. **74**, 2488 (2003).
274. A.J. Huneycutt, and R.J. Saykally, "Building Solutions-One Molecule at a Time." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2003/274_huneycutt_2003.pdf) Science **299**, 1329-1330 (2003).
273. B.J. McCall, A.J. Huneycutt, R.J. Saykally, C.M. Lindsay, T. Oka, M. Fushitani, Y. Miyamoto, and T. Momose, "Stimulated Stokes downconversion in liquid and solid parahydrogen." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2003/273_mccall_2003.pdf) Applied Physics Letters **82**, 1350-1352 (2003).
272. L.F. Lee, A. Adronov, R.D. Schaller, J.M.J. Fréchet, and R.J. Saykally, "Intermolecular Coupling in Nanometric Domains of Light-Harvesting Dendrimer Films Studied by Photoluminescence Near-field Scanning Optical Microscopy (PL NSOM)." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2003/272_lynn_2003.pdf) J. Am. Chem. Soc. **125**, 536-540 (2003).
271. A.J. Huneycutt, R.J. Stickland, F. Hellberg, and R.J. Saykally, "Infrared cavity ringdown spectroscopy of acid-water clusters: HC1-H2O, DC1-D2O, and DC1-(D2O) 2." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2003/271_huneycutt_2003.pdf) J. Chem. Phys. **118**, 1221-1229 (2003).
270. H.-S. Kim, and R.J. Saykally, "Single Photon Infraed Emission Spectroscopy of Gaseous Polycyclic Aromatic Hydrocarbon Cations: A Direct Test for Proposed Carriers of the Unidentified Infrared Emission Bands." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2002/270_kim_2002.pdf) Astrophys. J. Supp. Series, **143**, 455-467 (2002).

269. **F.N. Keutsch, David J. Wales, and R.J. Saykally, "Bifurcation tunneling dynamics in the water trimer, (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2002/269_keutsch_2002.pdf)" *J. Chem. Phys.* **117**, 8823-8835 (2002).
**Featured in the November 1, 2002 issue of the *Virtual Journal of Biological Physics Research*.
268. C. Leforestier, R.S. Fellers, and R.J. Saykally, "Determination of a flexible (12D) water dimer potential via direct inversion of spectroscopic data, (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2002/268_claude_2002.pdf)" *J. Chem. Phys.* **117**, 8710-8722 (2002).
267. **K.R. Wilson, R.D. Schaller, B.S. Rude, T. Catalano, D.T. Co, J.D. Bozek, and R.J. Saykally, "Surface relaxation in liquid water and methanol studied by x-ray absorption spectroscopy, (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2002/267_wilson_2002.pdf)" *J. Chem. Phys.* **117**, 7738-7744 (2002).
**Featured by Nature in "News and Views," and by Science as "Editors' Choice."
266. R.D. Schaller, P.T. Snee, J.C. Johnson, L.F. Lee, K.R. Wilson, L.H. Haber, R.J. Saykally, T.-Q. Nguyen, and B.J. Schwartz, "Nanosopic interchain aggregate domain formation in conjugated polymer films studied by third harmonic generation near-field scanning optical microscopy, (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2002/266_schaller_2002.pdf)" *J. Chem. Phys.* **117**, 6688-6698 (2002).
265. R.D. Schaller, L.F. Lee, J.C. Johnson, L.H. Haber, J. Vieceli, H. Benjamin, T.-Q. Nguyen, B.J. Schwartz, and R.J. Saykally, "The Nature of Interchain Excitations in Conjugated Polymers: Spatially-Varying Solvatochromism of MEH-PPV Films Studied by Near-field Scanning Optical Microscopy (NSOM), (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2002/265_schaller_2002.pdf)" *J. Phys. Chem. B* **106**, 9496-9506 (2002).
264. J.C. Johnson, H.-J. Choi, K.P. Knutsen, R.D. Schaller, P. Yang, and R.J. Saykally, "Single Gallium Nitride Nanowire Lasers, (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2002/264_johnson_2002.pdf)" *Nature Materials* **1**(2), 106-110 (2002).
263. R.D. Schaller, J. Ziegelbauer, L.F. Lee, L.H. Haber, and R.J. Saykally, "Chemically Selective Imaging of Subcellular Structure in Human Hepatocytes with Coherent Anti-Stokes Raman Scattering (CARS) Near-field Scanning Optical Microscopy (NSOM), (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2002/263_schaller_2002.pdf)," *J. Phys. Chem. B* **106**, 8489-8492 (2002).
262. A.J. Huneycutt, R.J. Stickland, F. Hellberg, and R.J. Saykally, "Characterization of gas-phase HC1-H2O clusters using pulsed infrared cavity ringdown spectroscopy, (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2002/262_huneycutt_2002.pdf)," *Proceedings of the SPIE Conferences, Photonics West 2002, Proc. SPIE Vol. 4634, p. 70-77, Methods for Ultrasensitive Detection II, Charles W. Wilkerson; Ed. (2002)*.
261. R.D. Schaller, J.C. Johnson, K.R. Wilson, L.F. Lee, L.H. Haber, and R.J. Saykally, "Characterization of biological structures with nonlinear chemical imaging nanomicroscopy, (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2002/261_schaller_2002.pdf)," *Proceedings of the SPIE Conferences, Photonics West 2002, Proc. SPIE Vol. 4633, p. 62-68, Commercial and Biomedical Applications of Ultrafast and Free-Electron Lasers, Glenn S. Edwards; Joseph Neev; Andreas Ostendorf; John C. Sutherland; Eds. (2002)*.
260. R.N. Casaes and R.J. Saykally, "Spectroscopy (CRLAS)," *The McGraw-Hill 2002 Yearbook of Science & Technology*, Mark D. Licker, editor, pp. 331-333 (2001).
259. P. Yang, H. Yan, S. Mao, R. Russo, J. Johnson, R. Saykally, N. Morris, J. Pham, R. He, and H.-J. Choi, "Controlled growth of ZnO nanowires and their optical properties, (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2002/259_johnson_2002.pdf)" *Adv. Funct. Mater.* **12**, 323-331 (2002).

- 258.* R.D. Schaller, J.C. Johnson, K.R. Wilson, L.F. Lee, L.H. Haber, and R.J. Saykally, "Nonlinear Chemical Imaging Nanomicroscopy: From Second and Third Harmonic Generation to Multiplex (Broad-bandwidth) Sum Frequency Generation Near-Field Scanning Optical Microscopy." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2002/258_schaller_2002.pdf) J. Phys. Chem. B **106**, 5143-5154 (2002).
*Invited Cover Article.
257. J.C. Johnson, H. Yan, R.D. Schaller, P.B. Petersen, P. Yang, and R.J. Saykally, "Near-Field Imaging of Nonlinear Optical Mixing in Single Zinc Oxide Nanowires." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2002/257_johnson_2002.pdf) Nano Lett. **2**, 279-283 (2002).
256. N. Goldman, R.S. Fellers, M.G. Brown, L.B. Braly, C.J. Keoshian, C. Leforestier, and R.J. Saykally, "Spectroscopic Determination of the Water Dimer Intermolecular Potential Energy Surface." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2002/256_goldman_2002.pdf) J. Chem. Phys. **116**, 10148-10163 (2002).
255. D. Kraus, R.J. Saykally, and V.E. Bondybey, "Cavity-Ringdown Spectroscopy Studies of the B₂+ X₂+ System of AIO" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2002/255_kraus_2002.pdf), ChemPhysChem **3**, 364-366 (2002).
254. R.N. Casaes, R.A. Provencal, J.B. Paul, and R.J. Saykally, "High resolution pulsed infrared cavity ringdown spectroscopy: Application to laser ablated carbon clusters." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2002/254_raphael_2002.pdf) J. Chem. Phys. **116**, 6640-6647 (2002).
- 253.**K.R. Wilson, M. Cavalleri, B.S. Rude, R.D. Schaller, A. Nilsson, L.G.M. Pettersson, N. Goldman, T. Catalano, J.D. Bozek, and R.J. Saykally, "Characterization of hydrogen bond acceptor molecules at the water surface using near-edge x-ray absorption fine-structure spectroscopy and density functional theory." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2002/253_wilson_2002.pdf) J. Phys.: Condens. Matter **14**, L221-L226 (2002).
**Featured by Science as "Editors' Choice."
- 252.* **J.C. Johnson, H. Yan, R.D. Schaller, L.H. Haber, P. Yang, and R.J. Saykally, "Single Nanowire Lasers." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2001/252_johnson_2001.pdf) J. Phys. Chem. B **105**, 11387-11390 (2001).
*Cover Article.
**Featured by Science as "Editors' Choice."
251. L.F. Lee, R.D. Schaller, L.H. Haber, and R.J. Saykally, "High Spatial Resolution Imaging with Near-field Scanning Optical Microscopy in Liquids." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2001/251_lynn_2001.pdf) Anal. Chem. **73**, 5015 (2001).
250. F.N. Keutsch, and R.J. Saykally, "Water Clusters: Untangling the mysteries of the liquid, one molecule at a time." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2001/250_keutsch_2001.pdf) PNAS **98**, 10533-10540 (2001).
249. E. Michael, C.J. Keoshian, S.K. Anderson, and R.J. Saykally, "Rotational transitions in excited vibrational states of D₂O" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2001/249_michael_2001.pdf), J. Mol. Spec. **208**, 219-223 (2001).
248. F.N. Keutsch, N. Goldman, E.N. Karyakin, H.A. Harker, M.E. Sanz, C. Leforestier, and R.J. Saykally, "Complete Characterization of the (D₂O)₂ Ground State: High Ka Rotation Tunneling Levels." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2001/248_keutsch_2001.pdf) The Royal Society of Chemistry, Faraday Discussion 118, "Cluster Dynamics," University of Durham, UK, Faraday Discuss. **118**, 79-93 (2001).

247. H.-S. Kim, D.R. Wagner, and R.J. Saykally, "Single Photon Infrared Emission Spectroscopy of the Gas Phase Pyrene Cation: Support for a Polycyclic Aromatic Hydrocarbon Origin of the Unidentified Infrared Emission Bands" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2001/247_wagner_2001.pdf), Phys. Rev. Lett. **86**, 5691 (2001).

246. F.N. Keutsch, R.S. Fellers, M.G. Brown, M.R. Viant, P.B. Petersen, and R.J. Saykally, "Hydrogen Bond Breaking Dynamics of the Water Trimer in the Translational and Librational Band Region of Liquid Water" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2001/246_keutsch_2001.pdf) J. Am. Chem. Soc. **123**, 5938-5941 (2001).

245. **T.-Q. Nguyen, B.J. Schwartz, R.D. Schaller, J.C. Johnson, L.F. Lee, L.H. Haber, and R.J. Saykally, "Near-Field Scanning Optical Microscopy (NSOM) Studies of the Relationship Between Interchain Interactions, Morphology, Photodamage and Energy Transport in Conjugated Polymer Films" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2001/245_schaller_2001.pdf) J. Phys. Chem. B **105**, 5153-5160 (2001).

**Featured by Science as "Editor's Choice."

244. R.J. Saykally and R. Casaes, "Cavity ringdown technique measures absorption" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2001/244_saykally_2001.pdf) Laser Focus World **37**, 159-162 (2001).

243. E.A. Michael, C.J. Keoshian, D.R. Wagner, S.K. Anderson, and R.J. Saykally, "Infrared Water Recombination Lasers" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2001/243_michael_2001.pdf) Chem. Phys. Lett. **338**, 277-284 (2001).

242. * K.R. Wilson, B. Rude, T. Catalano, R. Schaller, J.G. Tobin, D.T. Co, and R.J. Saykally, "X-Ray Spectroscopy of Liquid Water Microjets" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2001/242_wilson_2001.pdf), J. Phys. Chem. B **105**, 3346-3349 (2001).

*Cover Article.

241. T.F. Giesen, A.O. Van Orden, J.D. Cruzan, R.A. Provencal, R. Gendriesch, F. Lewen, G. Winnewisser, R.T. Boreiko, A.L. Betz, and R.J. Saykally, "Interstellar Detection of CCC and High Precision Laboratory Measurements near 2 THz" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2001/241_giesen_2001.pdf), Astrophys. J. Lett. **551**:L181-L184 (2001).

240. * T.F. Giesen, U. Berndt, K.M.T. Yamada, G. Fuchs, R. Schieder, G. Winnewisser, R.A. Provencal, F.N. Keutsch, A. Van Orden, and R.J. Saykally, "Detection of the Linear Carbon Cluster C10: Rotationally Resolved Diode Laser Spectroscopy" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2001/240_giesen_2001.pdf), Chem Phys Chem **2**, 242-247 (2001).

*Cover Article.

239. T.F. Giesen, U. Berndt, G. Fuchs, G. Winnewisser, R.A. Provencal, F.N. Keutsch, A. Van Orden, and R.J. Saykally, "IR Laser Spectroscopy of Carbon Clusters," Proceedings of the Nobel Symposium 117 on The Physics and Chemistry of Clusters, Visby, Sweden, E.E.B. Campbell and M. Larsson, editors, pp. 309-310 (2001).

238. R.J. Saykally, "Water Clusters: Building Up the Liquid One Step at a Time," Proceedings of the Nobel Symposium 117 on The Physics and Chemistry of Clusters, Visby, Sweden, E.E.B. Campbell and M. Larsson, editors, pp. 206-218 (2001).

237. * R.D. Schaller, and R.J. Saykally, "Near-field Sum Frequency Generation Imaging of CVD Zinc Selenide" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2001/237_schaller_2001.pdf), Langmuir **17**, 2055-2058 (2001).

*Cover Article.

236. F.N. Keutsch, R.S. Fellers, M.R. Viant, and R.J. Saykally, "Far-IR VRT Spectroscopy of Water Clusters in the Librational Band Region of Liquid Water" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2001/236_keutsch_2001.pdf), J. Chem. Phys. **114**, 4005-4015 (2001).
235. F.N. Keutsch, M.G. Brown, P.B. Petersen, M. Geleijns, A. van der Avoird, and R.J. Saykally, "Terahertz VRT Spectroscopy of Water Clusters in the Translational Band Region of Liquid Water," (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2001/235_keutsch_2001.pdf) J. Chem. Phys. **114**, 3994-4004 (2001).
234. F.N. Keutsch, E.N. Karyakin, A. van der Avoird, and R.J. Saykally, "The 583.2 GHz Torsional Hot-Band of (D₂O)₃" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2001/234_keutsch_2001.pdf), J. Chem. Phys. **114**, 3988-3993 (2001).
- 233.* N. Goldman, R.S. Fellers, C. Leforestier, and R.J. Saykally, "Water Dimers in the Atmosphere: Equilibrium Constant for Water Dimerization From the VRT (ASP-W) Potential Surface," (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2001/233_goldman_2001.pdf) J. Phys. Chem. A **105**, 515-519 (2001).
*Cover Article.
232. D.R. Wagner, H.-S. Kim, and R.J. Saykally, "Peripherally Hydrogenated Neutral Polycyclic Aromatic Hydrocarbons as Carriers of the 3 Micron Interstellar Infrared Emission Complex: Results from Single Photon Infrared Emission Spectroscopy" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2000/232_wagner_2000.pdf), Astrophys. J. **545**, 854-860 (2000).
231. K.R. Wilson, J.G. Tobin, A.L. Ankudinov, J.J. Rehr, and R.J. Saykally, "Extended X-Ray Absorption Fine Structure from Hydrogen Atoms in Water," (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2000/231_wilson_2000.pdf) Phys. Rev. Lett. **85**, 4289 (2000).
230. R.D. Schaller, J.C. Johnson, and R.J. Saykally, "Nonlinear Chemical Imaging Microscopy: Near-Field Third Harmonic Generation Imaging of Human Red Blood Cells," (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2000/230_schaller_2000.pdf) Anal. Chem. **72**, 5361-5364 (2000).
229. D.R. Wagner, and R.J. Saykally, "Ringing the changes," Chemistry in Britain **36**, 47-49 (2000).
228. L.B. Braly, K. Liu, M.G. Brown, F.N. Keutsch, R.S. Fellers, and R.J. Saykally, "Terahertz Laser Spectroscopy of the Water Dimer Intermolecular Vibrations. II. (H₂O)₂" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2000/228_braly_2000.pdf), J. Chem. Phys. **112**, 10314-10326 (2000).
227. L.B. Braly, J.D. Cruzan, K. Liu, R.S. Fellers, and R.J. Saykally, "Terahertz Laser Spectroscopy of the Water Dimer Intermolecular Vibrations. I. (D₂O)₂" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2000/227_braly_2000.pdf), J. Chem. Phys. **112**, 10293-10313 (2000).
- 226.* R.D. Schaller, C. Roth, D.H. Raulet, and R.J. Saykally, "Near-field Second Harmonic Imaging of Granular Membrane Structures in Natural Killer Cells" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2000/226_schaller_2000.pdf), J. Phys. Chem. B **104**, 5217 (2000).
*Cover Article.
225. R.A. Provencal, K. Roth, J.B. Paul, C.N. Chapo, R.N. Casaes, R.J. Saykally, G.S. Tschumper, and H.F. Schaefer, III, "Hydrogen Bonding in Alcohol Clusters: A Comparative Study by Infrared Cavity Ringdown Laser Absorption Spectroscopy" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/2000/225_provencal_2000.pdf), J. Phys. Chem. A **104**, 1423 (2000).

224. M.G. Brown, F.N. Keutsch, L.B. Braly, and R.J. Saykally, "High Symmetry Effects on Hydrogen Bond Rearrangement: The 4.1 THz Vibrational Band of (D₂O)₄." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1999/224_brown_1999.pdf) J. Chem. Phys. **111**, 7801-7806 (1999).
223. M.G. Brown, M.R. Viant, R.P. McLaughlin, C.J. Keoshian, E. Michael, J.D. Cruzan, R.J.-Saykally, and A. van der Avoird, "Quantitative Characterization of the Water Trimer Torsional Manifold by Terahertz Laser Spectroscopy and Theoretical Analysis. II. (H₂O)₃." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1999/223_brown_1999.pdf) J. Chem. Phys. **111**, 7789-7800 (1999).
222. D. Kraus, R.J. Saykally, and V.E. Bondybey, "Cavity ringdown spectroscopy search for transition metal dimers." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1999/222_kraus_1999.pdf) Chemical Physics **247**, 431-434 (1999).
221. A. O'Keefe, J.J. Scherer, J.B. Paul, and R.J. Saykally, "Cavity-Ringdown Laser Spectroscopy: History, Development, and Applications," 1997 ACS Symposium Series 720 on Cavity-ringdown spectroscopy: an ultratrace-absorption measurement technique, Kenneth W. and Marianna A. Busch, editors, pp. 71-92 (1999).
- 220.* R.A. Provencal, J.B. Paul, C.N. Chapo, and R.J. Saykally, "Cavity Ringdown Laser Absorption Spectroscopy," Spectroscopy **14**, 24 (1999).
*Cover Article.
219. E.N. Karaykin, G.T. Fraser, J.G. Loeser, and R.J. Saykally, "Rotation-Tunneling Spectrum of the Deuterated Ammonia Dimer." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1999/219_karaykin_1999.pdf) J. Chem. Phys. **110**, 9555-9559 (1999).
218. D. Kraus, R.J. Saykally, and V.E. Bondybey, "Cavity Ringdown Laser Absorption Spectra of Tungsten Oxide" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1999/218_kraus_1998.pdf), Chem. Phys. Lett. **295**, 285-288 (1998).
217. R.A. Provencal, J.B. Paul, K. Roth, C. Chapo, R.N. Casaes, R.J. Saykally, G.S. Tschumper, and H.F. Schaefer, III, "Infrared cavity ringdown spectroscopy of methanol clusters: Single donor hydrogen bonding." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1999/217_provencal_1999.pdf) J. Chem. Phys. **110**, 4258-4267 (1999).
216. R.S. Fellers, L.B. Braly, C. Leforestier, and R.J. Saykally, "Fully Coupled Six Dimensional Calculations of the Water Dimer Vibration-Rotation-Tunneling States with Split Wigner Pseudospectral Method II: Improvements and Tests of Additional Potentials." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1999/216_fellers_1999.pdf) J. Chem. Phys. **110**, 6306-6318 (1999).
215. M.R. Viant, M.G. Brown, J.D. Cruzan, M. Geleijns, A. van der Avoird, and R.J. Saykally, "Quantitative Characterization of the (D₂O)₃ Torsional Manifold by Terahertz Laser Spectroscopy and Theoretical Analysis." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1999/215_viant_1999.pdf) J. Chem. Phys. **110**, 4369-4381 (1999).
214. C.J. Chapo, J.B. Paul, R.A. Provencal, K. Roth, and R.J. Saykally, "Is Arginine Zwitterionic or Neutral in the Gas-Phase? Results from IR Cavity Ringdown Spectroscopy." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1999/214_chapo_1998.pdf) J. Am. Chem. Soc. **120**, 12956-12957 (1998).
213. J.B. Paul, R.A. Provencal, C. Chapo, K. Roth, R. Casaes, and R.J. Saykally, "Infrared Cavity Ringdown Spectroscopy of the Water Cluster Bending Vibrations." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1999/213_paul_1999.pdf) J. Phys. Chem. A **103**, 2972 (1999).

212. S. Henrichs, C.P. Collier, R.J. Saykally, Y.R. Shen and J.R. Heath, "The Dielectric Function of Silver Nanoparticle Langmuir Monolayers Compressed Through the Metal Insulator Transition" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1999/212_henrichs_1999.pdf), "J. Am. Chem. Soc. **122**, 4077-4083 (2000).
211. R.S. Fellers, C. Leforestier, L.B. Braly, M.G. Brown, and R.J. Saykally, "Spectroscopic Determination of the Water Pair Potential," (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1999/211_fellers_1999.pdf) "Science **284**, 945 (1999).
210. M.G. Brown, F.N. Keutsch, and R.J. Saykally, "The Bifurcation Rearrangement in Cyclic Water Clusters: Breaking and Making Hydrogen Bonds" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1998/210_brown_1998.pdf), "J. Chem. Phys. **109**, 9645-9647 (1998).
209. J.B. Paul, R.A. Provencal, C. Chapo, A. Pettersson, and R.J. Saykally, "Infrared Cavity Ringdown Spectroscopy of Water Clusters: O-D Stretching Bands," (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1998/209_paul_1998.pdf) "J. Chem. Phys. **109**, 10201-10206 (1998).
208. R.A. Provencal, J.B. Paul, E. Michael, and R.J. Saykally, "Cavity Ringdown Laser Absorption Spectroscopy," *Photonics Spectra* **23**, 159-166 (1998).
207. J.D. Cruzan, M.R. Viant, M.G. Brown, D.D. Lucas, K. Liu, and R.J. Saykally, "Terahertz laser VRT spectrum of the water pentamer-d10: Constraints on the bifurcation tunneling dynamics" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1998/207_cruzan_1998.pdf), "Chem. Phys. Lett. **292**, 667-676 (1998).
206. J.B. Paul, R.A. Provencal, and R.J. Saykally, "Characterization of the (D2O)2 Hydrogen Bond-Acceptor Antisymmetric Stretch by IR-Cavity Ringdown Laser Absorption Spectroscopy," (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1998/206_paul_1998.pdf) "J. Phys. Chem. A **102**, 3279 (1998).
205. R.J. Saykally, "Water Clusters," in *The 1999 McGraw-Hill Yearbook of Science & Technology*, Sybil P. Parker, editor, pp. 397-399 (1998).
- 204.* J.B. Paul, R.A. Provencal, C. Chapo, E. Michael, A. Pettersson, and R.J. Saykally, "Infrared Cavity Ringdown Laser Absorption Spectroscopy of Transient Species in Pulsed Supersonic Expansions," 1997 ACS Symposium Series on Cavity-Ringdown Spectroscopy: an ultratrace-absorption measurement technique, Kenneth W. and Marianna A. Busch, editors, pp. 162-173 (1999).
*Cover article.
203. J.J. Shiang, J.R. Heath, C.P. Collier, and R.J. Saykally, "Cooperative Phenomena in Artificial Solids Made from Silver Quantum Dots: The Importance of Classical Coupling," (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1998/203_shiang_1998.pdf) "J. Phys. Chem. B **102**, 3425 (1998).
- 202.* S.E. Henrichs, J.L. Sample, J.J. Shiang, J.R. Heath, C.P. Collier, and R.J. Saykally, "High Contrast Read/Write Optical Data Storage Using Silver Quantum Dot Monolayers," (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1999/202_henrichs_1999.pdf) "J. Phys. Chem. B **103**, 3524 (1999).
*Cover article.
201. M.G. Brown, M.R. Viant, and R.J. Saykally, "Far Infrared Laser VRT Spectroscopy of Water Clusters," *Proceedings of the 1997 NATO-Advanced Study Institute Conference on Recent Theoretical and Experimental Advances in Hydrogen Bonded Clusters*, Heraklion, Crete, Greece, S.S. Xantheas, editors, pp. 101-108 (2000).

- 200.* A. Van Orden and R.J. Saykally, "Small Carbon Clusters: Spectroscopy, Structure, and Energetics." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1998/200_orden_1998.pdf) *Chemical Reviews* **98**, 6, 2313-2357 (1998).
- *Cover article.
199. D.J. Cook, S. Schlemmer, N. Balucani, D.R. Wagner, J.A. Harrison, B. Steiner, and R.J. Saykally, "Single Photon Infrared Emission Spectroscopy: A Study of IR Emission from UV Laser Excited PAHs between 3 and 15 μm ." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1998/199_cook_1998.pdf) *J. Phys. Chem. A* **102**, 1465 (1998).
198. D.J. Cook and R.J. Saykally, "Simulated Infrared Emission Spectra of Highly Excited Polyatomic Molecules: A detailed model of the PAH-UIR hypothesis" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1998/198_cook_1998.pdf), *Astrophys. J.* **493**, 793-802 (1998).
197. C.P. Collier, R.J. Saykally, J.J. Shiang, S.E. Henrichs, and J.R. Heath, "Reversible Tuning of Silver Quantum Dot Monolayers Through the Metal-Insulator Transition." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1997/197_collier_1997.pdf) *Science* **277**, 1978 (1997).
196. A.I. Boldyrev, J. Simons, J.J. Scherer, J.B. Paul, C.P. Collier, and R.J. Saykally, "On The Ground Electronic States Of Copper Silicide and Its Ions." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1997/196_boldyrev_1998.pdf) *J. Chem. Phys.* **108**, 5728 (1998).
195. M.R. Viant, J.D. Cruzan, D.D. Lucas, M.G. Brown, K. Liu, and R.J. Saykally, "Pseudorotation In Water Trimer Isotopomers Using Terahertz Laser Spectroscopy." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1997/195_viant_1997.pdf) *J. Phys. Chem. A* **101**, 9032 (1997).
194. J.D. Cruzan, M.R. Viant, and R.J. Saykally, "Terahertz Laser Vibration-Rotation-Tunneling Spectroscopy of the Water Tetramer." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1997/194_cruzan_1997.pdf) *J. Phys. Chem. A* **101**, 9022 (1997).
193. K. Liu, M.G. Brown, J.D. Cruzan, and R.J. Saykally, "Terahertz Laser Spectroscopy of the Water Pentamer: Structure and Hydrogen Bond Rearrangement Dynamics." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1997/193_liu_1997.pdf) *J. Phys. Chem. A* **101**, 9011 (1997).
- 192.* K. Liu, M.G. Brown, and R.J. Saykally, "Terahertz Laser Vibration-Rotation-Tunneling Spectroscopy and Dipole Moment of a Cage Form of the Water Hexamer." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1997/192_liu_1997.pdf) *J. Phys. Chem. A* **101**, 8995 (1997).
- *Cover Article.
- 191.* J.B. Paul, J.J. Scherer, A. O'Keefe, and R.J. Saykally, "Cavity Ringdown Laser Absorption Spectroscopy," *Laser Focus World* **33**, 71-80 (1997). *Cover Article.
- 190.* J.B. Paul and R.J. Saykally, "Cavity Ringdown Laser Absorption Spectroscopy," *Analytical Chemistry* **A 69**, 287 A-292 A (1997). *Cover Article.
189. J.B. Paul, C.P. Collier, J.J. Scherer, A. O'Keefe, and R.J. Saykally, "Direct Measurement of Water Cluster Concentrations by Infrared Cavity Ringdown Laser Absorption Spectroscopy." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1997/189_paul_1997.pdf) *J. Phys. Chem. A* **101**, 5211 (1997).
188. J.R. Heath and R.J. Saykally, "Space Carbon: Neutral Pathways?." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1997/188_heath_1996.pdf) *Science* **274**, 1480

(1996).

187. J.K. Gregory, D.C. Clary, K. Liu, M.G. Brown, and R.J. Saykally, "The Water Dipole Moment in Water Clusters." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1997/187_gregory_1997.pdf) *Science* **275**, 814 (1997).

186. C. Leforestier, L.B. Braly, K. Liu, M.J. Elrod, and R.J. Saykally, "Fully coupled sixdimensional calculations of the water dimer vibration-rotation-tunneling states with a split Wigner pseudo spectral approach." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1997/186_leforestier_1997.pdf) *J. Chem. Phys.* **106**, 8527 (1997).

185. A. Van Orden, R.A. Provencal, F.N. Keutsch, and R.J. Saykally, "Infrared Laser Spectroscopy of Jet-Cooled Carbon Clusters: The $i5$ Band of Linear C₉." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1997/185_van%20orden_1996.pdf) *J. Chem. Phys.* **105**, 6111 (1996).

184. J.D. Cruzan, M.G. Brown, K. Liu, L.B. Braly, and R.J. Saykally, "The far-infrared vibration-rotation-tunneling spectrum of the water tetramer-d₈." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1997/184_cruzan_1996.pdf) *J. Chem. Phys.* **105**, 6634 (1996).

183. E.H.T. Olthof, A. van der Avoird, P.E.S. Wormer, K. Liu, and R.J. Saykally, "Tunneling dynamics, symmetry, and far-infrared spectrum of the rotating water trimer. II. Calculations and experiments." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1997/183_olthof_1996.pdf) *J. Chem. Phys.* **105**, 8051 (1996).

182. K. Liu, M.G. Brown, C. Carter, R.J. Saykally, J.K. Gregory, and D.C. Clary, "Characterization of A Cage Form of The Water Hexamer." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1997/182_liu_1996.pdf) *Nature* **381**, 501 (1996).

181.* J.J. Scherer, J.B. Paul, C.P. Collier, A. O'Keefe, D.J. Rakestraw, and R.J. Saykally, "Cavity Ringdown Laser Spectroscopy: A New Ultrasensitive Absorption Technique," *Spectroscopy* **11**, 46-50 (1996).
*Cover Article.

180. K. Liu, M.G. Brown, and R.J. Saykally, "Far-Infrared VRT Spectroscopy of Two Water Trimer Isotopomers: Vibrationally Averaged Structures and Rearrangement Dynamics." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1995-1996/180_liu_1996.pdf) *Molecular Physics* **89**, 1373 (1996).

179.* K. Liu, J.D. Cruzan, and R.J. Saykally, "Water Clusters." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1995-1996/179_liu_1996.pdf) *Science* **271**, 929 (1996) –Invited Paper.
*Cover Article.

178. K. Liu, R.S. Fellers, M.R. Viant, R.P. McLaughlin, M.G. Brown, and R.J. Saykally, "A Long Path Length Pulsed Slit Valve Appropriate for High Temperature Operation: Infrared Spectroscopy of Jet-cooled Large Water Clusters and Nucleotide Bases" *Rev. Sci. Instrum.* **67**, 410 (1996).

177. A. Van Orden and R.J. Saykally, "Carbon," in *The 1997 McGraw-Hill Yearbook of Science & Technology*, Sybil P. Parker, editor, pp. 71-73 (McGraw-Hill, Inc. 1996).

176. K. Liu, M.G. Brown, J.D. Cruzan, and R.J. Saykally, "VRT Spectra of the Water Pentamer: Structure and Dynamics." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1995-1996/176_liu_1996.pdf) *Science* **271**, 62 (1996).

175. M.R. Viant, R.S. Fellers, R.P. McLaughlin, and R.J. Saykally, "Infrared laser spectroscopy of uracil in a pulsed slit jet." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1995-1996/175_viant_1995.pdf) *J. Chem. Phys.* **103**, 9502 (1995).

174. J.J. Scherer, D. Voelkel, D.J. Rakestraw, J.B. Paul, C.P. Collier, A. O'Keefe, and R.J. Saykally, "Infrared Cavity Ringdown Laser Absorption Spectroscopy (IR-CRLAS)," *Chem. Phys. Lett.* **245**, 273-280 (1995).
173. J.B. Paul, J.J. Scherer, C.P. Collier, and R.J. Saykally, "Cavity ringdown laser absorption spectroscopy and time-of-flight mass spectroscopy of jet cooled platinum silicides." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1995-1996/173_paul_1996.pdf) *J. Chem. Phys.* **104**, 2782 (1996).
172. J.D. Cruzan, L.B. Braly, K. Liu, M.G. Brown, J.G. Loeser, and R.J. Saykally, "Quantifying Hydrogen Bond Cooperativity in Water: VRT Spectroscopy of the Water Tetramer." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1995-1996/172_cruzan_1996.pdf) *Science* **271**, 59 (1996).
171. J.J. Scherer, J.B. Paul, and R.J. Saykally, "Cavity Ringdown Laser Absorption Spectroscopy of the Jet-cooled Aluminum Dimer," *Chem. Phys. Lett.* **242**, 395-400 (1995).
170. D.J. Cook, S. Schlemmer, N. Balucani, D.R. Wagner, B. Steiner, and R.J. Saykally, "Infrared emission spectra of candidate interstellar aromatic molecules." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1995-1996/170_cook_1996.pdf) *Nature* **380**, 227 (1996).
169. J.J. Scherer, J.B. Paul, C.P. Collier, A. O'Keefe, and R.J. Saykally, "Cavity ringdown laser absorption spectroscopy and time-of-flight mass spectroscopy of jet-cooled gold silicides." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1995-1996/169_scherer_1995.pdf) *J. Chem. Phys.* **103**, 9187 (1995).
168. J.J. Scherer, J.B. Paul, C.P. Collier, and R.J. Saykally, "Cavity ringdown laser absorption spectroscopy and time-of-flight mass spectroscopy of jet-cooled silver silicides." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1995-1996/168_scherer_1995.pdf) *J. Chem. Phys.* **103**, 113 (1995).
167. A. Van Orden, R.A. Provencal, T.F. Giesen, and R.J. Saykally, "Characterization of Silicon-Carbon Clusters by Infrared Laser Spectroscopy: The ν_1 Band of SiC₄," *Chem. Phys. Lett.* **237**, 77-80 (1995).
166. J.J. Scherer, J.B. Paul, C.P. Collier, and R.J. Saykally, "Cavity ringdown laser absorption spectroscopy and time-of-flight mass spectroscopy of jet-cooled copper silicides." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1995-1996/166_scherer_1995.pdf) *J. Chem. Phys.* **102**, 5190 (1995).
165. A. Van Orden, J.D. Cruzan, R.A. Provencal, T.F. Giesen, R.J. Saykally, R.T. Boreiko, and A.L. Betz, "A Search for the C₃ Carbon Cluster in the Interstellar Medium," *Proceedings of the 1994 Kuiper Airborne Astronomy Symposium, NASA-Ames Research Center, Moffett Field, CA, Astron. Soc. Pac. Conf. Ser.*, 73, 67-70 (1995).
164. M.J. Elrod and R.J. Saykally, "Determination of the intermolecular potential energy surface for (HCl)₂ from vibration-rotation-tunneling spectra." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1995-1996/164_elrod_1995.pdf) *J. Chem. Phys.* **103**, 933- 949 (1995).
163. M.J. Elrod and R.J. Saykally, "Vibration-rotation-tunneling dynamics calculations for the four-dimensional (HCl)₂ system: A test of approximate models." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1995-1996/163_elrod_1995.pdf) *J. Chem. Phys.* **103**, 921-932 (1995).
162. E.H.T. Olthof, A. van der Avoird, P.E.S. Wormer, J.G. Loeser, and R.J. Saykally, "The nature of monomer inversion in the ammonia dimer." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1994/162_olthof_1994.pdf) *J. Chem. Phys.* **101**, 8443-8454 (1994).

161. A. Van Orden, T.F. Giesen, R.A. Provencal, H.J. Hwang, and R.J. Saykally, "Characterization of silicon-carbon clusters by infrared laser spectroscopy: The ν_3 band of linear Si_2C_3 ." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1994/161_van%20orden_1994.pdf) *J. Chem. Phys.* **101**, 10237-10241 (1994).
160. G.C.M. van der Sanden, P.E.S. Wormer, A. van der Avoird, C.A. Schmuttenmaer, and R.J. Saykally, "Close coupling results for inelastic collisions of NH_3 and Ar: A stringent test of a spectroscopic potential." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1994/160_van%20der%20sanden_1994.pdf) *Chem. Phys. Lett.* **226**, 22-26 (1994).
159. S. Schlemmer, D.J. Cook, J.A. Harrison, B. Wurfel, W. Chapman, and R.J. Saykally, "The Unidentified Interstellar Infrared Bands: PAHs as Carriers?." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1994/159_schlemmer_1994.pdf) *Science* **265**, 1686 (1994).
158. T.F. Giesen, A. Van Orden, H.J. Hwang, R.S. Fellers, R.A. Provencal, and R.J. Saykally, "Infrared Laser Spectroscopy of the Linear C_{13} Carbon Cluster." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1994/#158_giesen_1994.pdf) *Science* **265**, 756 (1994).
157. K. Liu, M.J. Elrod, J.G. Loeser, J.D. Cruzan, N. Pugliano, J.A. Rzepiela, M. Brown, and R.J. Saykally, "FIRVRTS of The Water Trimer." *Faraday Division. The Royal Society of Chemistry, Discussion No. 97. "Structure and Dynamics of van der Waals Complexes."* (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1994/157_liu_1994.pdf) *Durham, U.K., Faraday Discuss. 97*, 35-41 (1994).
- 156.* M.J. Elrod and R.J. Saykally, "Many-body Effects in Intermolecular Forces." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1994/156_elrod_1994.pdf) in *van der Waals Clusters II, a special thematic issue of Chemical Reviews*, J. Michl, Editor, **94**, 7, 1975-1997 (1994). *Cover Article.
- 155.* J.J. Scherer, J.B. Paul, A. O'Keefe, and R.J. Saykally, "Cavity Ringdown Laser Absorption Spectroscopy: History, Development, and Application to Pulsed Molecular Beams." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1997/155_scherer_1997.pdf) *Chemical Reviews* **97**, 25-51 (1997). *Cover Article.
154. C.A. Schmuttenmaer, R.C. Cohen, and R.J. Saykally, "Spectroscopic determination of the intermolecular potential energy surface for Ar-NH_3 ." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1994/154_schmuttenmaer_1994.pdf) *J. Chem. Phys.* **101**, 146-173 (1994).
153. C.A. Schmuttenmaer, J.G. Loeser, and R.J. Saykally, "Vibration-rotation-tunneling spectroscopy of Ar-NH_3 ." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1994/#153_schmuttenmaer_1994.pdf) *J. Chem. Phys.* **101**, 139-145 (1994).
152. K. Liu, J.G. Loeser, M.J. Elrod, B.C. Host, J.A. Rzepiela, and R.J. Saykally, "Dynamics of Structural Rearrangements in the Water Trimer." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1994/152_liu_1994.pdf) *J. Am. Chem. Soc.* **116**, 3507-3512 (1994).
151. J.J. Scherer, J.B. Paul, A. O'Keefe, and R.J. Saykally, "CRLAS: A New Analytical Technique for Cluster Science," in *Advances in Metal and Semiconductor Clusters*, Volume 3, M.A. Duncan, editor, pp. 149-180 (JAI Press Inc. 1995).
150. M.J. Elrod, R.J. Saykally, A.R. Cooper, and J.M. Hutson, "Non-additive intermolecular forces from the spectroscopy of Van der Waals trimers: far-infrared spectra and calculations on $\text{Ar}_2\text{-DC}_1$." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1994/150_elrod_1994.pdf) *Molecular Physics* **81**,

579-598 (1994).

149. Richard J. Saykally, "Tunable Far Infrared Laser Spectroscopy of Clusters," *Proceedings of the 1993 Eleventh International Conference on Laser Spectroscopy, Hot Springs, Virginia*, editors: L. Bloomfield, T. Gallagher, and D. Larson, AIP Press, Conference Proceedings No. **290**, pp. 139-143 (1994).

148. L. Dore, R.C. Cohen, C.A. Schmuttenmaer, K.L. Busarow, M.J. Elrod, J.G. Loeser, and R.J. Saykally, "Far infrared vibration-rotation-tunneling spectroscopy and internal dynamics of methane-water: A prototypical hydrophobic system." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1994/148_dore_1994.pdf) *J. Chem. Phys.* **100**, 863-876 (1994).

147. D.W. Steyert, M.J. Elrod, and R.J. Saykally, "Far-Infrared Laser Vibration-Rotation- Tunneling Spectroscopy of the Propane-Water Complex: Torsional Dynamics of the Hydrogen Bond." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1993/147_steyert_1993.pdf) *J. Chem. Phys.* **99**, 7431-7439 (1993).

146. D.W. Steyert, M.J. Elrod, R.J. Saykally, F.J. Lovas, and R.D. Suenram, "The Fourier Transform Microwave Spectrum of the Propane-Water Complex: A Prototypical Water- Hydrophobe System." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1993/146_steyert_1993.pdf) *J. Chem. Phys.* **99**, 7424-7430 (1993).

145. A.L. Cooksy, M.J. Elrod, R.J. Saykally, and W. Klemperer, "Dipole Moment Analysis of Excited Van der Waals Vibrational States of ArH35Cl." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1993/145_cooksy_1993.pdf) *J. Chem. Phys.* **99**, 3200-3204 (1993).

144. A. Van Orden, H.J. Hwang, E.W. Kuo, and R.J. Saykally, "Infrared Laser Spectroscopy of Jet-Cooled Carbon Clusters: The Bending Dynamics of Linear C9." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1993/144_van%20orden_1993.pdf) *J. Chem. Phys.* **98**, 6678-6683 (1993).

143. R.J. Saykally and G.A. Blake, "Molecular Interactions and Hydrogen Bond Tunneling Dynamics: Some New Perspectives." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1993/143_saykally_1993.pdf) *Science* **259**, 1570 (1993) - Invited Article.

142. H.J. Hwang, A. Van Orden, K. Tanaka, E.W. Kuo, J.R. Heath, and R.J. Saykally, "Infrared laser spectroscopy of jet-cooled carbon clusters: The structure of triplet C6." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1993/142_hwang_1993.pdf) *Molecular Physics* **79**, 769-776 (1993).

141. M.J. Elrod, J.G. Loeser, and R.J. Saykally, "An Investigation of Three-body Effects in Intermolecular Forces III. Far Infrared Laser Vibration-Rotation-Tunneling Spectroscopy of the Lowest Internal Rotor States of Ar2HC1." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1993/141_elrod_1993.pdf) *J. Chem. Phys.* **98**, 5352-5361 (1993).

140. H.J. Hwang, A.K. Van Orden, K. Tanaka, E.W. Kuo, J.R. Heath, and R.J. Saykally, "Infrared Laser Spectroscopy of Jet-Cooled Carbon Clusters: The Structure and Spectroscopy of $3[\Sigma] C_6$," *Proceedings of the 1993 Optical Society of America/High Resolution Spectroscopy, Salt Lake City, Utah.*

139. R.J. Saykally, "Detecting Pure Carbon Clusters in the ISM," *Proceedings of the 1992 Conference on Astronomical Infrared Spectroscopy: Future Observational Directions, Calgary, Alberta, Canada, Sun Kwok (ed.), ASP Conference Series, Vol. 41*, 1993.

138. J.R. Heath, A. Van Orden, H.J. Hwang, E.W. Kuo, K. Tanaka, and R.J. Saykally, "Toward the Detection of Pure Carbon Clusters in the ISM," *Proceedings of the Topical Meeting of the COSPAR Interdisciplinary Scientific Commission F (Meeting F3) of the COSPAR Twenty-ninth Plenary Meeting held in Washington, DC, U.S.A. 28 August-5 September, 1992, Adv. Space Res. Vol. 15*, No.3, pp. (3)25-(3)33, 1995.

137. N. Pugliano, J.D. Cruzan, J.G. Loeser, and R.J. Saykally, "Vibrational and K_a' Dependencies of the Multidimensional Tunneling Dynamics in the 82.6 cm⁻¹ Intermolecular Vibration of the Water Dimer-d₄." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1993/137_pugliano_1993.pdf) J. Chem. Phys. **98**, 6600 (1993).
136. **R.C. Cohen and R.J. Saykally, "Determination of an Improved Intermolecular Global Potential Energy Surface for Ar-H₂O from Vibration-Rotation-Tunneling Spectroscopy." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1993/136_cohen_1993.pdf) J. Chem. Phys. **98**, 6007-6030 (1993).
**Selected as one of top ten papers in "What's Hot in chemistry..." by Current Contents, 1995.
135. N. Pugliano and R.J. Saykally, "The Measurement of Quantum Tunneling Between Chiral Isomers of the Water Trimer." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1993/135_pugliano_1992.pdf) Science **257**, 1937 (1992).
134. M.J. Elrod, B.C. Host, D.W. Steyert, and R.J. Saykally, "Far Infrared Vibration- Rotation-Tunneling Spectroscopy of ArDCI: A Critical Test of the H₆(4.3.0) Potential Surface." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1993/134_elrod_1993.pdf) Molecular Physics **79**, 245-251 (1993).
133. J.W.I. van Bladel, A. van der Avoird, P.E.S. Wormer, and R.J. Saykally, "Computational Exploration of the Six-Dimensional Vibration-Rotation-Tunneling Dynamics of (NH₃)₂." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1992/133_van%20bladel_1992.pdf) J. Chem. Phys. **97**, 4750-4763 (1992).
132. J.G. Loeser, C.A. Schmuttenmaer, R.C. Cohen, M.J. Elrod, D.W. Steyert, R.J. Saykally, R.E. Bumgarner, and G.A. Blake, "Multidimensional Hydrogen Tunneling Dynamics in the Ground Vibrational State of the Ammonia Dimer." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1992/132_loeser_1992.pdf) J. Chem. Phys. **97**, 4727-4749 (1992).
131. N. Pugliano and R.J. Saykally, "Measurement of the $[nu]_8$ Intermolecular Vibration of (D₂O)₂ by Tunable Far Infrared Laser Spectroscopy." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1992/131_pugliano_1992.pdf) J. Chem. Phys. **96**, 1832-1839 (1992).
130. R.C. Cohen and R.J. Saykally, "Vibration-Rotation-Tunneling Spectroscopy of the van der Waals Bond: A New Look at Intermolecular Forces." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1992/130_cohen_1992.pdf) J. Phys. Chem. **96**, 1024 (1992) - Invited Article.
129. R.C. Cohen and R.J. Saykally, "Multidimensional Intermolecular Dynamics from Tunable Far Infrared Laser Spectroscopy: Angular-Radial Coupling in the Intermolecular Potential of Argon-H₂O." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1991/129_cohen_1991.pdf) J. Chem. Phys. **95**, 7891-7906 (1991).
128. J.R. Heath and R.J. Saykally, "Probing the Structures and Vibrational Dynamics of Carbon Clusters," in *On Clusters and Clustering: From Atoms to Fractals*, P.J. Reynolds, editor, pp. 7-21 (Elsevier Science Publishers B.V. 1993).
127. J.R. Heath, A. Van Orden, E. Kuo, and R.J. Saykally, "The $[nu]_5$ Band of C₇." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1991/127_heath_1991.pdf) Chem. Phys. Lett. **182**, 17-20 (1991).
126. M.J. Elrod, D.W. Steyert, and R.J. Saykally, "An Investigation of Three-Body Effects in Intermolecular Forces. II. Far Infrared Vibration-Rotation-Tunneling Laser Spectroscopy of Ar₂HC₁." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1991/126_elrod_1991.pdf) J. Chem. Phys. **95**, 3182-3190 (1991).

125. J.R. Heath, J.M. Hawkins, P.A. Alivasatos, R.J. Saykally, T.A. Lewis, S.D. Loren, A. Meyer, Y. Shibato, S. Tolbert, and J. Shang, "C60 Research at the University of California at Berkeley," *Proceedings of the 1990 Materials Research Science Conference*, Boston, MA.
124. C.A. Schmuttenmaer, R.C. Cohen, J.G. Loeser, and R.J. Saykally, "Far-Infrared Vibration-Rotation-Tunneling Spectroscopy of Ar-NH₃: Intermolecular Vibrations and Effective Angular Potential Energy Surface." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1991/124_schmuttenmaer_1991.pdf) *J. Chem. Phys.* **95**, 9-21 (1991).
123. R.C. Cohen and R.J. Saykally, "Multidimensional Intermolecular Potential Surfaces from Vibration-Rotation-Tunneling (VRT) Spectra of van der Waals Complexes." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1991/123_cohen_1991.pdf) *Ann. Rev. Phys. Chem.* **42**, 369 (1991).
122. J.M. Hawkins, T.A. Lewis, S.D. Loren, A. Meyer, J.R. Heath, R.J. Saykally, and F.J. Hollander, "A Crystallographic Analysis of C60 (Buckminsterfullerene)," *J. Chem. Soc., Chem. Commun.* **775** (1991).
121. G.A. Blake, K.B. Laughlin, R.C. Cohen, K.L. Busarow, D.-H. Gwo, C.A. Schmuttenmaer, D.W. Steyert, and R.J. Saykally, "The Berkeley Tunable Far Infrared Laser Spectrometers." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1991/121_blake_1991.pdf) *Rev. Sci. Instr.* **62**, 1701 (1991).
120. G.A. Blake, K.B. Laughlin, R.C. Cohen, K.L. Busarow, D.-H. Gwo, C.A. Schmuttenmaer, D.W. Steyert, and R.J. Saykally, "Tunable Far Infrared Laser Spectrometers." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1991/120_blake_1991.pdf) *Rev. Sci. Instr.* **62**, 1693 (1991) - Invited Review.
119. B.E. Wurfel, N. Pugliano, S.E. Bradforth, R.J. Saykally, and G.C. Pimentel, "Broadband Transient Infrared Laser Spectroscopy of Trifluorovinyl Radical - C₂F₃*: Experimental and Ab Initio Results." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1991/119_wurfel_1991.pdf) *J. Phys. Chem.* **95**, 2932 (1991).
118. M. Havenith, R.C. Cohen, K.L. Busarow, D.-H. Gwo, Y.T. Lee, and R.J. Saykally, "Measurement of the Intermolecular Vibration-Rotation-Tunneling (VRT) Spectrum of the Ammonia Dimer by Tunable Far Infrared Laser Spectroscopy." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1991/118_havenith_1991.pdf) *J. Chem. Phys.* **94**, 4776-4789 (1991).
117. J.R. Heath and R.J. Saykally, "The Structure of the C₄ Cluster Radical." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1991/117_heath_1991.pdf) *J. Chem. Phys.* **94**, 3271-3273 (1991).
116. J.R. Heath and R.J. Saykally, "Infrared Laser Absorption Spectroscopy of the [Inu]₄ ([sigma]u) Fundamental and Associated [Inu]₁₁ ([pi]u) Hot Band of C₇: Evidence for Alternating Rigidity in Linear Carbon clusters." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1991/116_heath_1991.pdf) *J. Chem. Phys.* **94**, 1724-1729 (1991).
115. M.J. Elrod, D.W. Steyert, and R.J. Saykally, "Tunable Far Infrared Laser Spectroscopy of a Ternary van der Waals Cluster Ar₂HCl: A Sensitive Probe of Three-Body Forces." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1991/115_elrod_1991.pdf) *J. Chem. Phys.* **94**, 58-66 (1991).
114. J.M. Hawkins, T.A. Lewis, S.D. Loren, A. Meyer, J.R. Heath, Y. Shibato, and R.J. Saykally, "Organic Chemistry of C₆₀ (Buckminsterfullerene): Chromatography and Osmylation." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1990/114_hawkins_1990.pdf) *J. Org. Chem.* **55**, 6250 (1990).
113. D.-H. Gwo, M. Havenith, K.L. Busarow, R.C. Cohen, C.A. Schmuttenmaer, and R.J. Saykally, "Tunable

- Far-IR Laser Spectroscopy of van der Waals Bonds: The ν_2 Bending Vibration of Ar-14NH₃.
(http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1990/113_gwo_1990.pdf) *Molec. Phys.* **71**, 453 (1990).
112. J.R. Heath and R.J. Saykally, "The C₉ Cluster: Structure and Infrared Frequencies."
(http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1990/112_heath_1990.pdf) *J. Chem. Phys.* **93**, 8392-8394 (1990).
111. R.C. Cohen and R.J. Saykally, "Extending the Collocation Method to Multidimensional Molecular Dynamics: Direct Determination of the Intermolecular Potential of Ar-H₂O from Tunable Far Infrared Laser Spectroscopy." (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1990/111_cohen_1990.pdf) *J. Phys. Chem.* **94**, 7991 (1990).
110. C.A. Schmuttenmaer, R.C. Cohen, N. Pugliano, J.R. Heath, A.L. Cooksy, K.L. Busarow, and R.J. Saykally, "Tunable Far Infrared Laser Spectroscopy of Jet-Cooled Carbon Clusters: The ν_2 Bending Vibration of C₃."
(http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1990/110_schmuttenmaer_1990.pdf) *Science* **249**, 897 (1990).
109. J.R. Heath, R.A. Sheeks, A.L. Cooksy, and R.J. Saykally, "The C₇ Cluster: Structure and Infrared Frequencies."
(http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1990/109_heath_1990.pdf) *Science* **249**, 895 (1990).
108. A. O'Keefe, J.J. Scherer, A.L. Cooksy, R. Sheeks, J.R. Heath, and R.J. Saykally, "Cavity Ring Down Dye Laser Spectroscopy of Jet Cooled Metal Clusters: Cu₂ and Cu₃."
(http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1990/108_o%27keefe_1990.pdf) *Chem. Phys. Lett.* **172**, 214-218 (1990).
107. E.R. Keim, M.L. Polak, J.C. Owrutsky, J.V. Coe, and R.J. Saykally, "Absolute Infrared Vibrational Band Intensities of Molecular Ions Determined by Direct Laser Absorption Spectroscopy in Fast Ion Beams."
(http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1990/107_keim_1990.pdf) *J. Chem. Phys.* **93**, 3111-3119 (1990).
106. H. Petek, D.J. Nesbitt, J.C. Owrutsky, C.S. Gudeman, X. Yang, D.O. Harris, C.B. Moore, and R.J. Saykally, "A Study of the Structure and Dynamics of the Hydronium Ion by High Resolution Infrared Laser Spectroscopy. III. The ν_3 Band of D₃O⁺."
(http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1990/106_petek_1990.pdf) *J. Chem. Phys.* **92**, 3257-3260 (1990).
105. R.C. Cohen, K.L. Busarow, Y.T. Lee, and R.J. Saykally, "Tunable Far Infrared Laser Spectroscopy of van der Waals Bonds: The Intermolecular Stretching Vibration and Effective Radial Potentials for Ar-H₂O."
(http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1990/105_cohen_1990.pdf) *J. Chem. Phys.* **92**, 169-177 (1990). LBL-27537
104. R.C. Cohen, K.L. Busarow, C.A. Schmuttenmaer, Y.T. Lee, and R.J. Saykally, "Tunable Far Infrared Laser Spectroscopy of Ultracold Free Radicals"
(http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1989/104_cohen_1989.pdf), *Chem. Phys. Lett.* **164**, 321 (1989). LBL-27939
103. D.C. Hovde, E.R. Keim, and R.J. Saykally, "Velocity Modulation Laser Spectroscopy of Molecular Ions: The Hyperfine-Resolved Rovibrational Spectrum of HF⁺"
(http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1989/103_hovde_1989.pdf), *Mol. Phys.* **68**, 599 (1989).
102. J.C. Owrutsky, E.R. Keim, J.V. Coe, and R.J. Saykally, "Absolute IR Intensities of the ν_3 Bands of HN₂⁺ and HCO⁺ Determined by Direct Laser Absorption Spectroscopy in Fast Ion Beams"
(http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1989/102_owrtusky_1989.pdf), *J. Phys. Chem.* **93**, 5960 (1989).

101. R.J. Saykally, "Far-Infrared Laser Spectroscopy of van der Waals Bonds: A New Probe of Intermolecular Forces (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1989/101_saykally_1989.pdf)," *Acc. Chem. Res.* **22**, 295 (1989). LBL-26553
100. J.R. Heath, A.L. Cooksy, M.H.W. Gruebele, C.A. Schmuttenmaer, and R.J. Saykally, "Diode Laser Absorption Spectroscopy of Supersonic Carbon Cluster Beams: The n₃ Spectrum of C₅" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1989/100_heath_1989.pdf)," *Science* **244**, 564 (1989).
99. M. Polak, M.H.W. Gruebele, B.W. DeKock, and R.J. Saykally, "Velocity Modulation Infrared Laser Spectroscopy of Molecular Ions: The n₄ Band of Ammonium" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1989/99_polak_1989.pdf)," *Molec. Phys.* **66**, 1193 (1989).
98. K.L. Busarow, R.C. Cohen, G.A. Blake, K.B. Laughlin, Y.T. Lee, and R.J. Saykally, "Measurement of the Perpendicular Rotation-Tunneling Spectrum of the Water Dimer by Tunable Far Infrared Laser Spectroscopy in a Planar Supersonic Jet" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1989/98_busarow_1989.pdf)," *J. Chem. Phys.* **90**, 3937 (1989). LBL-26174
97. J.V. Coe, J.C. Owrutsky, E.R. Keim, N.V. Agman, D.C. Hovde, and R.J. Saykally, "Sub-Doppler Direct IR Laser Absorption Spectroscopy in Fast Ion Beams: The Fluorine Hyperfine Structure of HF⁺" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1989/97_coe_1989.pdf)," *J. Chem. Phys.* **90**, 3893 (1989).
96. K.G. Lubic, D. Ray, D.C. Hovde, L. Veseth, and R.J. Saykally, "Laser Magnetic Resonance Rotational Spectroscopy of the Hydrogen Halide Molecular Ions: H₇₉Br⁺ and H₈₁Br⁺" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1989/96_lubic_1989.pdf)," *J. Mol. Spectrosc.* **134**, 21-31 (1989).
95. K.G. Lubic, D. Ray, D.C. Hovde, L. Veseth, and R.J. Saykally, "Laser Magnetic Resonance Rotational Spectroscopy of the Hydrogen Halide Molecular Ions: H₃₅C₁⁺ and H₃₇C₁⁺" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1989/95_lubic_1989.pdf)," *J. Mol. Spectrosc.* **134**, 1-20 (1989).
94. N.H. Rosenbaum, J.C. Owrutsky, and R.J. Saykally, "Velocity Modulation Infrared Laser Spectroscopy of HCS⁺: Analysis of Hot Bands and Perturbations" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1989/94_rosenbaum_1989.pdf)," *J. Mol. Spectrosc.* **133**, 365-382 (1989).
93. K.B. Laughlin, G.A. Blake, R.C. Cohen, and R.J. Saykally, "Experimental Determination of Dipole Moments for Molecular Ions: Improved Measurements for ArH⁺" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1989/93_laughlin_1989.pdf)," *J. Chem. Phys.* **90**, 1358 (1989).
92. J.V. Coe and R.J. Saykally, "Infrared Laser Spectroscopy of Molecular Ions," in *Ion and Cluster Ion Spectroscopy and Structure*, J.P. Maier, editor, Elsevier Science Publishers, pp. 131-154 (1989).
91. M.B. Radunsky and R.J. Saykally, "Nonintrusive Measurement of Axial Electric Fields in Low Pressure Glow Discharges by Velocity Modulation Laser Spectroscopy" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1988/91_radunsky_1988.pdf)," *Chem. Phys. Lett.* **152**, 419 (1988). LBL-23947
90. G. Blake, K.L. Busarow, R.C. Cohen, K.B. Laughlin, Y.T. Lee, and R.J. Saykally, "Tunable Far-Infrared Laser Spectroscopy of Hydrogen Bonds: The Ka=O(u)1(g) Rotation-Tunneling Spectrum of the HC₁ Dimer" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1988/90_blake_1988.pdf)," *J. Chem. Phys.* **89**, 6577 (1988). LBL-25400
89. M.H.W. Gruebele, E. Keim, A. Stein, and R.J. Saykally, "Experimental Potential Functions for Open and

- Closed Shell Molecular Ions: Adiabatic and Nonadiabatic Corrections in X3S- OH+ and X1S+ ArH+
(http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1988/89_gruebele_1988.pdf),” J. Mol. Spectrosc. **131**, 343-366 (1988).
88. R.C. Cohen, K.L. Busarow, K.B. Laughlin, G.A. Blake, M. Havenith, Y.T. Lee, and R.J. Saykally, “Tunable Far Infrared Laser Spectroscopy of van der Waals Bonds: Vibration-Rotation-Tunneling Spectra of Ar-H₂O” (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1988/88_cohen_1988.pdf),” J. Chem. Phys. **89**, 4494 (1988). LBL-25399
87. R.C. Woods and R.J. Saykally, “A Reanalysis of the Molecular Beam Electric Resonance Stark Effect Data for the a₃P Carbon Monoxide” (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1988/87_woods_1988.pdf),” J. Chem. Phys. **89**, 2781 (1988).
86. K.L. Busarow, G.A. Blake, K.B. Laughlin, R.C. Cohen, Y.T. Lee, and R.J. Saykally, “Tunable Far Infrared Laser Spectroscopy of van der Waals Bonds: Extended Measurements on the Lowest S Bend of ArHC₁” (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1988/86_busarow_1988.pdf),” J. Chem. Phys. **89**, 1268 (1988). LBL-24859
85. M. Polak, M.H.W. Gruebele, G.S. Peng, and R.J. Saykally, “Velocity Modulation Infrared Laser Spectroscopy of Negative Ions: the (011)-(001) Band of Azide (N₃)” (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1988/85_polak_1988.pdf),” J. Chem. Phys. **89**, 110 (1988).
84. R.L. Robinson, D.-H. Gwo, and R.J. Saykally, “Far Infrared Laser Stark Spectroscopy of the S Bending Vibration of Ar-HC₁: Strong Evidence for a Double Minimum Potential Surface” (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1988/84_robinson_1988.pdf),” Molec. Phys. **63**, 1021 (1988). LBL-24806
83. R.J. Saykally, “Infrared Laser Spectroscopy of Molecular Ions” (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1988/83_saykally_1988.pdf),” Science **239**, 157 (1988).
82. R.J. Saykally, T.A. Dixon, T.G. Anderson, P.G. Szanto, and R.C. Woods, “The Microwave Spectrum of CO in the a₃P State. I. The J=O-1 Transitions in CO, ¹³CO, and C¹⁸O” (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1988/82_saykally_1987.pdf),” J. Chem. Phys. **87**, 6423 (1987).
81. R.L. Robinson, D.-H. Gwo, and R.J. Saykally, “The High Resolution Far Infrared Spectrum of a van der Waals Stretching Vibration: The n₃ Band of Ar-HC₁” (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1988/81_robinson_1987.pdf),” J. Chem. Phys. **87**, 5156 (1987). LBL-23560
80. R.L. Robinson, D. Ray, D.-H. Gwo, and R.J. Saykally, “An Extended Study of the Lowest P Bending Vibration-Rotation Spectrum of Ar-HC₁ by Intracavity Far Infrared Laser/Microwave Double Resonance Spectroscopy” (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1988/80_robinson_1987.pdf),” J. Chem. Phys. **87**, 5149 (1987). LBL-235459
79. K.B. Laughlin, G.A. Blake, R.C. Cohen, D.C. Hovde, and R.J. Saykally, “Determination of the Dipole Moments of Molecular Ions from the Rotational Zeeman Effect by Tunable Far Infrared Laser Spectroscopy,” Phil. Trans. R. Soc. Lond. A, **234**, 109-119 (1988).
78. J. Owrutsky, N. Rosenbaum, L. Tack, M. Gruebele, M. Polak, and R.J. Saykally, “Velocity Modulation Infrared Laser Spectroscopy of Molecular Anions,” Phil. Trans. R. Soc. Lond. A, **324**, 97-108 (1987).
77. K.L. Busarow, G.A. Blake, K.B. Laughlin, R.C. Cohen, Y.T. Lee, and R.J. Saykally, “Tunable Far Infrared Laser Spectroscopy in a Planar Supersonic Jet: The Σ Bending Vibration of Ar-H₃CC₁” (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1987/77_busarow_1987.pdf),” Chem. Phys. Letts. **141**, 289 (1987). LBL-23868

76. D.C. Hovde and R.J. Saykally, "Laser Magnetic Resonance in Supersonic Plasmas. The Rotational Spectrum of SH⁺" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1987/76_hovde_1987.pdf), "J. Chem. Phys. **87**, 4332 (1987).
75. M. Polak, M.H.W. Gruebele, and R.J. Saykally, "Velocity Modulation Diode Laser Spectroscopy of Negative Ions: The n₁, n₁+n₂-n₂, n₁+n₃-n₃ Bands of Thiocyanate (NCS⁻)" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1987/75_polak_1987.pdf) "J. Chem. Phys. **87**, 3352 (1987).
74. M.H.W. Gruebele, M. Polak, and R.J. Saykally, "A Study of the Structure and Dynamics of the Hydronium Ion by High Resolution Infrared Laser Spectroscopy. II. The n₄ Perpendicular Bending Mode of H₃16O⁺" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1987/74_gruebele_1987.pdf), "J. Chem. Phys. **87**, 3347 (1987).
73. R.L. Robinson, D. Ray, D.-H. Gwo, and R.J. Saykally, "Vibration-Rotation Spectroscopy of ArHC1 by Far-Infrared Laser and Microwave/Far-Infrared Laser Double Resonance Spectroscopy," *Structure and Dynamics of Weakly Bound Molecular Complexes*, A. Weber, editor (D. Reidel Publishing Co., Dordrecht 1987) pgs. 85-92. LBL-22803
72. M.H.W. Gruebele, M. Polak, and R.J. Saykally, "Diode Laser Velocity Modulation Spectroscopy of Carbanions: The CC Stretching Vibration of C₂H⁻" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1987/72_gruebele_1987.pdf), "J. Chem. Phys. **87**, 1448 (1987).
71. M.B. Radunsky and R.J. Saykally, "Electronic Absorption Spectroscopy of Molecular Ions in Plasmas by Dye Laser Velocity Modulation: The AX System of N₂⁺" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1987/71_radunsky_1987.pdf), "J. Chem. Phys. **87**, 898 (1987). LBL-22177
70. M.H.W. Gruebele, M. Polak, and R.J. Saykally, "Velocity Modulation Infrared Laser Spectroscopy of Negative Ions: The n₃, n₃+n₁-n₁, n₃+n₂-n₂, and n₃+2n₂-2n₂ Bands of Cyanate (NCO⁻)" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1987/70_gruebele_1987.pdf), "J. Chem. Phys. **86**, 6631 (1987).
69. R.J. Saykally, K.M. Evenson, D.A. Jennings, L.R. Zink, and A. Scalabrin, "New FIR Laser Lines and Frequency Measurements for Optically Pumped CD₃OH" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1987/69_saykally_1987.pdf), "Int. J. of Infrared and mm Waves, **8**, 653-662 (1987).
68. M. Polak, M.H.W. Gruebele, and R.J. Saykally, "Velocity Modulation Laser Spectroscopy of Negative ions: The n₃ Band of Azide (N₃⁻)" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1987/68_polak_1987.pdf), "J. Am. Chem. Soc. **109**, 2884 (1987).
67. Geoffrey A. Blake, K.B. Laughlin, R.C. Cohen, K.L. Busarow, and R.J. Saykally, "Laboratory Measurement of the Pure Rotational Spectrum of Vibrationally Excited HCO⁺ (n₂=1) by Far Infrared Laser Sideband Spectroscopy," *Astrophys. J.* **316**, L45 (1987).
66. R.L. Robinson, D.-H. Gwo, D. Ray, and R.J. Saykally, "Evidence for a Secondary Minimum in the ArHC1 Potential Surface from Far Infrared Laser Spectroscopy of the Lowest S Bending Vibration" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1987/66_robinson_1987.pdf), "J. Chem. Phys. **86**, 5211 (1987). LBL-22804
65. K.B. Laughlin, Geoffrey A. Blake, R.C. Cohen, D.C. Hovde, and R.J. Saykally, "Determination of the Dipole Moment of ArH⁺ from the Rotational Zeeman Effect by Tunable Far Infrared Laser Spectroscopy" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1987/65_laughlin_1987.pdf), "Phys. Rev. Letts. **58**, 996-999 (1987).
64. M.H.W. Gruebele, M. Polak, and R.J. Saykally, "Velocity Modulation Laser Spectroscopy of Negative

ions: The Infrared Spectrum of Hydrosulfide (SH-)

(http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1987/64_gruebele_1987.pdf),” *J. Chem. Phys.* **86**, 1698 (1987).

63. J.M. Brown, J.E. Schubert, R.J. Saykally, and K.M. Evenson, “The Far-Infrared Laser Magnetic Resonance Spectrum of the CF Radical and Determination of Ground State Parameters (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1985-1986/63_brown_1986.pdf),” *J. Mol. Spectrosc.* **120**, 421-434 (1986).

62. M.H.W. Gruebele, M. Polak, G.A. Blake, and R.J. Saykally, “Determination of the Born-Oppenheimer Potential Function of CC1+ by Velocity Modulation Diode Laser Spectroscopy (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1985-1986/62_gruebele_1986.pdf),” *J. Chem. Phys.* **85**, 6276 (1986).

61. A.L. Cooksy, R.J. Saykally, J.M. Brown, and K.M. Evenson, “Accurate Determination of the Fine Structure Intervals in the 3P Ground State of 13C and 12C by Far Infrared Laser Magnetic Resonance,” *Astrophys. J. Letts.* **309**, 828 (1986).

60. L.M. Tack, N.H. Rosenbaum, J.C. Owrutsky, and R.J. Saykally, “Velocity Modulation Infrared Laser Spectroscopy and Structure of the Amide Anion (NH2-) (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1985-1986/60_tack_1986.pdf),” *J. Chem. Phys.* **85**, 4222 (1986).

59. R.J. Saykally, K.M. Evenson, E. Comben, and J.M. Brown, “Measurement of the Rotational Spectrum of Carbon Monoxide in its Metastable a3P state by Laser Magnetic Resonance (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1985-1986/59_saykally_1986.pdf),” *Molec. Phys.* **58**, 735 (1986).

58. S.E. Strahan, R.P. Müller and R.J. Saykally, “Measurement of the Rotational Spectrum of the Water Cation (H2O+) by Laser Magnetic Resonance Spectroscopy (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1985-1986/58_strahan_1986.pdf),” *J. Chem. Phys.* **85**, 1252 (1986). LBL-21108

57. A.L. Cooksy, G.A. Blake, and R.J. Saykally, “Direct Measurement of the Fine Structure Interval and gJ Factors of Singly Ionized Atomic Carbon by Laser Magnetic Resonance,” *Astrophys. J.* **305**, L89 (1986).

56. L.M. Tack, N.H. Rosenbaum, J.C. Owrutsky, and R.J. Saykally, “Velocity Modulation Infrared Laser Spectroscopy of Negative Ions: Measurement of the n1 Vibration of Amide (NH2-) (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1985-1986/56_tack_1986.pdf),” *J. Chem. Phys.* **84**, 7056 (1986).

55.* R.J. Saykally, “Vibrational Spectroscopy of Negative Ions with Infrared Lasers,” *Spectroscopy*, **1**, 40 (1986).

***Cover Article.**

54. A.L. Cooksy, D.C. Hovde, and R.J. Saykally, “Precise Measurement of the J = 2 1 Fine Structure Interval in N(II) by Far Infrared Laser Magnetic Resonance (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1985-1986/54_cooksy_1986.pdf),” *J. Chem. Phys.* **84**, 6101 (1986).

53. G.E. Scuseria, T.J. Lee, R.J. Saykally and H.F. Schaefer III, “Nitrogen Quadrupole Coupling Constants for HCN and H2CN+: Explanation of the Absence of Fine Structure in the Microwave Spectrum of Interstellar H2CN+ (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1985-1986/53_scuseria_1986.pdf),” *J. Chem. Phys.* **84**, 5711 (1986).

52. N.H. Rosenbaum, J.C. Owrutsky, L.M. Tack, and R.J. Saykally, “Velocity Modulation Laser Spectroscopy of Negative Ions: The Infrared Spectrum of Hydroxide (OH-) (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1985-1986/52_rosenbaum_1986.pdf),” *J. Chem. Phys.* **84**, 5308 (1986).

51. M.H.W. Gruebele, M. Polak and R.J. Saykally, "Velocity Modulation of Vibrationally Excited CF₊: Determination of the Molecular Potential Function (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1985-1986/51_gruebele_1986.pdf)," *Chem. Phys. Letts.* **125**, 165 (1986).
- 50.* R.J. Saykally and T. Van Slambrouck, "Infrared Spectroscopy of Molecular Cations and Anions with Color Center Lasers," *Lasers and Applications*, Vol. **V**, 80 (1986).
- *Cover Article.**
49. M.H.W. Gruebele, R.P. Müller and R.J. Saykally, "Measurement of the Rotational Spectra of OH⁺ and OD⁺ by Laser Magnetic Resonance (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1985-1986/49_gruebele_1986.pdf)," *J. Chem. Phys.* **84**, 2489 (1986). LBL-20411
48. D. Ray, R. Robinson, D.-H. Gwo and R.J. Saykally, "Vibrational spectroscopy of van der Waals bonds: Measurement of the perpendicular bend of ArHCl by intracavity far infrared laser spectroscopy of a supersonic jet (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1985-1986/48_ray_1986.pdf)," *J. Chem. Phys.* **84**, 1171 (1986). LBL-20409
47. J.C. Owrrtsky, C.S. Gudeman, C.C. Martner, L.M. Tack, N.H. Rosenbaum and R.J. Saykally, "Determination of the Equilibrium Structure of Protonated Nitrogen by High Resolution Infrared Laser Spectroscopy (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1985-1986/47_owrrtsky_1986.pdf)," *J. Chem. Phys.* **84**, 605-617 (1986).
46. C.S. Gudeman, C.C. Martner and R.J. Saykally, "Electronic Spectroscopy of Molecular Ions by Velocity Modulation With CW Dye Lasers: A Non-Intrusive In Situ State-Selective Probe of Plasma Dynamics (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1984/46_gudeman_1985.pdf)," *Chem. Phys. Letts.* **122**, 108 (1985).
45. J.C. Owrrtsky, N.H. Rosenbaum, L.M. Tack, and R.J. Saykally, "The Vibration-Rotation Spectrum of the Hydroxide Anion (OH⁻) (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1984/45_owrrtsky_1985.pdf)," *J. Chem. Phys.* **83**, 5338 (1985).
44. N.H. Rosenbaum, J.C. Owrrtsky, L.M. Tack and R.J. Saykally, "Measurement of the n₁ Vibration-Rotation Spectrum of the Thioformyl Ion (HCS⁺) by Velocity Modulation Laser Spectroscopy (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1984/44_rosenbaum_1985.pdf)," *J. Chem. Phys.* **83**, 4845 (1985).
43. C.A. Ferrari and R.J. Saykally, "Laser Magnetic Resonance Spectroscopy," *Revista Brasileira de Fisica*, **15**, 1, (1985).
42. D. Ray, R. Robinson, D.-H. Gwo, and R.J. Saykally, "Intracavity Far Infrared Laser Spectroscopy of Supersonic Jets: Direct Measurement of the Vibrational Motions in van der Waals Bonds," in *Laser Spectroscopy*, Vol. 7 (Y.R. Shen and T. Hansch, editors), Springer-Verlag, 1985.
41. M.H. Begemann and R.J. Saykally, "A Study of the Structure and Dynamics of the Hydronium Ion by High-Resolution Infrared Laser Spectroscopy. I. The n₃ Band of H₃16O⁺ (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1984/41_begemann_1985.pdf)," *J. Chem. Phys.* **82**, 3570 (1985).
40. R.J. Saykally, "Laser Magnetic Resonance Rotational Spectroscopy," *Chemistry in Britain*, p. 159-161, February 1985.
39. D.J. Nesbitt, H. Petek, C.S. Gudeman, C.B. Moore and R.J. Saykally, "A Study of the n₁ Fundamental and Bend-Excited Hot Band of DNN⁺ by Velocity Modulation Absorption Spectroscopy with an Infrared Difference Frequency Laser (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1984/39_nesbitt_1984.pdf)," *J. Chem. Phys.* **81**, 5281 (1984).

38. E. Schafer and R.J. Saykally, "The High Resolution Infrared Spectrum and Molecular Structure of the Superacid H₂F⁺ by Velocity Modulation Laser Absorption Spectroscopy (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1984/38_schafer_1984.pdf)," *J. Chem. Phys.* **81**, 4189 (1984).
37. C.S. Gudeman and R.J. Saykally, "Velocity Modulation Infrared Laser Spectroscopy of Molecular Ions (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1984/37_gudeman_1984.pdf)," *Ann. Rev. Phys. Chem.* **35**, 387-418 (1984).
36. R.J. Saykally, "Studies of Astrophysically Important Molecular Ions with Ultrasensitive Infrared Laser Techniques," *Molecular Astrophysics: State of the Art and Future Directions*, ed. G.H. F. Dierksen, W.F. Huebner, and P.W. Langhoff (D. Reidel Pub. Co., 1985).
35. J. Pfaff, M.H. Begemann, and R.J. Saykally, "An Investigation of the Laser Optogalvanic Effect for Atoms and Molecules in Recombination-Limited Plasmas (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1984/35_pfaff_1984.pdf)," *Molec. Phys.* **52**, 541 (1984).
34. L.M. Ziurys, D.P. Clemens, R.J. Saykally, M. Colvin, and H.F. Schaefer, "A Search for Interstellar Silicon Nitride," *Astrophys. J.* **281**, 219 (1984).
33. D.C. Hovde, E. Schafer, Susan E. Strahan, C.A. Ferrari, Douglas Ray, K.G. Lubic, and R.J. Saykally, "Measurement of the Rotational Spectrum of HF⁺ by Laser Magnetic Resonance (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1984/33_hovde_1984.pdf)," *Molec. Phys.* **52**, 245 (1984).
32. E. Schafer, R.J. Saykally, and Alan G. Robiette, "A High-Resolution Study of the n₃ Band of the Ammonium Ion (NH₄⁺) by Velocity Modulation Laser Absorption Spectroscopy (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1984/32_schafer_1984.pdf)," *J. Chem. Phys.* **80**, 3969 (1984).
31. R.J. Saykally, Leif Veseth, and K.M. Evenson, "Laser Magnetic Resonance Rotational Spectroscopy of 2S Radicals: Ethynyl (CCH) (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1984/31_saykally_1984.pdf)," *J. Chem. Phys.* **80**, 2247 (1984).
30. E. Schafer and R.J. Saykally, "Velocity Modulation Infrared Laser Spectroscopy of Molecular Ions: The n₁ and n₃ Bands of Fluoronium (H₂F⁺) (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1984/30_schafer_1984.pdf)," *J. Chem. Phys.* **80**, 2973 (1984).
29. L.M. Ziurys, C. Henkel, and R.J. Saykally, "A Search for 2P, N=1, J=3/2 Lambda- Doubling Transitions of CH," *Astrophys. J.* **275**, 175 (1983).
28. A.R.W. McKellar, P.R. Bunker, Trevor J. Sears, K.M. Evenson, R.J. Saykally, and S.R. Langhoff, "Far-Infrared Laser Magnetic Resonance of Singlet Methylene: Singlet-triplet perturbations, singlet-triplet transitions, and singlet-triplet splitting (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1980-1983/28_mckellar_1983.pdf)," *J. Chem. Phys.* **79**, 5251-5264 (1983).
27. J. Pfaff, M.H. Begemann, and R.J. Saykally, "Visible Laser Optogalvanic Spectroscopy of a Hollow Cathode Plasma," proceedings on the International Conference on Lasers '82, December 1982.
26. M.H. Begemann, J. Pfaff, and R.J. Saykally, "Color Center Laser Optogalvanic Spectroscopy of a Planar Hollow Cathode Plasma," proceedings on the International Conference on Lasers '82, December 1982.
25. M.H. Begemann, C.S. Gudeman, J. Pfaff, and R.J. Saykally, "Detection of the Hydronium Ion (H₃O⁺) by High-Resolution Infrared Spectroscopy (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1980-1983/25_begemann_1983.pdf)," *Phys. Rev. Lett.* **51**, 554-557 (1983).

24. Eckhard Schafer, M.H. Begemann, C.S. Gudeman, and R.J. Saykally, "[The \$n_3\$ Vibrational Spectrum of the Free Ammonium Ion \(\$\text{NH}_4^+\$ \)](http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1980-1983/24_schafer_1983.pdf)" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1980-1983/24_schafer_1983.pdf), *J. Chem. Phys.* **79**, 3159-3160 (1983).
23. C.C. Martner, J. Pfaff, Neil H. Rosenbaum, A. O'Keefe, and R.J. Saykally, "[Radiative Lifetimes of Trapped Molecular Ions: \$\text{HC}1^+\$ and \$\text{HBr}^+\$](http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1980-1983/23_martner_1983.pdf) " (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1980-1983/23_martner_1983.pdf), *J. Chem. Phys.* **78**, 7073-7076 (1983).
22. C.S. Gudeman, M.H. Begemann, J. Pfaff, and R.J. Saykally, "[Tone-Burst Modulated Color-Center-Laser Spectroscopy](http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1980-1983/22_gudeman_1983.pdf)" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1980-1983/22_gudeman_1983.pdf), *Optics Lett.* **8**, 310-312 (1983).
21. C.S. Gudeman, M.H. Begemann, J. Pfaff, and R.J. Saykally, "[Velocity-Modulated Infrared Laser Spectroscopy of Molecular Ions: The \$n_1\$ Band of \$\text{HNN}^+\$](http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1980-1983/21_gudeman_1983.pdf) " (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1980-1983/21_gudeman_1983.pdf), *J. Chem. Phys.* **78**, 5837-5838 (1983).
20. R.J. Saykally, K.G. Lubic, K.M. Evenson, "Structures of Molecular Ions from Laser Magnetic Resonance Spectroscopy," *Molecular Ions*, edited by Joseph Berkowitz and Karl-Ontjes Groeneveld (Plenum Publishing Corp., 1983), pp. 33-52.
19. Christopher S. Gudeman, M.H. Begemann, J. Pfaff, and R.J. Saykally, "[Velocity-Modulated Infrared Laser Spectroscopy of Molecular Ions: The \$n_1\$ Band of \$\text{HCO}^+\$](http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1980-1983/19_gudeman_1983.pdf) " (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1980-1983/19_gudeman_1983.pdf), *Phys. Rev. Lett.* **50**, 727-731 (1983).
18. Douglas Ray, K.G. Lubic, and R.J. Saykally, "[The Laser Magnetic Resonance Spectrum of \$\text{HC}1^+\$](http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1980-1983/18_ray_1982.pdf) " (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1980-1983/18_ray_1982.pdf), *Mol. Phys.* **46**, 217 (1982).
17. Lucy M. Ziurys, R.J. Saykally, R.L. Plambeck, and N.R. Erickson, "Detection of the $N = 3-2$ Transition of CCH in Orion and Determination of the Molecular Rotational Constants," *Astrophys. J.* **254**, 94 (1982).
16. R.J. Saykally, Karen G. Lubic, A. Scalabrin, and K.M. Evenson, "[The Pure Rotational Spectrum and Hyperfine Structure of CF Studied by Laser Magnetic Resonance](http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1980-1983/16_saykally_1982.pdf)" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1980-1983/16_saykally_1982.pdf), *J. Chem. Phys.* **77**, 58-67 (1982).
15. M.H. Begemann and R.J. Saykally, "[Color Center Laser Optogalvanic Spectroscopy of Lithium, Barium, Neon, and Argon Rydberg States in Hollow Cathode Discharges](http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1980-1983/15_begemann_1982.pdf)" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1980-1983/15_begemann_1982.pdf), *Optics Commun.* **40**, 277-282 (1982).
14. R.J. Saykally, Marianne H. Begemann, and Jurgen Pfaff, "Optogalvanic Spectroscopy in Recombination-Limited Plasmas with Color Center Lasers," in *Laser Spectroscopy V*, edited by A.R.W. McKellar, T. Oka, and B.P. Stoicheff (Springer-Verlag 1981).
13. R.J. Saykally and R.C. Woods, "[High Resolution Spectroscopy of Molecular Ions](http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1980-1983/13_saykally_1981.pdf)" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1980-1983/13_saykally_1981.pdf), *Ann. Rev. Phys. Chem.* **32**, 403-431 (1981).
12. Artemio Scalabrin, R.J. Saykally, K.M. Evenson, Harrison E. Radford, and Masataka Mizushima, "[Laser Magnetic Resonance Measurement of Rotational Transitions in the Metastable a \$1^2g\$ State of Oxygen](http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1980-1983/12_scalabrin_1981.pdf)" (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1980-1983/12_scalabrin_1981.pdf), *J. Mol. Spectrosc.* **89**, 344-351 (1981).
11. K.M. Evenson and R.J. Saykally, "Far-Infrared Laser Magnetic Resonance Spectroscopy," *IAU Symposium #87 on Interstellar Molecules*, B.H. Andrew, editor (Reidel Inc., Boston 1980).
10. P.G. Szanto, T.G. Anderson, R.J. Saykally, N.D. Pilch, T.A. Dixon, and R.C. Woods, "[A Microwave](#)

Substitution Structure for Protonated Nitrogen N₂H⁺

(http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1980-1983/10_szanto_1981.pdf),” *J. Chem.*

Phys. **75**, 4261-4263 (1981).

9. R.C. Woods, R.J. Saykally, T.G. Anderson, T.A. Dixon, and P.G. Szanto, “The Molecular Structure of HCO⁺ by the Microwave Substitution Method

(http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1980-1983/9_woods_1981.pdf),” *J. Chem.*

Phys. **75**, 4256-4260 (1981).

8. K.M. Evenson, R.J. Saykally, Robert F. Curl, and J.M. Brown, “Far-Infrared Laser Magnetic Resonance,” in *Chemical and Biochemical Applications of Lasers*, Vol. **5**, C.B. Moore, editor (Academic Press, 1980).

7. R.J. Saykally and K.M. Evenson, “Direct Measurement of Fine Structure in the Ground State of Atomic Carbon by Laser Magnetic Resonance,” *Astrophys. J.* **238**, L107 (1980).

6. R.J. Saykally and K.M. Evenson, “Observation of Pure Rotational Transitions in the HBr⁺ Molecular Ion by Laser Magnetic Resonance (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1975-1979/6_saykally_1979.pdf),” *Phys. Rev. Lett.* **43**, 515-518 (1979).

5. R.J. Saykally and Kenneth M. Evenson, “Laser Magnetic Resonance Measurement of the 23P₂ - 23P₁ Splitting in Atomic Oxygen (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1975-1979/5_saykally_1979.pdf),” *J. Chem. Phys.* **71**, 1564-1566 (1979).

4. T.G. Anderson, T.A. Dixon, N.D. Piltch, R.J. Saykally, P.G. Szanto, and R.C. Woods, “Laboratory Rest Frequencies of N₂D⁺,” *Astrophys. J.* **216**, L85 (1977).

3. R.J. Saykally, T.A. Dixon, T.G. Anderson, P.G. Szanto, and R.C. Woods, “Laboratory Microwave Spectrum and Rest Frequencies of the N₂H⁺ Ion,” *Astrophys. J.* **205**, L101 (1976).

2. R.J. Saykally, P.G. Szanto, Thomas G. Anderson, and R.C. Woods, “The Microwave Spectrum of Hydrogen Isocyanide,” *Astrophys. J.* **204**, L143 (1975).

1. R. Claude Woods, Thomas A. Dixon, Richard J. Saykally, and Peter G. Szanto, “Laboratory Microwave Spectrum of HCO⁺ (http://www.cchem.berkeley.edu/rjsgrp/publications/papers/1975-1979/1_woods_1975.pdf),” *Phys. Rev. Lett.* **35**, 1269-1272 (1975).

* Denotes Cover Article

[Home \(index.html\)](#)