DAVID V. DEARDEN

Brigham Young University
Department of Chemistry and Biochemistry
C100 Benson Science Building
Provo, UT 84602-1030
Office Phone: (801)422-2355
Fax: (801)422-0153
e-mail: dvd@chem.byu.edu

905 E. 400 N.
Mapleton, UT 84664
(801)491-5034

Academic Appointments

Professor of Analytical/Physical Chemistry, Brigham Young University, September 2004 - present
Chair, Department of Chemistry and Biochemistry, Brigham Young University, June 2016 – June 2022
Associate Professor of Analytical/Physical Chemistry, Brigham Young University, September 1996 – August 2004
Assistant Professor of Analytical/Physical Chemistry, Brigham Young University, January 1994 - August 1996
Assistant Professor of Analytical/Physical Chemistry, The University of Texas at Arlington, September 1990 - December 1993

Education

Postdoctoral: National Institute of Standards and Technology, 1989-1990. Advisor: Dr. J. W. Hudgens
Ph. D.: Chemistry, California Institute of Technology, 1989. Advisor: Professor J. L. Beauchamp
B. S.: Chemistry, Brigham Young University, *summa cum laude*, 1983. Undergraduate Research Advisor: Professor R. M. Izatt

Honors and Awards

Faculty Distinguished Citizenship Award, Brigham Young University College of Physical and Mathematical Sciences, 2023
BYU Faculty Teaching Award, Brigham Young University Division of Continuing Education, 2017
Reed M. Izatt and James J. Christensen Faculty Excellence in Research Award, Brigham Young University Department of Chemistry & Biochemistry, 2014
Alcuin Fellowship (for teaching in undergraduate general education), Brigham Young University, 2013-2015
Alcuin Fellowship (for teaching in undergraduate general education), Brigham Young University, 2002-2005
National Science Foundation Young Investigator Award, 1993
Travel Award, sponsored by the American Society for Mass Spectrometry, to attend The Kyoto '92 International Conference on Biological Mass Spectrometry, Kyoto, Japan, September 20-24, 1992.
National Research Council Postdoctoral Fellow, National Institute of Standards and Technology, 1989-1990
Shell Foundation Fellowship in Catalysis, 1987-1988
National Science Foundation Graduate Fellow, 1983-1986
Outstanding Senior in Chemistry, Brigham Young University, 1983
Thermochemical Institute Undergraduate Research Award, Brigham Young University, 1982
Phi Kappa Phi, Brigham Young University, 1982
Spencer W. Kimball Scholarship, Brigham Young University, 1977-1983

Professional Societies

American Society for Mass Spectrometry
American Chemical Society

SCHOLARSHIP

PEER-REVIEWED PUBLICATIONS

Undergraduate Research

1. "Cation Fluxes from Binary Ag^+ - M^{n+} Mixtures in a H_2O - $CHCl_3$ - H_2O Liquid Membrane System Containing a Series of Macrocyclic Ligand Carriers." Izatt, R. M.; Dearden, D. V.; Brown, P. R.; Bradshaw, J. S.; Lamb, J. D.; Christensen, J. J. *J. Am. Chem. Soc.* **1983**, *105*, 1785-1790.

2. "Metal Separations Using Emulsion Liquid Membranes." Izatt, R. M.; Dearden, D. V.; McBride, D. W.; Oscarson, J. L.; Lamb, J. D.; Christensen, J. J. *Sep. Sci. Technol.* **1983**, *18*, 1113-1129.

3. "Facilitated Transport from Ternary Cation Mixtures Through Water-Chloroform-Water Membrane Systems Containing Macrocyclic Ligands." Izatt, R. M.; Lamb, J. D.; Dearden, D. V.; Brown, P. R.; McBride, D. W.; Christensen, J. J. *J. Membrane Sci.* **1984**, *20*, 273-284.

4. "Cation Selectivity in a Toluene Emulsion Membrane System." Izatt, R. M.; Dearden, D. V.; Witt, E. R.; McBride, D. W.; Christensen, J. J. *Solvent Extraction and Ion Exchange* **1984**, *2*, 459-477.

Graduate Research

1. "Ionization Energetics and Unimolecular Isomerization and Decomposition Pathways of Gas-Phase Pentyl, Hexyl, and Heptyl Radicals by Photoelectron Spectroscopy." Dearden, D. V.; Beauchamp, J. L. *J. Phys. Chem.* **1985**, *89*, 5359-5365.

2. "Fundamental Studies of the Energetics and Dynamics of Ligand Dissociation and Exchange Processes at Transition Metal Centers in the Gas Phase: $Mn(CO)_x^+$, x = 1 - 6." Dearden, D. V.; Kirchner, N. J.; van Koppen, P. A. M.; Hayashibara, K.; Bowers, M. T.; Beauchamp, J. L. *J. Am. Chem. Soc.* **1989**, *111*, 2401-2409.

3. "C-H Bond Activation as the Initial Step in the Co^+-Mediated Demethanation of Propane: The Critical Role of Angular Momentum at the Rate-Limiting Transition State." van Koppen, P. A. M.; Brodbelt-Lustig, J.; Bowers, M. T.; Dearden, D. V.; Beauchamp, J. L.; Fisher, E. R.; Armentrout, P. B. *J. Am. Chem. Soc.* **1990**, *112*, 5663-5665.

4. "Organometallic Reaction Energetics from Product Kinetic Energy Release Distributions." van Koppen, P. A. M.; Bowers, M. T.; Beauchamp, J. L.; Dearden, D. V. In *Bonding Energetics in*

Organometallic Compounds; Marks, T. J., Ed.; American Chemical Society: Washington, D.C. 1990; pp. 34-54.

5. "Kinetic Energy Release Distributions as a Probe of Ligation Effects on Potential Energy Surfaces in Organometallic Reactions. The Reversible Dehydrogenation of Cycloalkenes by Fe^+." Dearden, D. V.; Beauchamp, J. L.; van Koppen, P. A. M.; Bowers, M. T. *J. Am. Chem. Soc.* **1990**, *112*, 9372-9378.

6. "Transition Metal Ion Mediated C-H and C-C Bond Activation of Alkanes: Dynamical Coupling Between Entrance and Exit Channel Transition States." van Koppen, P. A. M.; Brodbelt-Lustig, J.; Bowers, M. T.; Dearden, D. V.; Beauchamp, J. L.; Fisher, E. R.; Armentrout, P. B. *J. Am. Chem. Soc.* **1991**, *113*, 2359-2369.

Postdoctoral Research

1. "New Rydberg States of Aluminum Monofluoride Observed by Resonance-Enhanced Multiphoton Ionization Spectroscopy." Dearden, D. V.; Johnson, R. D., III; Hudgens, J. W. *J. Phys. Chem.* **1991**, *95*, 4291-4296.

2. "Spectroscopic and *ab Initio* Studies of Difluoromethyl Radicals and Cations." Dearden, D. V.; Hudgens, J. W.; Johnson, R. D. III; Tsai, B. P.; Kafafi, S. A. *J. Phys. Chem.* **1992**, *96*, 585-594.

3. "Detection and Characterization of Gas-Phase GaCl Using Resonance Enhanced Multiphoton Ionization." Dearden, D. V.; Johnson, R. D., III; Hudgens, J. W. *J. Chem. Phys.* **1992**, *97*, 8880-8885.

4. "Aluminum Monochloride Excited States Observed by Resonance Enhanced Multiphoton Ionization Spectroscopy." Dearden, D. V.; Johnson, R, D., III; Hudgens, J. W. *J. Chem. Phys.* **1993**, *99*, 7521-7528.

5. "Detection and Characterization of Gas-Phase InCl Using Resonance Enhanced Multiphoton Ionization." Johnson, R. D., III; Dearden, D. V.; Hudgens, J. W. *J. Chem. Phys.* **1994**, *100*, 3422-3428.

University of Texas at Arlington and Brigham Young University Faculty Research, Assistant Professor Rank

1. "Gas-Phase Molecular Recognition: Gas-Phase Crown Ether-Alkali Metal Ion Complexes and Their Reactions With Neutral Crowns." Zhang, H.; Chu, I.-H.; Leming, S.; Dearden, D. V. *J. Am. Chem. Soc.* **1991**, *113*, 7415-7417.

2. "The Gas-Phase Macrocyclic Effect: Reaction Rates for Crown Ethers and the Corresponding Glymes with Alkali Metal Cations." Zhang, H.; Dearden, D. V. *J. Am. Chem. Soc.* **1992**, *114*, 2754-2755.

3. "Macrocyclic Chemistry Without Solvents: Gas Phase Reaction Rates." Dearden, D. V.; Zhang, H.; Chu, I.-H.; Wong, P.; Chen, Q. *Pure App. Chem.* **1993**, *65*, 423-428.

4. "Chiral Host-Guest Recognition in an Ion-Molecule Reaction." Chu, I.-H.; Dearden, D. V.; Bradshaw, J. S.; Huszthy, P.; Izatt, R. M. *J. Am. Chem. Soc.* **1993**, *115*, 4318-4320.

5. "Macrocyclic Chemistry in the Gas Phase: Intrinsic Cation Affinities and Complexation Rates for Alkali Metal Cation Complexes of Crown Ethers and Glymes." Chu, I.-H.; Zhang, H.; Dearden, D. V. *J. Am. Chem. Soc.* **1993**, *115*, 5736-5744.

6. "Gas Phase Studies of Valinomycin-Alkali Metal Cation Complexes: Attachment Rates and Cation Affinities." Wong, P. S. H.; Antonio, B. J.; Dearden, D. V. *J. Am. Soc. Mass Spectrom.* **1994**, *5*, 632-637.

7. "Effects of Alkyl Substitution on the Multidentate Attachment of Alkali Metal Cations by Ligands in the Gas Phase: Kinetics and Thermochemistry of Cation Binding by Isomers of Dicyclohexano-18-crown-6." Chu, I.-H.; Dearden, D. V. *J. Am. Chem. Soc.* **1995**, *117*, 8197-8203.

8. "Mass Spectrometry," Brodbelt, J. S.; Dearden, D. V. In *Physical Methods in Supramolecular Chemistry*; J. E. D. Davies, Ed.; Pergamon: Oxford, 1996; Vol. 8.; pp. 567-591.

9. "Complexes of p-*tert*-butylcalix[4]arene with Mono- and Dipositive Cations in the Gas Phase," Wong, P. S. H.; Yu, X.; Dearden, D. V. *Inorg. Chim. Acta* **1996**, *246*, 1-7.

10. "The Macrobicyclic Cryptate Effect in the Gas Phase," Chen, Q.; Cannell, K.; Nicoll, J.; Dearden, D. V. *J. Am. Chem. Soc.* **1996**, *118*, 6335-6344.

11. "Host-Guest Molecular Recognition without Solvents." Dearden, D. V. in *Physical Supramolecular Chemistry,* NATO Advanced Research Workshop Series, Echegoyen, L.; Kaifer, A., eds.; Kluwer: Dordrecht, 1996; pp. 229-247.

Brigham Young University Faculty Research, Associate Professor Rank

1. "Gas Phase Salt Clusters from Electrosprayed Alkaline Earth Colloids," Pope, R. M.; Shen, N.; Nicoll, J.; Dejsupa, C.; Dearden, D. V. *Int. J. Mass Spectrom. Ion Proc.* **1997**, *162*, 107-119.

2. "Intrinsic Contributions to Chiral Recognition: Discrimination Between Enantiomeric Amines by Dimethyldiketopyridino-18-crown-6 in the Gas Phase," Dearden, D. V.; Dejsupa, C.; Liang, Y.; Bradshaw, J. S.; Izatt, R. M. *J. Am. Chem. Soc.* **1997**, *119*, 353-359.

3. "Relative Ammonium Affinities of 18-Crown-6 and the Isomers of Dicyclohexano-18-Crown-6," Dearden, D. V.; Chu, I.-H. *J. Inclusion Phenom. Mol. Recognit. Chem.* **1997**, *29*, 269-282.

4. "Gas Phase Stripping of Alkali Cations from Biomolecules via Reaction with Crown Ethers." Pope, R. M.; Shen, N.; Hofstadler, S. A.; Dearden, D. V. *Int. J. Mass Spectrom.* **1998**, *175*, 179-186.

5. "Analysis of Enantiomeric Excess Using Mass Spectrometry: Fast Atom Bombardment / Sector and Electrospray Ionization / Fourier Transform Mass Spectrometric Approaches," Liang, Y.; Bradshaw, J. S.; Izatt, R. M.; Pope, R. M.; Dearden, D. V. *Int. J. Mass Spectrom.* **1999**, *185/186/187*, 977-988.

6. "Gas Phase Studies of Ammonium—Cyclodextrin Compounds Using Fourier Transform Ion Cyclotron Resonance," Kellersberger, K. A.; Dejsupa, C.; Liang, Y.; Pope, R. M.; Dearden, D. V. *Int. J. Mass Spectrom.,* **1999**, *193*, 181-195.

7. "Fundamental Factors Controlling the Exchange of Multidentate Ligands: Displacement of 12-Crown-4 and Triglyme from Complexes with Divalent Alkaline Earth Cations," Shen, N.; Pope, R. M.; Dearden, D. V. *Int. J. Mass Spectrom.* **2000**, *195-196*, 639-652.

8. "Reactions of Multidentate Ligands with Ligated Alkali Cation Complexes: Self-Exchange and 'Sandwich' Complex Formation Kinetics of Gas Phase Crown Ether—Alkali Cation Complexes," Nicoll, J. B.; Dearden, D. V. *Int. J. Mass Spectrom.* **2001**, *204*, 171-183.

9. "Study of Gas Phase Molecular Recognition Using Fourier Transform Ion Cyclotron Resonance Mass Spectrometry (FTICR/MS)," Dearden, D. V.; Liang, Y.; Nicoll, J. B.; Kellersberger, K. A. *J. Mass Spectrom.* **2001**, *36*, 989-997.

10. "Encapsulation of N_2, O_2, Methanol, or Acetonitrile by Decamethylcucurbit[5]uril$(NH_4^+)_2$ Complexes in the Gas Phase: Influence of the Guest on 'Lid' Tightness," Kellersberger, K. A.; Anderson, J. D.; Ward, S. M.; Krakowiak, K. E.; Dearden, D. V. *J. Am. Chem. Soc.* **2001**, *123*, 11316-11317.

11. "The Thermodynamic Basis for Enantiodiscrimination: Gas Phase Measurement of the Enthalpy and Entropy of Chiral Amine Recognition by Dimethyldiketopyridino-18-crown-6," Liang, Y.; Bradshaw, J. S.; Dearden, D. V. *J. Phys. Chem. A* **2002**, *106*, 9665-9671.

12. "Alkali Metal Binding Energies of Dibenzo-18-crown-6: Experimental and Computational Results," Anderson, J. D.; Paulsen, E. S.; Dearden, D. V. *Int. J. Mass Spectrom.* **2003**, *227*, 63-76.

13. "Alkali Metal Ion Chemistry," Anderson, J. D.; Dearden, D. V. In *The Encyclopedia of Mass Spectrometry;* P. B. Armentrout, Ed.; Elsevier: San Diego, 2003; Vol. 1 (Theory and Ion Chemistry); pp. 783-787.

14. "Low-pressure Ion-Molecule Equilibrium," Kellersberger, K. A.; Dearden, D. V. In *The Encyclopedia of Mass Spectrometry;* P. B. Armentrout, Ed.; Elsevier: San Diego, 2003; Vol. 1 (Theory and Ion Chemistry); pp. 338-345.

15. "Host-Guest Chemistry in the Gas Phase," Dearden, D. V. In *The Encyclopedia of Mass Spectrometry;* P. B. Armentrout, Ed.; Elsevier: San Diego, 2003; Vol. 1 (Theory and Ion Chemistry); pp. 763-770.

16. "Cucurbit[6]uril Pseudorotaxanes: Distinctive Gas Phase Dissociation and Reactivity," Zhang, H.; Paulsen, E. S.; Walker, K. A.; Krakowiak, K. E.; Dearden, D. V. *J. Am. Chem. Soc.* **2003***, 125*, 9284-9285.

17. "Incorporation of a Venturi Device in Electrospray Ionization," Zhou, L.; Yue, B.; Dearden, D. V.; Lee, E. D.; Rockwood, A. L.; Lee, M. L. *Anal. Chem.* **2003**, *75*, 5978-5983.

Brigham Young University Faculty Research, Professor Rank

1. "Isotopic Compositions and Exact Masses of Single Isotopic Peaks," Rockwood, A. L.; Van Orman, J. R.; Dearden, D. V. *J. Am. Soc. Mass Spectrom.* **2004**, *15*, 12-21.

2. "Sonic Spray Ionization Mass Spectrometry: A Powerful Tool Used to Characterize Fragile Metal-Assembled Cages," Gardner, J. S.; Harrison, R. G.; Lamb, J. D.; Dearden, D. V. *New J. Chem.* **2006**, *30*, 1276-1282.

3. "Molecular Beads on a Charged Molecular String: α,ω-Alkyldiammonium Complexes of Cucurbit[6]uril in the Gas Phase," Zhang, H.; Ferrell, T. A.; Asplund, M. C.; Dearden, D. V. *Int. J. Mass Spectrom.* **2007**, *265*, 187-196.

4. "One Ring to Bind Them All: Shape-Selective Complexation of Phenylenediamine Isomers with Cucurbit[6]uril in the Gas Phase," Dearden, D. V.; Ferrell, T. A.; Asplund, M. C.; Zilch, L. W.; Julian, R. R.; Jarrold, M. F. *J. Phys. Chem. A* **2009**, *113*, 989-997.

5. "Supramolecular Modification of Ion Chemistry: Modulation of Peptide Charge State and Dissociation Behavior through Complexation with Cucurbit[*n*]uril (*n* = 5,6) or α-Cyclodextrin," Zhang, H.; Grabenauer, M.; Bowers, M. T.; Dearden, D. V. *J. Phys. Chem. A* **2009**, *113*, 1508-1517.

6. "Equilibrium Methods for Characterizing Gas Phase Chiral Recognition," Dearden, David. V.; Fang, Nannan. In *Chiral Recognition in the Gas Phase,* Zehnacker, Anne, ed.; CRC Press: Boca Raton, FL; 2010; pp. 133-142.

7. "Guanidinium-Capped Cucurbit[7]uril Molecular Cages in the Gas Phase," Yang, Fan; Dearden, David V. *Supramol. Chem.* **2011**, *23*, 53-58.

8. "Influence of charge repulsion on binding strengths: experimental and computational characterization of mixed alkali metal complexes of decamethylcucurbit[5]uril," Mortensen, D. N.; Dearden, D. V. *Chem. Commun.* **2011**, *47*, 6081-6083.

9. "Gas Phase Cucurbit[n]uril Chemistry," Yang, F.; Dearden, D. V. *Isr. J. Chem.* **2011**, *51*, 551-558.

10. "Appropriate Choice of Event Length in Sustained Off-Resonance Irradiation Collision-Induced Dissociation (SORI-CID) Experiments: Activated Ion Collision-induced Dissociation," Mortensen, D. N.; Jones, C. A.; Dearden, D. V. *Int. J. Mass Spectrom.* **2012**, *330-332*, 241-245.

11. "Collision Cross Sectional Areas from Analysis of Fourier Transform Ion Cyclotron Resonance Line Width: a New Method for Characterizing Molecular Structure," Yang, F.; Voelkel, J. E.; Dearden, D. V. *Anal. Chem.* **2012**, *84*, 4851-4857. DOI: 10.1021/ac300379a.

12. "Cavitands with chiral substituents: resorcinarene-based cavitands with amino functional groups," Li, N.; Yang, F.; Stock, H. A.; Dearden, D. V.; Lamb, J. D.; Harrison, R. G. *Org. Biomol. Chem.* **2012**, *10*, 7382-7401.

13. "Binding of α,ω-Alkyldiammonium Ions by Cucurbit[n]urils in the Gas Phase," Yang, F.; Jones, C. A.; Selvapalam, N.; Ko, Y. H.; Kim, K.; Dearden, D. V. *Supramol. Chem.* **2014**, *26*, 684-691.

14. "Effects of Kinetic Energy and Collision Gas in Measurement of Cross Sectional Areas by Fourier Transform Ion Cyclotron Resonance," Yang, F.; Dearden, D. V. *Int. J. Mass Spectrom.* **2015**, *378*, 143-150. doi:10.1016/j.ijms.2014.07.026.

15. "Linewidth Pressure Measurement: a New Technique for High Vacuum Characterization," Jones, C. A.; Dearden, D. V. *J. Am. Soc. Mass Spectrom.* **2015**, *26*, 323-329. doi:10.1007/s13361-014-1031-8.

16. "Collision Cross Sections for 20 Protonated Amino Acids: Fourier Transform Ion Cyclotron Resonance and Ion Mobility Results." Anupriya; Jones, C. A.; Dearden, D. V. *J. Am. Soc. Mass Spectrom.* **2016**, *27*, 1366-1375. doi: 10.1007/s13361-016-1409-x.

17. "Quantitative Collision Cross-Sections from FTICR Linewidth Measurements: Improvements in Theory and Experiment," Anupriya; Gustafson, E.; Mortensen, D. N.; Dearden, D. V. *J. Am. Soc. Mass Spectrom.* **2018**, *29*, 251-259. doi: 10.1007/s13361-017-1738-4.

18. "Recent Progress in Gas Phase Cucurbit[n]uril Chemistry," Shen, Jiewen; Dearden, David V. *Isr. J. Chem.* **2018**, *58*, 225-229. doi: 10.1002/ijch.201700095.

19. "Barriers for Extrusion of a Guest from the Interior Binding Cavity of a Host: Gas Phase Experimental and Computational Results for Ion-capped Decamethylcucurbit[5]uril Complexes," Hickenlooper, Samuel M.; Harper, Conner C.; Pope, Brigham L.; Mortensen, Daniel N.; Dearden, David V. *J. Phys. Chem. A* **2018**, *122*, 9224-9232. doi: 10.1021/acs.jpca.8b08031

20. "Gas Phase Cucurbituril Chemistry," Arslanian, Andrew J.; Dearden, David V. In *Monographs in Supramolecular Chemistry No. 28: Cucurbiturils and Related Macrocycles*; K. Kim, Ed.; Royal Society of Chemistry: London, 2019; pp. 208-237.

21. "Halide Size-Selective Binding by Cucurbit[5]uril-Alkali Cation Complexes in the Gas Phase," Heravi, Tina; Shen, Jiewen; Johnson, Spencer; Asplund, Matthew C.; Dearden, David V. *J. Phys. Chem. A*, **2021**, *125*, 7803-7812. DOI: 10.1021/acs.jpca.1c05060.

22. "Multi-CRAFTI: Relative Collision Cross Sections from Fourier Transform Ion Cyclotron Resonance Mass Spectrometric Line Width Measurements," Pope, Brigham L.; Joaquin, Daniel; Hickey, Jacob T.; Mismash, Noah; Heravi, Tina; Shrestha, Jamir; Arslanian, Andrew J.; Anupriya; Mortensen, Daniel N.; Dearden, David V. *J. Am. Soc. Mass Spectrom.* **2022**, *33*, 131-140. DOI: 10.1021/jasms.1c00297.

23. "Prototypical Allosterism in a Simple Ditopic Ligand: Gas Phase Topologies of Cucurbit[n]uril•*n*-Alkylammonium Complexes Controlled by Binding in the Second Site," Shrestha, Jamir; Porter, Savannah R.; Tinsley, Caleb; Arslanian, Andrew J.; Dearden, David V. *J. Phys. Chem. A* **2022**, *126*, 2950-2958. DOI: 10.1021/acs.jpca.2c01703.

24. "Collision Cross-section Measurements of Collision-induced Dissociation Precursor and Product Ions in an FTICR-MS and an IM-MS: A Comparative Study," Arslanian, Andrew J.; Mismash, Noah; Dearden, David V. *J. Am. Soc. Mass Spectrom.* **2022**, *33* (9), 1626-1635. DOI: 10.1021/jasms.2c00089.

25. "Ion Mobility and Fourier Transform Ion Cyclotron Resonance Collision Cross-section Techniques Yield Long-Range and Hard-Sphere Results, Respectively," Heravi, Tina; Arslanian, Andrew J.; Johnson, Spencer; Porter, Savannah R.; Dearden, David V. *J. Am. Soc. Mass Spectrom.* **2022**, *33* (9), 1644-1652. DOI: 10.1021/jasms.2c00112.

26. "Mass Spectrometry-based Gas Phase Intramolecular Benzyl Migration in Sparsentan, A Novel Endothelin and Angiotensin II Receptor Antagonist," Mane, Sudam S.; Ghaste, Manoj; Dearden, David V. *J. Mass Spectrom.* **2023**, *58*, e4980. DOI: 10.1002/jms.4980.

27. "Identifying and Quantifying Relative Concentrations of Epimers in Mixtures via Cyclic Ion Mobility Mass Spectrometry: Dexamethasone and Betamethasone as a Case Study," Mane, Sudam S.; Dearden, David V.; Lee, Kenneth *J. Am. Soc. Mass Spectrom.* **2024**, accepted and in press.

BOOKS

1. Moody, J. Ward; Lawler, M. Jeannette; Boerio-Goates, Juliana; Turley, R. Steven; Dearden, David V.; Kowallis, Bart J.; Joner, Michael D. *Physical Science Foundations*; BYU Academic Publishing: Provo, UT; 2005. (I wrote chapters 20 and 23; chapter 20 deals with chemical reactivity and chapter 23 deals with covalent bonding)
2. Moody, J. Ward; Lawler, M. Jeannette; Boerio-Goates, Juliana; Turley, R. Steven; Dearden, David V.; Kowallis, Bart J.; Joner, Michael D. *Physical Science Foundations*; 2nd Ed.; BYU Academic Publishing: Provo, UT; 2006. (I wrote chapters 20 and 23; chapter 20 deals with chemical reactivity and chapter 23 deals with covalent bonding)
3. Moody, J. Ward; Lawler, M. Jeannette; Boerio-Goates, Juliana; Turley, R. Steven; Bergeson, Scott; Dearden, David V.; Kowallis, Bart J.; Skinner, Randy; Joner, Michael D. *Physical Science Foundations*; 2.5 Ed.; BYU Academic Publishing: Provo, UT; 2009. (I wrote chapters 20, 23, and 33; chapter 20 deals with chemical reactivity, chapter 23 deals with covalent bonding, and chapter 33 deals with stellar evolution)

PROFESSIONAL PRESENTATIONS, 1991-2024

1. "Resonance-Enhanced Multiphoton Ionization Studies of AlCl." Dearden, D. V.; Hudgens, J. W.; Johnson, R. D., III Poster presented at the Gordon Research Conference on Structure, Energetics, and Reaction Dynamics of Gaseous Ions, Ventura, CA, March 4-8, 1991.

2. "Fourier Transform Mass Spectrometry." Dearden, D. V. Research seminar presented at Austin College, Sherman, TX, March 28, 1991.

3. "Laser Mass Spectrometry." Dearden, D. V. Research seminar presented at East Texas State University, Commerce, TX, April 25, 1991.

4. "Investigation of Crown Ether/Cation Complexes." Chu, In-Hou; Dearden, D. V. Paper presented at the American Chemical Society Dallas-Fort Worth Section, 24th Annual Meeting in Miniature, Dallas, TX, April 26, 1991.

5. "Gas-Phase Molecular Recognition: Alkali Metal Ion Transfer Reactions of Crown Ethers." Chu, I.-H.; Zhang, H.; Leming, S.; Dearden, D. V. Poster presented at the 39th ASMS Conference on Mass Spectrometry and Allied Topics, Nashville, TN, May 19-24, 1991.

6. "Gas-Phase Molecular Recognition." Dearden, D. V.; Zhang, H.; Chu, I.-H.; Antonio, B. J.; Leming, S. Invited paper presented in symposium on Fourier Transform and Ion Trap Mass Spectrometry, 47th Southwest Regional Meeting of the American Chemical Society, San Antonio, TX, October 2, 1991.

7. "Comparison of Chirp, SWIFT, and Impulse Excitation for FT-ICR." Leming, S. G.; Cook, W.; Dearden, D. V. Paper presented at the 47th Southwest Regional Meeting of the American Chemical Society, San Antonio, TX, October 2, 1991.

8. "Collision-Induced Dissociation of Crown Ether-Alkali Metal Complexes." Zhang, H.; Chu, I.-H.; Leming, S. G.; Dearden, D. V. Poster presented at the 47th Southwest Regional Meeting of the American Chemical Society, San Antonio, TX, October 2, 1991.

9. "Gas-Phase Molecular Recognition." Dearden, D. V.; Zhang, H.; Chu, I.-H.; Antonio, B. J.; Leming, S. Invited paper presented in symposium on Fourier Transform and Ion Trap Mass Spectrometry, joint meeting of the Federation of Analytical Chemistry and Spectroscopy Societies, the Pacific Conference on Chemistry and Spectroscopy, and the 27th Western Regional Meeting of the American Chemical Society, Anaheim, CA, October 8, 1991.

10. "Molecular Recognition in Gas-Phase Ion-Molecule Reactions." Dearden, D. V. Research seminar presented at Texas Woman's University, Denton, TX, November 8, 1991.

11. "Fourier Transform Mass Spectrometry as a Probe of Molecular Recognition in the Gas Phase." Dearden, D. V. Invited research seminar presented at Alcon Laboratories, Fort Worth, TX, March 12, 1992.

12. "Comparison of Chirp, SWIFT, and Impulse Excitation Techniques for Fourier Transform Mass Spectrometry." Leming, S. G.; Dearden, D. V. Paper presented at the American Chemical Society Dallas-Fort Worth Section, 25th Annual Meeting in Miniature, Denton, TX, May 1, 1992.

13. "Collision-Induced Dissociation of Crown Ether/Alkali Metal Complexes." Chu, I.-H.; Dearden, D. V. Paper presented at the American Chemical Society Dallas-Fort Worth Section, 25th Annual Meeting in Miniature, Denton, TX, May 1, 1992.

14. "The Gas-Phase Macrocyclic Effect: Reaction Rates of Crown Ethers and the Corresponding Acyclic Polyethers With Alkali Metal Cations." Zhang, H.; Dearden, D. V. Paper presented at the American Chemical Society Dallas-Fort Worth Section, 25th Annual Meeting in Miniature, Denton, TX, May 1, 1992.

15. "Observation and Characterization of Gas-Phase Complexes of Alkali Metal Cations With Natural Ionophores." Wong, P. S. H.; Dearden, D. V. Paper presented at the American Chemical Society Dallas-Fort Worth Section, 25th Annual Meeting in Miniature, Denton, TX, May 1, 1992.

16. "Determination of Relative Cation Affinities of Crown Ethers and Other Ionophores Using FTMS." Zhang, H.; Chu, I.-H. Dearden, D. V. Paper presented at the 40th ASMS Conference on Mass Spectrometry and Allied Topics, Washington, D.C., May 31-June 5, 1992.

17. "Observation and Characterization of Gas-Phase Complexes of Alkali Metal Cations with Natural Ionophores." Wong, P. S. H.; Dearden, D. V. Paper presented at the 40th ASMS Conference on Mass Spectrometry and Allied Topics, Washington, D.C., May 31-June 5, 1992.

18. "Kinetics as a Probe of Host-Guest Chemistry In Ion-Molecule Reactions: Molecular Recognition and Macrocyclic Effects." Dearden, D. V.; Chu, I.-H.; Zhang, H.; Chen, Q. Paper presented at the 40th ASMS Conference on Mass Spectrometry and Allied Topics, Washington, D.C., May 31-June 5, 1992.

19. "Macrocyclic Chemistry Without Solvents: Gas Phase Reaction Rates." Dearden, D. V.; Zhang, H.; Chu, I.-H.; Wong, P.; Chen, Q. Paper presented at the XVII International Symposium on Macrocyclic Chemistry, Provo, UT, August 9-14, 1992.

20. "Experimental Techniques for Gas-Phase Macrocyclic Chemistry." Dearden, D. V.; Zhang, H.; Chu, I.-H.; Wong, P.; Chen, Q.; Leming, S. Poster presented at the XVII International Symposium on Macrocyclic Chemistry, Provo, UT, August 9-14, 1992.

21. "Gas Phase Ionophore Chemistry: Intrinsic Host-Guest Interactions Without Solvents." Dearden, D. V.; Zhang, H.; Chu, I.-H.; Wong, P.; Chen, Q. Paper presented at the 12th IUPAC Conference on Chemical Thermodynamics, Snowbird, UT, August 16-21, 1992.

22. "Alkali Cation Attachment to Ionophores." Wong, P. S. H.; Antonio, B. J.; Dearden, D. V. Symposium talk presented at the Kyoto '92 International Conference on Biological Mass Spectrometry, Kyoto, Japan, September 20-24, 1992.

23. "Size Selective Ion-Molecule Chemistry." Dearden, D. V. Paper presented at the 9th Asilomar Conference on Mass Spectrometry, Asilomar, CA, September 27-October 1, 1992.

24. "Gas Phase Calixarene Chemistry." Dearden, D. V.; Wong, P. S. H.; Cook, T. Invited paper presented in Symposium on Synthetic Hosts for Recognition of Molecular and Ionic Guests at the 48th Southwest Regional Meeting of the American Chemical Society, Lubbock, TX, October 21-23, 1992.

25. "Alkali Metal Cation Exchange Reactions Between 18-Crown-6 and Dicyclohexano-18-Crown-6 in the Gas Phase." Chu, I.-H.; Dearden, D. V. Paper presented at the 48th Southwest Regional Meeting of the American Chemical Society, Lubbock, TX, October 21-23, 1992.

26. "Molecular Recognition Without Solvents: Host-Guest Chemistry in the Gas Phase." Dearden, D. V. Research seminar presented at the University of Utah, January 8, 1993.

27. "Molecular Recognition Without Solvents: Host-Guest Chemistry in the Gas Phase." Dearden, D. V. Research seminar presented at Brigham Young University, January 11, 1993.

28. "Substituent and Donor Atom Effects in Multidentate Binding of Alkali Cations." Dearden, D. V.; Chu, I.-H.; Chen, Q. Poster presented at the Gordon Research Conference on Structure, Energetics, and Reaction Dynamics of Gaseous Ions, Ventura, CA, March 1-5, 1993.

29. "Theoretical Modeling of Alkali Cation Transfer Between 18-Crown-6 and 21-Crown-7 in the Gas Phase." Leidecker, C. D.; Dearden, D. V. Paper presented at the American Chemical Society Dallas-Fort Worth Section, 26th Annual Meeting in Miniature, Commerce, TX, April 23, 1993.

30. "Symmetry Effects and Reactions Between H_3O^+ and Crown Ethers." Chu, I.-H.; Dearden, D. V. Paper presented at the American Chemical Society Dallas-Fort Worth Section, 26th Annual Meeting in Miniature, Commerce, TX, April 23, 1993.

31. "Recognition of Chiral Ammonium Salts Using Chiral Crown Ether Hosts in the Gas Phase." Dearden, D. V.; Chu, I.-H.; Yu, X. Poster presented at the 41st ASMS Conference on Mass Spectrometry and Allied Topics, San Francisco, CA, May 30-June 4, 1993.

32. "Fourier Transform Ion Cyclotron Resonance Mass Spectrometric Investigation of Gas Phase Cryptate Complexes." Chen, Q.; Dearden, D. V. Poster presented at the 41st ASMS Conference on Mass Spectrometry and Allied Topics, San Francisco, CA, May 30-June 4, 1993.

33. "Influences of Polarizability and Ligand Flexibility on Multidentate Attachment of Alkali Metal Cations: Kinetics and Thermochemistry of Cation Binding by Isomers of Dicyclohexano-18-crown-6." Chu, I.-H.; Dearden, D. V. Poster presented at the 41st ASMS Conference on Mass Spectrometry and Allied Topics, San Francisco, CA, May 30-June 4, 1993.

34. "Fourier Transform Ion Cyclotron Resonance Mass Spectrometric Investigation of Calixarenes and their Complexes with Alkali Metal and Organic Cations in the Gas Phase." Yu, X.;

Dearden, D. V. Poster presented at the 41st ASMS Conference on Mass Spectrometry and Allied Topics, San Francisco, CA, May 30-June 4, 1993.

35. "Host-Guest Molecular Recognition in the Gas Phase: Kinetic and Thermodynamic Studies with no Solvent Effects." Dearden, D. V. Research seminar presented at The University of Texas at Arlington, September 24, 1993.

36. "Relative Labilities Of Alkali Metal Ions In Gas-Phase Crown Ether Complexes: Thermoneutral Exchange Using Natural Abundance Isotope Labeling." Dearden, D. V;. McDunn, J. Paper presented at the 49th Southwest Regional Meeting of the American Chemical Society, Austin, TX, October 25-27, 1993.

37. "Ion-Molecule Transfer Reactions Of Ammonium Cations Between 18-Crown-6 And Two Isomers Of Dicyclohexano-18-Crown-6." Chu, I.-H.; Dearden, D. V. Poster presented at the 49th Southwest Regional Meeting of the American Chemical Society, Austin, TX, October 25-27, 1993.

38. "Recognition Of Ammonium Ions By Crown Ethers In The Gas Phase." Yu, X.; Dawson, G.; Dearden, D. V. Poster presented at the 49th Southwest Regional Meeting of the American Chemical Society, Austin, TX, October 25-27, 1993.

39. "Host-Guest Molecular Recognition in the Gas Phase." Dearden, D. V. Research seminar presented at Emory University, Atlanta, GA, March 21, 1994.

40. "Host-Guest Molecular Recognition in the Gas Phase." Dearden, D. V. Research seminar presented at the University of Georgia, Athens, GA, March 22, 1994.

41. "Host-Guest Molecular Recognition in the Gas Phase." Dearden, D. V. Research seminar presented at the University of Florida, Gainesville, FL, March 23, 1994.

42. "Host-Guest Molecular Recognition in the Gas Phase." Dearden, D. V. Research seminar presented at Florida State University, Tallahassee, FL, March 24, 1994.

43. "Recognition of Alkaline Earth Monohalides by Crown Ethers in the Gas Phase." Dearden, D. V.; Yu, X. Poster presented at the 42nd ASMS Conference on Mass Spectrometry and Allied Topics, Chicago, IL, May 29-June 3, 1994.

44. "New Developments in Gas Phase Macrocyclic Chemistry." Dearden, D. V.; Chu, I.-H.; Yu, X. Paper presented at the XIX International Symposium on Macrocyclic Chemistry, Lawrence, KS, June 12-17, 1994.

45. "Enantiomeric Recognition of Chiral Organic Ammonium Salts by Chiral Pyridino-18-Crown-6 Ligands: Effect of Cation Structure and Solvents on Recognition." Bradshaw, J. S.; Izatt, R. M.; Huszthy, P.; Wang, T. -M.; Hathaway, J. K.; Zhang, X. -X.; Dearden, D. V.; Nazarenko, A. Paper presented at the IUPAC Conference on Physical Organic Chemistry, Padova, Italy, August 28-September 2, 1994.

46. "Host-Guest Molecular Recognition in the Gas Phase." Dearden, D. V. Research seminar presented at Battelle Pacific Northwest Laboratories, Richland, WA, November 10, 1994.

47. "Molecular Recognition in Ion-Molecule Reactions." Dearden, D. V. Invited talk presented at the Gordon Research Conference on Structures, Energetics, and Reaction Dynamics of Gaseous Ions, Ventura, CA, February 26-March 3, 1995.

48. "Study of Ion-Molecule Chiral Recognition by Amine Exchange Equilibria." Dejsupa, C.; Liang, Y.; Dearden, D. V. Poster presented at the 43rd ASMS Conference on Mass Spectrometry and Allied Topics, Atlanta, GA, May 21-26, 1995.

49. "Alkali Metal Ion - Crown Ether Bond Strengths by FTICR Threshold CID." Pope, R. M.; Dearden, D. V. Poster presented at the 43rd ASMS Conference on Mass Spectrometry and Allied Topics, Atlanta, GA, May 21-26, 1995.

50. "Protein Desalting via Gas-Phase Ion-Molecule Chemistry." Pope, R. M.; Hofstadler, S.; Dejsupa, C.; Dearden, D. V. Paper presented at the 43rd ASMS Conference on Mass Spectrometry and Allied Topics, Atlanta, GA, May 21-26, 1995.

51. "Ion-Molecule Reactions of 18-Crown-6 With its Fragment Ions." Shen, N.; Dejsupa, C.; Pope, M.; Dearden, D. V. Paper presented at the 43rd ASMS Conference on Mass Spectrometry and Allied Topics, Atlanta, GA, May 21-26, 1995.

52. "Detection and Characterization of Gas Phase Cyclodextrin Complexes." Dejsupa, C.; Dearden, D. V. Paper presented at the 43rd ASMS Conference on Mass Spectrometry and Allied Topics, Atlanta, GA, May 21-26, 1995.

53. "Alkali Metal Ion - Crown Ether Bond Strengths by FTICR Threshold CID." Pope, R. M.; Dearden, D. V. Paper presented at the 1995 Northwest/Rocky Mountain Regional Meeting of the American Chemical Society, Park City, UT, June 14-17, 1995.

54. "Ion-Molecule Reactions of 18-Crown-6 With its Fragment Ions." Shen, N.; Dejsupa, C.; Pope, M.; Dearden, D. V. Paper presented at the 1995 Northwest/Rocky Mountain Regional Meeting of the American Chemical Society, Park City, UT, June 14-17, 1995.

55. "Study of Ion-Molecule Chiral Recognition by Amine Exchange Equilibria." Liang, Y.; Dejsupa, C.; Dearden, D. V. Paper presented at the 1995 Northwest/Rocky Mountain Regional Meeting of the American Chemical Society, Park City, UT, June 14-17, 1995.

56. "Protein Desalting via Gas-Phase Ion-Molecule Chemistry." Pope, R. M.; Dejsupa, C.; Dearden, D. V. Paper presented at the 1995 Northwest/Rocky Mountain Regional Meeting of the American Chemical Society, Park City, UT, June 14-17, 1995.

57. "Detection and Characterization of Gas Phase Cyclodextrin Complexes." Dejsupa, C.; Dearden, D. V. Poster presented at the 1995 Northwest/Rocky Mountain Regional Meeting of the American Chemical Society, Park City, UT, June 14-17, 1995.

58. "Host-Guest Molecular Recognition without Solvents." Dearden, D. V. Invited lecture presented at the NATO Advanced Research Workshop on Physical Supramolecular Chemistry, Coral Gables, FL, January 7-10, 1996.

59. "Molecular Recognition in Ion-Molecule Reactions." Dearden, D. V. Invited lecture presented at the 8th Sanibel Conference on Metal-Containing Ions and Their Applications in Mass Spectrometry, Sanibel Island, FL, January 20-23, 1996.

60. "Host-Guest Molecular Recognition without Solvents." Dearden, D. V. Invited research seminar presented at the University of Utah, Salt Lake City, UT, March 7, 1996.

61. "Ion-Molecule Chiral Recognition in the Gas Phase: The Role of Pi-Pi Stacking." Dearden, D. V. Invited talk presented at the National Meeting of the American Chemical Society, New Orleans, LA, March 24-28, 1996.

62. "Progress in Gas-Phase Molecular Recognition: Salts of Alkaline Earths and Allosteric Effects." Pope, R. M.; Shen, N.; Nicoll, J.; Dejsupa, C.; Carter, S.; Dearden, D. V. Paper presented at the 44th ASMS Conference on Mass Spectrometry and Allied Topics, Portland, OR, May 12-16, 1996.

63. "A Modular System for Tailored Waveform Generation in FTICR/MS Based on VXI and LabVIEW Software." Dejsupa, C. L.; Dearden, D. V. Poster presented at the 44th ASMS Conference on Mass Spectrometry and Allied Topics, Portland, OR, May 12-16, 1996.

64. "Ion-Molecule Complex Lability in the Gas Phase for Alkali Metal Ion--Crown Ether Systems." Nicoll, J.; Dejsupa, C. L.; Pope, M.; Dearden, D. V.; Poster presented at the 44th ASMS Conference on Mass Spectrometry and Allied Topics, Portland, OR, May 12-16, 1996.

65. "Ligand Exchange of Ionophoric Ca^{2+} Complexes by Microspray / FTICR." Shen, N.; Pope, R. M.; Nicoll, J.; Carter, S.; Dearden, D. V. Poster presented at the 44th ASMS Conference on Mass Spectrometry and Allied Topics, Portland, OR, May 12-16, 1996.

66. "Transition Metal Transfer Between Crown Ethers." Liang, Y.; Dejsupa, C. L.; Pope, R. M.; Dearden, D. V. Poster presented at the 44th ASMS Conference on Mass Spectrometry and Allied Topics, Portland, OR, May 12-16, 1996.

67. "The Roles of Steric Bulk and Charge Solvation in Host-Guest Complexation: An FTICR/MS - Semiempirical Study." Dearden, D. V.; Chu, I.-H. Poster presented at the First North American FT-ICR MS Conference, Tallahassee, FL, March 13-15, 1997.

68. "Reactions of Chromium and Tungsten Hexacarbonyls with Crown Ethers: Chaos and Order." Shen, Nanzhu; Pope, Marshall; Dearden, David. Paper presented at the 45th ASMS Conference on Mass Spectrometry and Allied Topics, Palm Springs, CA, May 31-June 5, 1997.

69. "Chiral Mixture Analysis by Electrospray Ionization-Fourier Transform Ion Cyclotron Resonance Mass Spectrometry." Liang, Yongjiang; Dejsupa, Chadin; Dearden, David. Poster

presented at the 45th ASMS Conference on Mass Spectrometry and Allied Topics, Palm Springs, CA, May 31-June 5, 1997.

70. "Relative Ammonium Affinities Of 18-Crown-6 And The Isomers Of Dicyclohexano-18-Crown-6." Dearden, David; Chu, In-Hou. Poster presented at the 45th ASMS Conference on Mass Spectrometry and Allied Topics, Palm Springs, CA, May 31-June 5, 1997.

71. "Pressure Measurement Methods in the Gas Phase for FTICR-MS." Nicoll, Jeremy; Shen, Nanzhu; Pope, R. Marshall; Dearden, David V. Paper presented at the 45th ASMS Conference on Mass Spectrometry and Allied Topics, Palm Springs, CA, May 31-June 5, 1997.

72. "Gas Phase Molecular Recognition." Dearden, David V. Invited lecture presented at the National Science Foundation Workshop on Organic Dynamics; Ward, CO; June19-23, 1997.

73. "New Results in Gas-Phase Host-Guest Chemistry." Dearden, David V. Paper presented at the 1998 Conference on Ion Chemistry and Mass Spectrometry; Lake Arrowhead, CA; January 23-25, 1998.

74. "Molecular Shape Determination Using FTICR/MS Linewidth Measurements: A New Tool for Host-Guest Chemistry." Austin, Daniel J.; Nicoll, Jeremy B.; Liang, Yongjiang; Kellersberger, Katherine A.; Dearden, David V. Paper presented at the 46th ASMS Conference on Mass Spectrometry and Allied Topics; Orlando, FL; May 31-June 4, 1998.

75. "Do Protonated Cyclodextrins form Inclusion Complexes with Amines in the Gas Phase? Answers from FTICR/MS." Kellersberger, Katherine; Dearden, David V. Poster presented at the 46th ASMS Conference on Mass Spectrometry and Allied Topics; Orlando, FL; May 31-June 4, 1998.

76. "Chiral Recognition in the Gas Phase: Enthalpically or Entropically Driven?" Liang, Yongjiang; Dearden, David. Poster presented at the 46th ASMS Conference on Mass Spectrometry and Allied Topics; Orlando, FL; May 31-June 4, 1998.

77. "Complexation Properties of Cyclodextrins in the Gas Phase" Dearden, David V. Invited lecture presented at the 2nd North American FT-ICR Conference; San Diego, CA; March 18-20, 1999.

78. "Gas Phase H/D Exchange of Cyclodextrins and Cyclodextrin-Amine Complexes." Kellersberger, Katherine; Dearden, David V. Poster presented at the 47th ASMS Conference on Mass Spectrometry and Allied Topics; Dallas, TX; June 13-17, 1999.

79. "ESI-FTICR Studies of Microsolvated Host-Guest Systems." Meibos, Sarah N.; Dearden, David V. Paper presented at the 47th ASMS Conference on Mass Spectrometry and Allied Topics; Dallas, TX; June 13-17, 1999.

80. "Fundamental Factors Controlling Macrocyclic Ligand Exchange on Alkaline Earth Cations: Gas Phase Experimental and Theoretical Studies." Dearden, David V.; Shen, Nanzhu; Pope, R.

Marshall. Poster presented at the XXIV International Symposium on Macrocyclic Chemistry; Barcelona, Spain; July 17-23, 1999.

81. "Gas Phase Host-Guest Chemistry." Dearden, David V. Invited research seminar presented at the University of Wyoming, Laramie, WY, December 3, 1999.

82. "Microsolvation of Metalated Crown Ethers in FT-ICR Mass Spectrometry." Ward, Sarah N.; Dearden, David V. Poster presented at the 2000 Lake Arrowhead Conference on Ion Chemistry and Mass Spectrometry; Lake Arrowhead, CA; January 28-30, 2000.

83. "Possible Effects of Magnetron Motion on FT-ICR Signal." Kellersberger, Katherine A.; Dearden, David V. Paper presented at the 2000 Lake Arrowhead Conference on Ion Chemistry and Mass Spectrometry; Lake Arrowhead, CA; January 28-30, 2000.

84. "Chiral Templating Effects in a Gas Phase Ion-Molecule Reaction?" Dearden, David V.; Handberg, Eric S. Poster presented at the 48th ASMS Conference on Mass Spectrometry and Allied Topics; Long Beach, CA; June 1—15, 2000.

85. "Gas Phase Studies of Inclusion Complexes Involving Permethylated and Non-substituted Cyclodextrins." Kellersberger, Katherine A.; Dearden, David V. Poster presented at the 48th ASMS Conference on Mass Spectrometry and Allied Topics; Long Beach, CA; June 1—15, 2000.

86. "Analysis of a Microsolvated Host-Guest System by Blackbody Infrared Radiative Dissociation." Ward, Sarah N.; Dearden, David V. Poster presented at the 48th ASMS Conference on Mass Spectrometry and Allied Topics; Long Beach, CA; June 1—15, 2000.

87. "Roles of entropy and enthalpy in the chiral recognition of amines by dimethyldiketopyridino-18-crown-6 in the gas phase." Dearden, David V. and Liang, Yongjiang Poster presented at the XXV International Symposium on Macrocyclic Chemistry; St. Andrews, Scotland; July 2—7, 2000.

88. "Gas Phase Host-Guest Chemistry: Cyclodextrins." Dearden, David V. Invited research seminar presented at Utah State University, Logan, UT, November 15, 2000.

89. "Effects of Counter-anions on Metal-Ligand Interactions." Dearden, David V.; Ward, Sarah N.; Anderson, Joseph D. Poster presented at the 3rd North American FT-ICR/MS Conference; Austin, TX; March 22-24, 2001.

90. "Effects of Counter-anions on Metal-Ligand Interactions." Kellersberger, Katherine A.; Ward, Sarah N.; Anderson, Joseph D.; Dearden, David V. Poster presented at the 49th ASMS Conference on Mass Spectrometry and Allied Topics; Chicago, IL; May 27—31, 2001.

91. "Opening Molecular Containers in the Gas Phase: Reactions of Cucurbituril Inclusion Complexes with Crown Ethers." Dearden, David V.; Anderson, Joseph D.; Ward, Sarah N.; Kellersberger, Katherine A. Poster presented at the 49th ASMS Conference on Mass Spectrometry and Allied Topics; Chicago, IL; May 27—31, 2001.

92. "Gas Phase Studies of Decamethylcucurbit[5]uril: A Highly Selective Host for Methanol, a Non-innocent 'Prisoner.'" Dearden, David V.; Anderson, Joseph D.; Ward, Sarah N.; Kellersberger, Katherine A. Poster presented at the XXVI International Symposium on Macrocyclic Chemistry; Fukuoka, Japan; July 15—20, 2001.

93. "New Developments in Gas Phase Molecular Recognition: Cucurbituril Nanoboxes." Dearden, David V. Research seminar presented at Brigham Young University; Provo, UT; October 11, 2001.

94. "Molecular Recognition in an Electromagnetic Bottle: Use of Fourier Transform Ion Cyclotron Resonance Mass Spectrometry to Probe Host-Guest Systems in the Gas Phase." Dearden, David V. Research seminar presented at Pacific Lutheran University; Tacoma, WA; December 3, 2001.

95. "Counter-Anion Effects in Ligand Exchange Reactions." Dearden, David V.; Anderson, Joseph D. Paper presented at the 2002 Lake Arrowhead Conference on Ion Chemistry and Mass Spectrometry; Lake Arrowhead, CA; January 25-27, 2002.

96. "Molecular Machine Components Characterized in the Gas Phase: Cucurbituril 'Nanoboxes' and Their Pseudorotaxanes." Dearden, David V.; Walker, Kevin A.; Paulsen, Eric S.; Krakowiak, Krzysztof E. Paper presented at the 50th ASMS Conference on Mass Spectrometry and Allied Topics; Orlando, FL; June 2—6, 2002.

97. "Binding Energies of Macrocycles to Simple Ammonium Ions: Experimental and *ab Initio* Determinations." Dearden, David V.; Yu, Xuejun Poster presented at the XXVII International Symposium on Macrocyclic Chemistry; Park City, Utah; June 23—27, 2002.

98. "Probing the Fundamental Chemistry of Cucurbit[n]uril Supramolecular Complexes Through Gas Phase Experiments: 'Lid Switching' Reactions and Pseudorotaxanes." Dearden, David V.; Walker, Kevin A.; Paulsen, Eric S.; Krakowiak, Krzysztof E. Invited paper presented at the XXVII International Symposium on Macrocyclic Chemistry; Park City, Utah; June 23—27, 2002.

99. "Building Blocks for Molecular Machines: Cucurbituril 'Nanoboxes' and Their Pseudorotaxanes in the Gas Phase." Dearden, David V.; Kellersberger, Katherine A.; Walker, Kevin A.; Paulsen, Eric S.; Krakowiak, Krzysztof E. Research seminar presented at Florida State University; Tallahassee, FL; September 23, 2002.

100. "Building Blocks for Molecular Machines: Cucurbituril 'Nanoboxes' and Their Pseudorotaxanes in the Gas Phase." Dearden, David V.; Kellersberger, Katherine A.; Walker, Kevin A.; Paulsen, Eric S.; Krakowiak, Krzysztof E. Research seminar presented at the University of Florida; Gainesville, FL; September 24, 2002.

101. "Capturing Noble Gases (and Other Things) in Cucurbituril 'Nanoboxes'." Van Orman, Jordan R.; Walker, Kevin A.; Paulsen, Eric S.; Krakowiak, Krzysztof E.; Dearden, David V. Paper

presented at the 2003 Lake Arrowhead Conference on Ion Chemistry and Mass Spectrometry; Lake Arrowhead, CA; January 17—19, 2003.

102. "Molecular 'Nanoboxes' and Pseudorotaxanes in the Gas Phase: Experimental and Computational Characterization." Van Orman, Jordan R.; Zhang, Haizhen; Paulsen, Eric S.; Walker, Kevin A.; Krakowiak, Krzysztof E.; Dearden, David V. Poster presented at the Gordon Research Conference Gaseous Ions: Structures, Energetics, and Reactions; Ventura, CA; March 2—7, 2003.

103. "Binding Energies of Macrocyclic Polyethers to Simple Ammonium Ions: Experimental and *ab Initio* Determinations." Yu, Xuejun; Slade, Jason; Dearden, David V. Poster presented at the Gordon Research Conference on Gaseous Ions: Structures, Energetics, and Reactions; Ventura, CA; March 2—7, 2003.

104. "Molecular 'Nanoboxes' and Pseudorotaxanes in the Gas Phase." Zhang, Haizhen; Van Orman, Jordan R.; Krakowiak, Krzysztof E.; Dearden, David V. Poster presented at the Fourth North American FT-ICR MS Conference; Marshall, CA; April 3—6, 2003.

105. "Mass Spectrometry as a Probe of Molecular Conformation: The Topologies of Complex Ions Containing Cucurbit[n]urils." Zhang, Haizhen; Krakowiak, Krzysztof E.; Dearden, David V. Poster presented at the Gordon Research Conference on Biological Molecules in the Gas Phase; New London, CT; July 20—25, 2003.

106. "Capturing Noble Gas Atoms (and Other Things) in Decamethylcucurbit[5]uril 'Nanoboxes'." Van Orman, Jordan R.; Zhang, Haizhen; Krakowiak, Krzysztof E.; Dearden, David V. Talk and poster presented at the 7th International Conference on Calixarenes (Calix 2003); Vancouver, British Columbia, Canada; August 13—16, 2003.

107. "Distinguishing the Isomers of Phenylenediamine Using Ion Chemistry: Topology of Cucurbit[6]uril Complexes via Fourier Transform Ion Cyclotron Resonance Mass Spectrometry." Dearden, David V.; Ferrell, Tyler A.; Zhang, Haizhen; Asplund, Matthew C.; Krakowiak, Krzysztof E. Talk presented at the 52nd ASMS Conference on Mass Spectrometry and Allied Topics; Nashville, TN; May 23—27, 2004.

108. "Characterization of Supramolecular Complexes between Cucurbiturils and Alkyldiammonium or Amino Acid Ions Using Electrospray Ionization Fourier Transform Ion Cyclotron Resonance Mass Spectrometry." Zhang, Haizhen; Ferrell, Tyler A.; Asplund, Matthew C.; Dearden, David V. Poster presented at the 52nd ASMS Conference on Mass Spectrometry and Allied Topics; Nashville, TN; May 23—27, 2004.

109. "Supramolecular Complexes Between Cucurbiturils and Amino Acid Ions in the Gas Phase." Zhang, Haizhen; Ferrell, Tyler A.; Dearden, David V. Poster presented at the Northwest Regional Meeting of the American Chemical Society; Utah State University, Logan, UT; June 6—9, 2004.

110. "The Role of Pi Stacking in Enantiodiscrimination by Dimethylphenazino-18-Crown-6 in the Gas Phase." Fang, Nannan; Huszthy, Peter; Moczar, Ildiko; Dearden, David V. Poster presented

at the Northwest Regional Meeting of the American Chemical Society; Utah State University, Logan, UT; June 6—9, 2004.

111. "Characterization of Supramolecular Complexes between Cucurbiturils and Alkyldiammonium Ions Using Electrospray Ionization Fourier Transform Ion Cyclotron Resonance Mass Spectrometry." Zhang, Haizhen; Ferrell, Tyler A.; Asplund, Matthew C.; Dearden, David V.; Poster presented at the 13th International Symposium on Supramolecular Chemistry (ISSC-XIII); University of Notre Dame, South Bend, IN; July 25—29, 2004.

112. "Molecular Nanoboxes with Metal Ion Lids." Dearden, David V.; Willes, Jon; Walker, Kevin; Zhang, Haizhen; Krakowiak, Krzysztof E. Talk presented at the 31st Federation of Analytical Chemistry and Spectroscopy Societies Conference; Portland, OR; October 3—7, 2004.

113. "Chemistry of Supramolecular Mixed-Metal Cucurbituril Complexes via FTICR/MS." Dearden, David V.; Zhang, Haizhen; Talk presented at the National Meeting of the American Chemical Society; San Diego, CA; March 13—17, 2005.

114. "Characterization of Cucurbituril-Amino Acid Complexes Using Electrospray Ionization Fourier Transform Ion Cyclotron Resonance Mass Spectrometry." Zhang, Haizhen; Dearden, David V. Poster presented at the National Meeting of the American Chemical Society; San Diego, CA; March 13—17, 2005.

115. "Characterization of Supramolecular Complexes between Cucurbiturils and Amino Acid Ions Using ESI-FTICR Mass Spectrometry." Zhang, Haizhen; Dearden, David V. Poster presented at the 53rd ASMS Conference on Mass Spectrometry and Allied Topics; San Antonio, TX; June 5—9, 2005.

116. "The Role Of π Stacking and Electron Density in Gas Phase Enantiodiscrimination." Fang, Nannan; Dearden, David V. Poster presented at the 53rd ASMS Conference on Mass Spectrometry and Allied Topics; San Antonio, TX; June 5—9, 2005.

117. "Doubly-Charged Mixed Cation Complexes of Cucurbiturils: Highly Selective Cation Abstraction by Neutral Ionophores." Dearden, David V.; Zhang, Haizhen. Talk presented at the 53rd ASMS Conference on Mass Spectrometry and Allied Topics; San Antonio, TX; June 5—9, 2005.

118. "Modulation of Peptide Charge State and Dissociation Behavior through Binding with Cucurbiturils: A FTICR/MS Study." Zhang, Haizhen; Dearden, David V. Poster presented at Pittcon 2006; Orlando, FL; March 12—17, 2006.

119. "Modulation of Peptide Charge State and Dissociation Behavior Through Binding with Cucurbit[6]uril or α-Cyclodextrin: an FTICR/MS Study." Zhang, Haizhen; Dearden, David V.; Willes, R. Jon. Talk presented at the 54th ASMS Conference on Mass Spectrometry and Allied Topics; Seattle, WA; May 28—June 1, 2006.

120. "Hydrogen Bonding and Steric Restriction in Gas Phase Chiral Recognition." Fang, Nannan; Dearden, David V. Talk presented at the 54th ASMS Conference on Mass Spectrometry and Allied Topics; Seattle, WA; May 28—June 1, 2006.

121. "Porous Polymer Monolith Emitters Produce Cold Nanospray." Dearden, David V.; Fang, Nannan; Gu, Binghe; Lee, Milton L. Poster presented at the 54th ASMS Conference on Mass Spectrometry and Allied Topics; Seattle, WA; May 28—June 1, 2006.

122. "Molecular 'Push Rods' and a Simple Model for Allosteric Interactions: Complexes of Mixed Alkali Metals with Cucurbit[5]uril." Dearden, David V.; Zhang, Haizhen. Poster presented at the First Joint International Symposium on Macrocyclic and Supramolecular Chemistry; Victoria, BC, Canada; June 25—30, 2006.

123. "Supramolecular Assemblies Based on α-Cyclodextrin or Cucurbit[6]uril: A Gas Phase Comparison via Experiment and Theory." Dearden, David V.; Zhang, Haizhen; Willes, R. Jon. Talk presented at the First Joint International Symposium on Macrocyclic and Supramolecular Chemistry; Victoria, BC, Canada; June 25—30, 2006.

124. "Characterization of Fragile Metal-Assembled Cages via Sonic Spray Ionization Mass Spectrometry." Gardner, Joseph S.; Harrison, Roger G.; Lamb, John D.; Dearden, David V. Paper presented at the 2007 Lake Arrowhead Conference on Ion Chemistry and Mass Spectrometry; Lake Arrowhead, CA; January 12—13, 2007.

125. "Supramolecular Chemistry in the Gas Phase: from Crown Ether Complexes to Cucurbituril-based Supramolecules." Dearden, David V. Seminar presented at the University of Texas at Arlington; Arlington, TX; January 19, 2007.

126. "Molecular Strings and Springs: α,ω-Alkyldiammonium Complexes of Cucurbit[6]uril in the Gas Phase." Zhang, Haizhen; Ferrell, Tyler A.; Asplund, Matthew C.; Dearden, David V. Talk presented at the 55th ASMS Conference on Mass Spectrometry and Allied Topics; Indianapolis, IN; June 3—7, 2007.

127. "Gas Phase Computational and Experimental Characterization of a Tetraphosphonate "Aquarius" Cavitand that Carries Water and Alcohols." Harmon, Chris; Furlow, Jason; Dejsupa, Chadin; Dalcanale, Enrico; Dearden, David V. Poster presented at the 2nd International Symposium on Macrocyclic and Supramolecular Chemistry; Salice Terme, Italy; June 24—28, 2007.

128. "New Emitters for Mass Spectrometric Observation of Supramolecular Complexes: Sonic Spray and Porous Polymer Monolith Electrospray." Fang, Nannan; Gardner, Joseph S.; Harrison, Roger G.; Lamb, John D.; Dearden, David V. Poster presented at the 2nd International Symposium on Macrocyclic and Supramolecular Chemistry; Salice Terme, Italy; June 24—28, 2007.

129. "One Ring to Bind Them All: a Gas Phase Study of Isomeric Cucurbit[6]uril-Phenylenediamine Complexes." Dearden, David V.; Ferrell, Tyler A.; Asplund, Matthew C.; Zilch, Lloyd W.;

Julian, Ryan R.; Jarrold, Martin F. Invited talk presented at the 1st NSF Workshop on Cucurbit[n]uril Molecular Containers; College Park, MD; August 4—5, 2007.

130. "New Emitters for Mass Spectrometric Observation of Supramolecular Complexes: Sonic Spray and Porous Polymer Monolith Electrospray." Fang, Nannan; Gardner, Joseph S.; Harrison, Roger G.; Lamb, John D.; Dearden, David V. Poster presented at the1st NSF Workshop on Cucurbit[n]uril Molecular Containers; College Park, MD; August 4—5, 2007.

131. "Gas Phase Computational and Experimental Characterization of a Tetraphosphonate 'Aquarius' Cavitand that Carries Water and Alcohols." Dearden, David V.; Harmon, Chris; Dejsupa, Chadin, Asplund, Matthew C.; Dalcanale, Enrico. Poster presented at the 9th International Conference on Calixarene Chemistry; College Park, MD; August 6—9, 2007.

132. "Supramolecular Systems Based on Cucurbiturils: Gas Phase Experimental and Computational Studies." Dearden, David V. Invited talk presented at the 63rd Southwest Regional Meeting of the American Chemical Society; Lubbock, TX; November 4—7, 2007.

133. "Supramolecular Chemistry in the Gas Phase: from Crown Ether Complexes to Cucurbituril-based Supramolecules." Dearden, David V. Invited seminar presented at Idaho State University; Pocatello, ID; January 25, 2008.

134. "Gas Phase Chiral Recognition in Cucurbituril Cavities." Fang, Nannan; Dearden, David V. Poster presented at the 56th ASMS Conference on Mass Spectrometry and Allied Topics; Denver, CO; June 1—5, 2008.

135. "Selective Supramolecular Nanoboxes: Trapping of Small Molecules by Cucurbit[5]uril and Decamethylcucurbit[5]uril Characterized in the Gas Phase Using FTICR/MS." Voelkel, Jacob; Olsen, Jamie; Allred, Mckay; Dejsupa, Chadin; Dearden, David V. Poster presented at the 56th ASMS Conference on Mass Spectrometry and Allied Topics; Denver, CO; June 1—5, 2008.

136. "Variable Energy Sustained Off-resonance Irradiation (SORI) Activation: Comparison of Variable Amplitude and Variable Time Methods." Dearden, David V.; Dejsupa, Chadin L.; Yang, Fan; Voelkel, Jacob; Allred, Mckay. Invited talk presented at the 2008 Joint Northwest/Rocky Mountain Regional Meeting of the American Chemical Society; Park City, UT; June 15—18, 2008.

137. "The Influence of Neutral Guests on Cation Binding in Cation-Capped Cucurbiturils: A Gas Phase Experimental and Computational Study." Dearden, David V.; Yang, Fan; Voelkel, Jacob; Olsen, Jamie; Allred, Mckay; and Dejsupa, Chadin L. Invited talk presented at the 2008 Joint Northwest/Rocky Mountain Regional Meeting of the American Chemical Society; Park City, UT; June 15—18, 2008.

138. "Gas Phase Chiral Recognition in Cucurbituril Cavities." Fang, Nannan; Dearden, David V. Poster presented at the 3rd International Symposium on Macrocyclic and Supramolecular Chemistry; Las Vegas, NV; July 13—17, 2008.

139. "Selective Binding and Controlled Release of Neutral Guests in Cation-Capped Cucurbiturils: A Gas Phase Experimental and Computational Study." Yang, Fan; Voelkel, Jacob; Olsen, Jamie; Allred, Mckay; Dejsupa, Chadin L.; and Dearden, David V. Poster presented at the 3rd International Symposium on Macrocyclic and Supramolecular Chemistry; Las Vegas, NV; July 13—17, 2008.

140. "Measurement of Momentum Transfer Collision Cross Sections by Analysis of Fourier Transform Ion Cyclotron Resonance Linewidths as a Function of Damping Gas Pressure." Dearden, David V.; Yang, Fan; Voelkel, Jacob. Poster presented at the 2008 Asilomar Conference on Mass Spectrometry: New Methods, Instrumentation, and Applications of Ion Traps; Pacific Grove, CA; October 10—14, 2008.

141. "Use of Technology in General Chemistry Course Redesign." Dearden, David V. Invited talk presented at the Pearson Course Redesign Workshop; Tucson, AZ; October 17—18, 2008.

142. "Supramolecular Chemistry in the Gas Phase: From Crown Ether Complexes to Cucurbituril-based Supramolecules." Dearden, David V. Invited seminar presented at Wayne State University; Detroit, MI; October 22, 2008.

143. "Use of Online Homework (MasteringChemistry) in General Chemistry Course Redesign." Dearden, David V. Invited talk presented at the 2009 Redesign Alliance Conference (sponsored by the National Center for Adaptive Teaching); Orlando, FL; March 23-24, 2009.

144. "The Sacred Gift of Agency." Dearden, David V. Invited BYU Devotional address; Provo, UT; March 31, 2009.

145. "Cross Sectional Areas by Fourier Transform Ion Cyclotron Resonance (CRAFTI) Collisional Damping Analysis." Yang, Fan; Voelkel, Jacob; Dearden, David V. Talk presented at the 57th ASMS Conference on Mass Spectrometry and Allied Topics; Philadelphia, PA; May 31—June 4, 2009.

145. "Gas Phase Experimental and Computational Characterization of Cucurbituril-Based Model Supramolecular Systems." Yang, Fan; Dearden, David V. Invited talk presented at the First International Conference on Cucurbiturils; Pohang, Korea; July 10-11, 2009.

146. "Modulation of Gas Phase Peptide Charge State and Dissociation Behavior through Complexation with Cucurbit[6]uril or α-Cyclodextrin." Dearden, David V.; Zhang, Haizhen; Grabenauer, Megan; Bowers, Michael T. Poster presented at the 10th International Conference on Calixarenes; Seoul, Korea; July 13-16, 2009.

147. "Infrared Photodissociation Spectroscopy (IRPD) of Crown Ether—Ammonium Complexes." Rawle, Kyle; Dearden, David V. Poster presented at the 58th ASMS Conference on Mass Spectrometry and Allied Topics; Salt Lake City, UT; May 23-27, 2010.

148. "Complexation of α,ω-alkyldiammonium with Cucurbit[7]uril in the Gas Phase: Dependence of Bond Strength on Alkyl Chain Length." Mortensen, Daniel; Dearden, David V. Poster presented

at the 58th ASMS Conference on Mass Spectrometry and Allied Topics; Salt Lake City, UT; May 23-27, 2010.

149. "Influence of Weak Interactions on Supramolecular Binding: Characterization of Cucurbituril Complexes with Alkylammonium Ions Via Experiment and Theory." Shi, Ruijun; Dearden, David V. Poster presented at the 58th ASMS Conference on Mass Spectrometry and Allied Topics; Salt Lake City, UT; May 23-27, 2010.

150. "A New Method to Measure Relative Collision Cross Sections Using FT-ICR." Yang, Fan; Dearden, David V. Poster presented at the 58th ASMS Conference on Mass Spectrometry and Allied Topics; Salt Lake City, UT; May 23-27, 2010.

151. "Gas Phase Supramolecular Chemistry: Complexes of Cucurbit[n]uril and New Tools for Their Characterization." Dearden, David V. Invited talk presented at the 5th International Symposium on Supramolecular and Macrocyclic Chemistry; Nara, Japan; June 6-10, 2010.

152. "Use of Technology in General Chemistry Course Redesign." Dearden, David V. Invited talk presented at the Pearson Course Redesign Workshop; San Diego, CA; September 24-25, 2010.

153. "Use of *Mastering* in Managing Large Classes." Dearden, David V. Invited presentation for the Pearson Speaking About Mastering online conference, October 29, 2010.

154. "Multiple Binding Sites: a Gas Phase Study." Mortensen, Daniel N.; Dearden, David V. Poster presented at the Gordon Research Conference on Gaseous Ions; Galveston, TX; February 27-March 4, 2011.

155. "Use of Technology in Teaching General Chemistry." Dearden, David V. Invited presentation for Pearson Technology in Teaching Conference; Salt Lake City, UT; March 5, 2011.

156. "α,ω-Alkyldiammonium Complexes of Cucurbit[n]uril in the Gas Phase." Yang, Fan; Dearden, David V.; Kim, Kimoon; Selvapalam, Narayanan; Kim, Youngkook. Poster presented at the 59th ASMS Conference on Mass Spectrometry and Allied Topics; Denver, CO; June 5-9, 2011.

157. "Gas Trapping: a Novel Method for Stabilizing Host-Guest Complexes of Decamethylcucurbit[5]uril with Alkali Metals." Mortensen, Daniel N.; Dearden, David V. Poster presented at the 59th ASMS Conference on Mass Spectrometry and Allied Topics; Denver, CO; June 5-9, 2011.

158. "Influence of Weak Noncovalent Interactions on Supramolecular Binding: Characterization of Cucurbit[n]uril Complexes with Alkylmonoammonium Ions via Experiment and Theory." Dearden, David V.; Embley, Jacob; Shi, Ruijun; Kim, Kimoon; Kim, Youngkook; Selvapalam, Narayanan. Poster presented at the 59th ASMS Conference on Mass Spectrometry and Allied Topics; Denver, CO; June 5-9, 2011.

159. "Influence of Excitation Sweep Direction on the Detection of Non-covalent Complex Ions Using FTICR-MS." Jones, Chad A.; Mortensen, Daniel N.; Dearden, David V. Talk presented at

the 59th ASMS Conference on Mass Spectrometry and Allied Topics; Denver, CO; June 5-9, 2011.

160. "Binding of Metal Ions and Amines by Cucurbiturils in the Gas Phase." Dearden, David V.; Yang, Fan; Mortensen, Daniel N.; Kim, Kimoon; Selvapalam, Narayanan; Kim, Youngkook. Invited talk presented at the 2nd International Conference on Cucurbiturils; Cambridge, United Kingdom; June 29—July 2, 2011.

161. "The Role of Charge Repulsion in the Stability of Supramolecular Complexes: a Gas Phase Experimental and Computational Study." Mortensen, Daniel N.; Dearden, David V. Poster presented at the 6th International Symposium on Macrocyclic and Supramolecular Chemistry; Brighton, United Kingdom; July 3-7, 2011.

162. "Highly Selective Binding of Cucurbiturils to Amino Acids: an IRMPD Study." Jones, Chad A.; Dearden, David V. Paper presented at the 60th ASMS Conference on Mass Spectrometry and Allied Topics; Vancouver, BC, Canada; May 20—24, 2012.

163. "Cross Sectional Analysis of Supramolecular Complexes Between Cucurbit[n]urils and Alkylamines Using FTICR "CRAFTI" Techniques." Yang, Fan; Dearden, David V. Poster presented at the 60th ASMS Conference on Mass Spectrometry and Allied Topics; Vancouver, BC, Canada; May 20—24, 2012.

164. "'Prairie Dogging:' Cross Sections of Gas Phase Alkylammonium-Cucurbit[n]uril Complexes Using the 'CRAFTI' Technique." Yang, Fan; Dearden, David V. Poster presented at the 2013 Lake Arrowhead Conference on Ion Chemistry and Mass Spectrometry; Lake Arrowhead, California; Jan. 18—20, 2013.

165. "Infrared Multiphoton Dissociation Spectroscopy of Protonated Diamines in the Gas Phase." Jones, Chad A.; Cardinal, Jordan; Dearden, David V. Talk presented at the 2013 Lake Arrowhead Conference on Ion Chemistry and Mass Spectrometry; Lake Arrowhead, California; Jan. 18—20, 2013.

166. "A Conformational Study of Terminal Diamines in the Gas Phase." Jones, Chad A.; Dearden, David V. Poster presented at the 2013 Gordon Research Conference on Gaseous Ions: Structures, Energetics, & Reactions; Galveston, TX; Feb. 24—Mar. 1 2013.

167. "Effects of Kinetic Energy and Collision Gas on Measurement of Cross Sections by Fourier Transform Ion Cyclotron Resonance Mass Spectrometry." Dearden, David V.; Yang, Fan. Poster presented at the 2013 Gordon Research Conference on Gaseous Ions: Structures, Energetics, & Reactions; Galveston, TX; Feb. 24—Mar. 1 2013.

168. "Infrared Multiphoton Dissociation of α,ω-Diamines: A Fundamental Study of Hydrogen Bonding." Jones, Chad A.; Asplund, Matthew C.; Dearden, David V. Poster presented at the 61st ASMS Conference on Mass Spectrometry and Allied Topics; Minneapolis, MN; June 9—13, 2013.

169. "Cucurbituril Characterization Using Advanced Mass Spectrometry Techniques." Dearden, David V.; Jones, Chad A.; Anupriya; Yang, Fan; Mortensen, Daniel N. Invited talk presented at the 3rd International Conference on Cucurbiturils; Canberra, Australia; Nov. 17—20, 2013.

170. "Absolute Pressure Measurements in FTICR using the CRAFTI Technique." Jones, Chad A.; Dearden, David V. Poster presented at the 2014 Lake Arrowhead Conference on Ion Chemistry and Mass Spectrometry; Lake Arrowhead, California; Jan. 17—19, 2014.

171. "Cross Sections of Gas Phase Alkylammonium-Crown Ether Complexes Using the 'CRAFTI' Technique." Anupriya; Dearden, David V. Talk presented at the 2014 Lake Arrowhead Conference on Ion Chemistry and Mass Spectrometry; Lake Arrowhead, California; Jan. 17—19, 2014.

172. "Collision Cross Sections Using Fourier Transform Ion Cyclotron Resonance Mass Spectrometry: Applications to Supramolecular Systems." Anupriya; Dearden, D. V. Poster presented at the 62nd ASMS Conference on Mass Spectrometry and Allied Topics; Baltimore, MD; June 15—19, 2014.

173. "Absolute Pressure in FTICR/MS Using 'CRAFTI' Technique for Measuring Collision Cross Sections." Jones, C. A.; Dearden, D. V. Talk presented at the 62nd ASMS Conference on Mass Spectrometry and Allied Topics; Baltimore, MD; June 15—19, 2014.

174. "Supramolecular Chemistry in the Gas Phase: Simple Molecular Machines." Dearden, David V. Izatt-Christensen Faculty Excellence in Research Award Lecture; Brigham Young University; November 13, 2014.

175. "Kinetic Energy Effects in Cross Sectional Areas by Fourier Transform Ion Cyclotron Resonance (CRAFTI) Experiments." Anupriya; Jones, Chad A.; Yang, Fan; Dearden, David V. Poster presented at the 2015 Lake Arrowhead Conference on Ion Chemistry and Mass Spectrometry; Lake Arrowhead, California; Jan. 16—18, 2015.

176. "Collision Cross Sections for 20 Protonated Amino Acids: Fourier Transform Ion Cyclotron Resonance (CRAFTI) and Ion Mobility Results." Anupriya; Jones, Chad A.; Dearden, David V. Talk presented at the 2015 Lake Arrowhead Conference on Ion Chemistry and Mass Spectrometry; Lake Arrowhead, California; Jan. 16—18, 2015.

177. "Relative Binding of Alkali Cations to Calixarenes and Other Macrocyclic Ligands Using Sustained Off-resonance Irradiation Collision-induced Dissociation." Shen, Jiewen; Dearden, David V. Talk presented at the 2015 Lake Arrowhead Conference on Ion Chemistry and Mass Spectrometry; Lake Arrowhead, California; Jan. 16—18, 2015.

178. "Contributions of Collision-induced Dissociation to Collision Cross Sections Measured Using the 'Cross Sectional Areas by Fourier Transform Ion Cyclotron Resonance (CRAFTI)' Approach." Harper, Conner; Dearden, David V. Poster presented at the Spring 2015 National Meeting of the American Chemical Society; Denver, CO; Mar. 22—26, 2015.

179. "Collision cross sectional areas by Fourier transform ion cyclotron resonance mass spectrometry: CRAFTI." Dearden, David V.; Anupriya; Jones, Chad A.; Shen, Jiewen; Harper, Conner. Talk presented at the Spring 2015 National Meeting of the American Chemical Society; Denver, CO; Mar. 22—26, 2015.

180. "Collision Cross Sections for 20 Protonated Amino Acids: Comparison of FTICR-MS, IMS and TWIMS Results." Anupriya; Jones, Chad A.; Dearden, David V. Poster presented at the 63rd ASMS Conference on Mass Spectrometry and Allied Topics; St. Louis, MO; May 31—June 4, 2015.

181. "Binding Selectivity of Cucurbit[5]uril (CB5) and Substituted Cucurbit[5]uril for Anions in the Gas Phase." Shen, Jiewen; Dearden, David V. Poster presented at the 63rd ASMS Conference on Mass Spectrometry and Allied Topics; St. Louis, MO; May 31—June 4, 2015.

182. "Binding of Xe and Other Compounds Inside Cucurbit[n]uril Hosts: Computational and Experimental Results and Anomalous Dissociation." Harper, Conner; Anupriya; Dearden, David V. Talk presented at the 63rd ASMS Conference on Mass Spectrometry and Allied Topics; St. Louis, MO; May 31—June 4, 2015.

183. "Supramolecular Guest Extrusion from Cucurbit[n]uril Hosts in the Gas Phase." Dearden, David V.; Harper, Conner; Shen, Jiewen; Anupriya; Hickenlooper, Sam; Shaner, Jacob. Poster presented at the 10th International Symposium on Macrocyclic and Supramolecular Chemistry; Strasbourg, France; June 28—July 2, 2015.

184. "A Novel Macrobicyclic Polyether with Carbon Bridgehead Atoms: Complexation with Alkali Metals." Anupriya, Dearden, David V. Poster presented at the 64th ASMS Conference on Mass Spectrometry and Allied Topics; San Antonio, TX; June 5—9, 2016.

185. "Multi-CRAFTI: Simultaneous Measurement of Relative Collision Cross Sections for Multiple Ions Measured Using Fourier Transform Ion Cyclotron Resonance Linewidths." Dearden, David V.; Anupriya. Talk presented at the 64th ASMS Conference on Mass Spectrometry and Allied Topics; San Antonio, TX; June 5—9, 2016.

186. "Extrusion of Guests from Cucurbit[5]uril Hosts in the Gas Phase: It's Not Just Size That Counts." Hickenlooper, Sam; Harper, Conner; Shen, Jiewen; Anupriya; Dearden, David V. Talk presented at the 2016 International Symposium on Macrocyclic and Supramolecular Chemistry; Seoul, Korea; July 10—14, 2016.

187. "Cross Sections Via the 'CRAFTI' FTICR Linewidth Technique in Excellent Absolute Agreement with Exact Hard Sphere Scattering Calculations." Anupriya; Dearden, David V. Talk presented at the American Society for Mass Spectrometry Asilomar Conference on Novel Instrumentation for Mass Spectrometry and Mobility Spectrometry; Pacific Grove, CA; October 14—18, 2016.

188. "Extrusion Capabilities of Decamethylcucurbit[5]uril Determined with SORI CID." Pope, Brigham L.; Anupriya; Dearden, David V. Poster presented at the 253rd National Meeting of the American Chemical Society; San Francisco, CA; April 2—6, 2017.

189. "Determining the Upper-Mass Limit for Obtaining Accurate CRAFTI Collision Cross Section Measurements Using Variable Length Polyalanine Peptides." Pope, Brigham; Dearden, David V. Poster presented at the 65th ASMS Conference on Mass Spectrometry and Allied Topics; Indianapolis, IN; June 4—8, 2017.

190. "Cucurbit[5]uril and its Derivatives: How Does the Size and Shape of a Molecular Container Affect the Extrusion of a Guest?" Hickenlooper, Samuel; Dearden, David V. Poster presented at the 65th ASMS Conference on Mass Spectrometry and Allied Topics; Indianapolis, IN; June 4—8, 2017.

191. "Structures and Characteristics of Cucurbit[5]uril and Substituted Cucurbit[5]uril Complexes Containing Halide Anions." Shen, Jiewen; Dearden, David V. Poster presented at the 65th ASMS Conference on Mass Spectrometry and Allied Topics; Indianapolis, IN; June 4—8, 2017.

192. "Accurate Absolute Collision Cross Sections Via the "CRAFTI" FTICR Linewidth Technique." Anupriya; Gustafson, Elaura; Mortensen, Daniel N.; Dearden, David V. Poster presented at the 65th ASMS Conference on Mass Spectrometry and Allied Topics; Indianapolis, IN; June 4—8, 2017.

193. "Decamethylcucurbit[5]uril Molecular Container Complexes: The Ideal Guest is Big, Round, and Unreactive." Hickenlooper, Samuel M.; Harper, Conner C.; Pope, Brigham L.; Mortensen, Daniel N.; Krakowiak, Krzysztof; Dearden, David V. Poster presented at the 65th ASMS Conference on Mass Spectrometry and Allied Topics; Indianapolis, IN; June 4—8, 2017.

194. "Gas Phase Studies of 'Container' Complexes Based on Cucurbit[5]uril and Related Hosts." Hickenlooper, Samuel M.; Harper, Conner C.; Shen, Jiewen; Dearden, David V. Talk presented at the 5th International Conference on Cucurbiturils; Brno, Czech Republic; June 27—30, 2017.

195. "Size-selective Anion Binding by Cucurbit[5]uril Characterized Using Gas Phase Experimental and Computational Techniques." Shen, Jiewen; Dearden, David V. Poster presented at the 12th International Symposium on Macrocyclic and Supramolecular Chemistry; Cambridge, United Kingdom; July 2—6, 2017.

196. "Computational and Experimental Studies of Gas Phase Container Complexes: Force Field Calculations Qualitatively Predict Extrusion Barriers." Hickenlooper, Samuel M.; Harper, Conner C.; Denton, Russell; Dearden, David V. Poster presented at the 2018 Sanibel ASMS Conference on Molecular Modeling and Quantum Mechanical Calculations in Mass Spectrometry: From Small Molecules to Large Multimeric Protein Complexes; St. Petersburg, FL; January 25-28, 2018.

197. "CRAFTI Collision Cross Sections at Extended m/z Using Low Energy Dissociation." Farzan, Tina H. M.; Arslanian, Andrew J.; Dearden, David V. Talk presented at the 66th ASMS Conference on Mass Spectrometry and Allied Topics; San Diego, CA; June 3—7, 2018.

198. "Collision Cross-sections of Multimer Ions with Equal Mass-to-Charge Ratios Using CRAFTI Techniques." Arslanian, Andrew J.; Farzan, Tina H. M.; Dearden, David V. Poster presented at

the 66th ASMS Conference on Mass Spectrometry and Allied Topics; San Diego, CA; June 3—7, 2018.

199. "Characterizing and Correcting for the Kinetic Energy Dependence of CRAFTI Through Tetraalkylammonium Measurements." Pope, Brigham L.; Hickey, Jacob M.; Joaquin, Daniel; Dearden, David V. Poster presented at the 66th ASMS Conference on Mass Spectrometry and Allied Topics; San Diego, CA; June 3—7, 2018.

200. "Does Liquid Glass Supercharge Proteins in Electrospray Ionization?" Shaner, Jacob; Mortensen, Daniel N.; Dearden, David V. Poster presented at the 66th ASMS Conference on Mass Spectrometry and Allied Topics; San Diego, CA; June 3—7, 2018.

201. "Characterization of Supramolecular Complexes in the Gas Phase Using Collision Cross Section Measurements." Dearden, David V.; Anupriya; Pope, Brigham L.; Arslanian, Andrew J.; Farzan, Tina H. M. Poster Presented at the 13th International Symposium on Macrocyclic and Supramolecular Chemistry; Quebec City, Canada; July 8—12, 2018.

202. "Metal-induced Folding in Supramolecular Complexes: Gas Phase Studies Using Fourier Transform Ion Cyclotron Resonance Mass Spectrometry and Density Functional Theory." Arslanian, Andrew J.; Farzan, Tina H. M.; Shrestha, Jamir; Shen, Jiewen; Pope, Brigham; Dearden, David V. Talk presented at the 14th International Symposium on Macrocyclic and Supramolecular Chemistry; Lecce, Italy; June 2—6, 2019.

203. "Structures and Characteristics of Cucurbit[5]uril-Halide Inclusion Complexes Capped by Alkali Metal Cations via CRAFTI Collision Cross Sections." Shen, Jiewen; Farzan, Tina H. M.; Dearden, David V. Poster presented at the 67th ASMS Conference on Mass Spectrometry and Allied Topics; Atlanta, GA; June 2—6, 2019.

204. "Dependence of CRAFTI Cross-sections on Ion-Neutral Center-of-Mass Kinetic Energy and Ion Dissociation Energy." Arslanian, Andrew J.; Mismash, Noah; Shaner, Jacob; Pope, Brigham; Farzan, Tina H. M.; Shrestha, Jamir; Dearden, David V. Poster presented at the 67th ASMS Conference on Mass Spectrometry and Allied Topics; Atlanta, GA; June 2—6, 2019.

205. "Comparing Collision Cross Sections of CB[5] and mc5 Complexes Containing Different Alkali Metals and Methanol Guest with Cs^+ Caps." Farzan, Tina H. M.; Wilson, Joseph W.; Hickenlooper, Samuel; Arslanian, Andrew J.; Dearden, David V. Poster presented at the 67th ASMS Conference on Mass Spectrometry and Allied Topics; Atlanta, GA; June 2—6, 2019.

206. "Determining Topologies of Alkylammonium Complexes of Cucurbit[6]uril using MultiCRAFTI Techniques in an FTICR Mass Spectrometer." Shrestha, Jamir; Feng, Zixuan; Pay, Mariah; Arslanian, Andrew J.; Farzan, Tina H. M.; Pope, Brigham; Shen, Jiewen; Dearden, David V. Poster presented at the 67th ASMS Conference on Mass Spectrometry and Allied Topics; Atlanta, GA; June 2—6, 2019.

207. "Multiple-ion CRAFTI: Relative Collision Cross Sections through FTICR Methods Without Need for Accurate Pressure Measurements or Single-Collision Dephasing; Success and Mechanism." Pope, Brigham; Hickey, Jacob; Mismash, Noah; Joaquin, Daniel; Mortensen,

Daniel; Dearden, David V. Poster presented at the 67th ASMS Conference on Mass Spectrometry and Allied Topics; Atlanta, GA; June 2—6, 2019.

208. "Characterization of Cucurbit[n]uril Complexes in the Gas Phase Using Fourier Transform Ion Cyclotron Resonance Techniques." Farzan, Tina H. M.; Shen, Jiewen; Shrestha, Jamir; Arslanian, Andrew J.; Dearden, David V. Invited talk presented at the 6th International Conference on Cucurbiturils; Athens, OH; July 21—24, 2019.

209. "Biomolecule Analysis by SORI-CRAFTI." Arslanian, Andrew J.; Tinsley, Caleb; Mismash, Noah; Dearden, David V. Talk presented at the 2020 Lake Arrowhead Conference on Ion Chemistry and Mass Spectrometry; Lake Arrowhead, CA; January 17-19, 2020.

210. "Determining Topologies of Alkylammonium Complexes of Cucurbit[6]uril Using Multi-CRAFTI Techniques." Shrestha, Jamir; Tinsley, Caleb; Arslanian, Andrew; Feng, Zixuan; Farzan, Tina H. M.; Pay, Mariah; Dearden, David V. Talk presented at the 2020 Lake Arrowhead Conference on Ion Chemistry and Mass Spectrometry; Lake Arrowhead, CA; January 17-19, 2020.

211. "Ion Decoherence in FTICR is Primarily Due to Collision-induced Dissociation." Shaner, Jacob; Dearden, David V. Poster presented at the 2020 Lake Arrowhead Conference on Ion Chemistry and Mass Spectrometry; Lake Arrowhead, CA; January 17-19, 2020.

212. "Alkali Cation Size-specific Guest Trapping in Supramolecular Complexes Characterized Using CRAFTI Collision Cross Sections." Farzan, Tina H. M.; Pay, Mariah; Pope, Brigham L.; Dearden, David V. Online poster presented at the American Society for Mass Spectrometry 2020 Reboot; Summer 2020.

213. "PhaseCRAFTI: a New Approach to Collision Cross Section Measurements Using FTICR/MS Phase Shifts." Dearden, David V.; Asplund, Matthew C.; Arslanian, Andrew J.; Farzan, Tina H. M.; Shrestha, Jamir. Online poster presented at the American Society for Mass Spectrometry 2020 Reboot; Summer 2020.

214. "Collision Cross-section Measurements of Precursor and Selected Fragmentation Products in Single Experiments by SORI – CRAFTI." Arslanian, Andrew J.; Tinsley, Caleb; Mismash, Noah; Dearden, David V. Online poster presented at the American Society for Mass Spectrometry 2020 Reboot; Summer 2020.

215. "Determining Topologies of Alkylammonium Complexes of Cucurbit[6]uril Using MultiCRAFTI and SORI-CID Techniques in an FTICR Mass Spectrometer." Shrestha, Jamir; Tinsley, Caleb; Arslanian, Andrew J.; Feng, Zixuan; Farzan, Tina H. M.; Pay, Mariah; Dearden, David V. Online poster presented at the American Society for Mass Spectrometry 2020 Reboot; Summer 2020.

216. "Effects of Charge State and Charge Distribution on the Ion Mobility in Nitrogen of Rigid Molecules: Cucurbituril Complexes." Shrestha, Jamir; Porter, Savannah; Dearden, David V. Poster presented at the 69th ASMS Conference on Mass Spectrometry and Allied Topics; Philadelphia, PA; October 31—November 4, 2021.

217. "Time-resolved Ion Structural Changes by Cross-section Measurement in a Fourier Transform Ion Cyclotron Resonance Mass Spectrometer." Arslanian, Andrew J.; Porter, Savannah; Dearden, David V. Talk presented at the 69th ASMS Conference on Mass Spectrometry and Allied Topics; Philadelphia, PA; October 31—November 4, 2021.

218. "Ion Mobility and CRAFTI Techniques Give Long-range and Hard-sphere Results, Respectively." Heravi, Tina; Arslanian, Andrew J.; Johnson, Spencer; Dearden, David V. Talk presented at the 69th ASMS Conference on Mass Spectrometry and Allied Topics; Philadelphia, PA; October 31—November 4, 2021.

219. "Novel Ternary Host-Guest Systems of Cucurbit[7]uril and Aromatic Guests: a Structural Study by Ion Mobility." Dearden, David V.; Arslanian, Andrew J.; Tinsley, Caleb; Taylor, Tanner; Avei, Mehdi Rashvand; Kaifer, Angel E. Talk presented at the 69th ASMS Conference on Mass Spectrometry and Allied Topics; Philadelphia, PA; October 31—November 4, 2021.

220. "Effects of Charge State and Charge Distribution on the Ion Mobility in Nitrogen of Rigid Molecules: Cucurbituril Complexes." Shrestha, Jamir; Porter, Savannah R.; Dearden, David V. Talk presented at the 2022 Lake Arrowhead Conference on Ion Chemistry and Mass Spectrometry; Lake Arrowhead, CA; January 14-16, 2022.

221. "Ion Dynamics as Measured by Ion-Neutral Collision Cross Section in an FT-ICR MS." Porter, Savannah R.; Arslanian, Andrew J.; Dearden, David V. Talk presented at the 2022 Lake Arrowhead Conference on Ion Chemistry and Mass Spectrometry; Lake Arrowhead, CA; January 14-16, 2022.

222. "Size-Selectivity for Alkali Cations in Supramolecular Complexes with Neutral Guests Characterized Using multiCRAFTI Collision Cross Sections." Heravi, Tina; Johnson, Spencer D.; Dearden, David V. Poster presented at the 70th ASMS Conference on Mass Spectrometry and Allied Topics; Minneapolis, MN; June 5-9, 2022.

223. "Using Computational Modeling to Compare CRAFTI and IM-MS Methods for Determining Ion-Neutral Collision Cross Sections." Johnson, Spencer D.; Heravi, Tina; Dearden, David V. Poster presented at the 70th ASMS Conference on Mass Spectrometry and Allied Topics; Minneapolis, MN; June 5-9, 2022. Recognized with an award for one of the best undergraduate posters this year.

224. "Collision-induced Conformational Changes Revealed by Collision Cross-section Measurement in a FTICR-MS." Arslanian, Andrew J.; Porter, Savannah; Dearden, David V. Poster presented at the 70th ASMS Conference on Mass Spectrometry and Allied Topics; Minneapolis, MN; June 5-9, 2022.

225. "Artificial Allosterism in Simple Ditopic Ligands: Gas Phase Topologies of Cucurbit[n]uril•n-Alkylammonium Complexes Controlled by Binding in the Second Site." Shrestha, Jamir; Porter, Savannah R.; Tinsley, Caleb; Arslanian, Andrew J.; Dearden, David V. Poster presented at the 70th ASMS Conference on Mass Spectrometry and Allied Topics; Minneapolis, MN; June 5-9, 2022.

226. "Gas Phase Shapes of Cucurbit[n]uril (n = 5, 6) Complexes with n-Alkylammonium Ions: Simple Allosterism Controlled by Binding in the Second Site." Shrestha, Jamir; Porter, Savannah R.; Tinsley, Caleb; Arslanian, Andrew J.; Dearden, David V. Talk presented at the 16th International Symposium on Macrocyclic and Supramolecular Chemistry; Eugene, OR; June 19-24, 2022.

227. "Activation and Relaxation of Protein Ions Observed Using Time Resolved Ion-Neutral Collision Cross Sections in an FTICR-MS." Porter, Savannah R.; Mismash, Noah J.; Arslanian, Andrew J.; Dearden, David V. Talk presented at the 2023 Lake Arrowhead Conference on Ion Chemistry and Mass Spectrometry; Lake Arrowhead, CA; January 13-15, 2023.

228. "Time Resolved Collision Cross Section Measurements for Gas Phase Host-Guest Complexes." Mismash, Noah J.; Porter, Savannah R.; Taylor, Tanner R.; Davis, Bryce J.; Arslanian, Andrew J.; Dearden, David V. Talk presented at the 2023 Lake Arrowhead Conference on Ion Chemistry and Mass Spectrometry; Lake Arrowhead, CA; January 13-15, 2023.

229. "Watching Molecular Folding / Unfolding in the Gas Phase: Time-Resolved Collision Cross Section Measurements Using the CRAFTI Method." Dearden, David V.; Arslanian, Andrew J.; Mismash, Noah J.; Porter, Savannah R. Poster presented at the 2023 Gordon Research Conference on Gaseous Ions: Structures, Energetics, and Reactions; Ventura, CA; February 19-24, 2023.

230. "Time-Resolved Collision Cross Section Measurements of Collision-Activated Gas-Phase Host-Guest Complexes." Mismash, Noah J.; Porter, Savannah R.; Arslanian, Andrew J.; Davis, Bryce J.; Taylor, Tanner; Dearden, David V. Poster Presented at the 71st ASMS Conference on Mass Spectrometry and Allied Topics; Houston, TX; June 4-8, 2023.

231. "Activation and Relaxation of Protein Ions Observed Using Time-Resolved Ion-Neutral Collision Cross Sections in an FT-ICR MS." Porter, Savannah R.; Mismash, Noah J.; Arslanian, Andrew J.; Dearden, David V. Poster Presented at the 71st ASMS Conference on Mass Spectrometry and Allied Topics; Houston, TX; June 4-8, 2023.

232. "Using Rigid Molecules to Probe Roles of Charge State, Charge Distribution, and Mass Distribution on Ion Mobility." Dearden, David V.; Porter, Savannah R.; Shrestha, Jamir; Heravi, Tina. Poster Presented at the 71st ASMS Conference on Mass Spectrometry and Allied Topics; Houston, TX; June 4-8, 2023.

233. "Energy & Time Resolved Collision Cross Sections of Flexible Ions and Host-Guest Complexes." Mismash, Noah J.; Kim, Kelley; Dearden, David V. Talk presented at the 2024 Lake Arrowhead Conference on Mass Spectrometry; Lake Arrowhead, CA; January 12-14, 2024.

234. "Mass Spectrometry and Density Functional Theory-based Investigation on the Fragmentation of Drug Molecules." Mane, Sudam S.; Dearden, David V. Talk presented at the 2024 Lake Arrowhead Conference on Mass Spectrometry; Lake Arrowhead, CA; January 12-14, 2024.

235. "Time-resolved Collision-induced Unfolding of Small Molecules Probed Using CRAFTI Techniques." Mismash, Noah J.; Kim, Kelley; Dearden, David V. Talk presented at the 72nd ASMS Conference on Mass Spectrometry and Allied Topics; Anaheim, CA; June 2-6, 2024.

236. "Role of Density Functional Theory in Explaining MS/MS Fragmentation Mechanism of Biologically Active Substituted Urea Derivative Quizartinib." Mane, Sudam S.; Dearden, David V. Poster presented at the 72nd ASMS Conference on Mass Spectrometry and Allied Topics; Anaheim, CA; June 2-6, 2024.

EXTERNAL RESEARCH PROPOSALS

Assistant Professor Rank (Funded)

1. "Gas-Phase Molecular Recognition," Robert A. Welch Foundation, 6/91-5/94, $81,000 (direct).

2. "Fundamental Chemistry of Laser-Generated Macroions," Petroleum Research Fund (Type G), 9/91-8/93, $21,000 (direct).

3. "Molecular Recognition in the Gas Phase: Rates, Structures, and Energetics Without Solvents or Counterions," National Science Foundation, 1/93-6/96, $201,000 (direct + indirect).

4. "Shape-Selective Ion-Molecule Chemistry," Petroleum Research Fund (Type AC), 9/93-8/96, $50,000 (direct).

5. "High Performance Mass Spectrometry," Alcon Laboratories (Fort Worth, Texas), 4/94-3/96, $11,000 (direct + indirect).

Associate Professor Rank (Funded)

1. "National Science Foundation Young Investigator Award," National Science Foundation, 7/93-6/98, $312,500 (direct + indirect).

2. "Fundamental Factors Controlling Molecular Recognition," Petroleum Research Fund (Type AC), 1/99-8/01, $60,000 (direct).

Associate Professor Rank (Denied)

1. "Fundamental Factors Controlling Molecular Recognition." Submitted January 1998. $358,000 (3 years), National Science Foundation.

   This proposal, which was a renewal of my first NSF grant dealing primarily with gas phase crown ether chemistry, received 1 "excellent" rating and 4 "very good" ratings.

2. "Molecular Recognition—From the Gas Phase to Solution." Submitted December 1998. $352,735 (3 years), National Science Foundation.

This proposal, a second attempt to renew funding for our gas phase crown ether work, received 2 "excellent", 1 "very good/excellent", 1 "very good", and 1 "good" rating.

3. "Gas Phase Molecular Recognition." Submitted January 2000. $382,124 (3 years), National Science Foundation.

   This proposal was also focused on the chemistry of crown ethers in the gas phase, but included significant new ideas dealing with the study of solvent-attached ions under controlled conditions. It received 3 "excellent" and 1 "good" ratings.

4. "Nanodevice Structure and Function-A Gas Phase Study." Submitted November 2002. $335,851 (3 years), National Science Foundation.

   By this point it was becoming apparent that NSF would not fund the crown ether work. This proposal, while building upon the methods we had developed for studying molecular recognition by crown ethers in the gas phase, dealt with larger supramolecular systems including molecular cages and rotaxanes, mostly employing cucurbit[n]urils as the cage component of the supramolecules. The proposal received 2 "excellent", 1 "very good", and 2 "good" ratings.

5. "Fundamental Factors Controlling Enantiodiscrimination." Submitted December 2002. $120,000 (3 years), Petroleum Research Fund.

   This PRF proposal was much more limited in scope than the NSF proposals, focusing on understanding the fundamental interactions that lead to enantiodiscrimination by studying the reactions of chiral crown ethers mainly with chiral ammonium cations in the gas phase. The proposal received 2 positive reviews and one very negative one.

6. "Nanodevice Structure and Function-A Gas Phase Study." Submitted January 2004. $120,000 (3 years), Petroleum Research Fund.

   This proposal was a shorter, updated version of number 4 above. It received 2 very strongly positive reviews and two reviews that were not negative but not glowingly positive; it was not funded.

Professor Rank (Funded)

1. "Supramolecular Characterization via Mass Spectrometry." Submitted January 2006. $330,000 (3 years; August 2006—July 2009), National Science Foundation.
2. "CRIF:MU – Tunable UV-Vis and IR Laser System for Spectroscopy and Chemical Dynamics Research." Submitted July 2008. $300,000 (3 years; March 2009—February 2012), National Science Foundation.
3. "Gas Phase Supramolecular Characterization." Submitted August 2009. $235,000 (2 years; June 2010—May 2012), National Science Foundation.
4. "Collision Cross Section Measurements Using Fourier Transform Ion Cyclotron Resonance Techniques." Submitted November 2013. $450,189 (3 years; July 2014—June 2017), National Science Foundation.

5. "Collision Cross Section Measurements Using Fourier Transform Ion Cyclotron Resonance Techniques." Submitted October 2018. $495,000 (4 years; July 2019—June 2023), National Science Foundation.
6. "Probing Molecular Folding and Unfolding Rates Through Time-resolved Measurement of Ion-Neutral Collision Cross Sections." Submitted October 2023. $374,719 (3 years; July 2024-June 2027), National Science Foundation.

Professor Rank (Denied) (this only includes proposals on which I am PI)

1. "Supramolecular Mass Spectrometry." Submitted January 2005. $391,659 (3 years), National Science Foundation.

   This proposal was focused on analytical methods for supramolecular chemistry, rather than on the physical organic chemistry I have previously proposed. It reviewed very well, receiving 3 "excellent" scores and 1 "very good," but was not funded. I am encouraged that it reviewed well, and confident it can be revised into a fundable proposal.

2. "Supramolecular Thermochemistry Using Quantitative Variable Energy Sustained Off-resonance Irradiation (SORI) Activation." Submitted June 2006. $50,000 (2 years), Research Corporation Research Opportunity Award.

   This proposal reviewed well and according to the program manager likely would have been funded, but my NSF grant made me ineligible, so the proposal had to be withdrawn.

3. "Tools for Characterizing Gas Phase Molecular Conformation." Submitted November 2012. $515,527 (3 years), National Science Foundation.

   This proposal was for continuation of our funded work in gas phase supramolecular characterization. It reviewed well but not well enough under current budget conditions.

4. Characterization and Applications of Collision Cross Section Measurements Using Fourier Transform Ion Cyclotron Resonance Techniques." Submitted October 2017. $505,281 (3 years), National Science Foundation.

   This proposal was for continuation of our funded work in gas phase supramolecular characterization. It reviewed well but not well enough under current budget conditions.

CONSULTING

Alcon Laboratories; Fort Worth, TX; 1994-1997. Mass spectrometric analysis of pharmaceuticals.

IBC Advanced Technologies; American Fork, UT; 1997-2005; 2016-2017. Design of molecular recognition agents using computational chemistry techniques; mass spectrometric analysis of synthetic compounds.

CITIZENSHIP

Administrative

Chair, BYU Department of Chemistry and Biochemistry (June 2016-June 2022)
Graduate Coordinator (BYU Department of Chemistry & Biochemistry, July 2004-August 2009) Overall responsibility for recruiting, admissions, and progress of graduate students in our department (typically about 100 graduate students).
Faculty Advisory Council representative (BYU, September 2009-August 2013). Elected representatives from each college are charged with representing the faculty perspective and making recommendations to the university administration. I served for one year as a member of the Research Committee, which deals with issues related to carrying out scholarly research at the university. For the last two years I served on the Teaching Committee, which deals with issues related to evaluating and improving teaching and learning, as co-chair of the committee.

Committee work

Graduate Recruiting (UT-Arlington, Departmental, 1990-1993)
Library (UT-Arlington, Departmental, 1990-1993)
Research Enhancement Program (UT-Arlington, Departmental, 1990-1993)
PC/Networking (UT-Arlington, College of Science, 1991-1993) Served as acting chair on several occasions, and was primary author of the proposal which led to establishment of a Macintosh II laboratory, operated by Academic Computing, in the University of Texas at Arlington Science Learning Center.
Graduate Recruiting (BYU, Departmental, 1994-1999; Chair, fall 1995-1999)
Undergraduate Awards (BYU, Departmental, 1994-1999)
Major Capital Equipment (BYU, Departmental ad-hoc, 1994-present)
ad-hoc group advising on multimedia equipment for Benson Science Building (BYU, 1994)
ad-hoc group advising on multimedia equipment for 2170 Jesse Knight Humanities Building (BYU, 1995)
Graduate Admissions (BYU, Departmental; 1999-2009; Chair, 2002-2009)
High School Demonstrations / National Chemistry Week (BYU / Central Utah Section, Departmental, 1999-2002)
Freshman Chemistry Online Course (BYU, Departmental, 2000-2004)
Curriculum Committee (BYU, Departmental, 2009-present; Chair, 2014-present)
Academic Innovation Task Force (BYU, University level, 2011-2012)
Mass Spectrometry (BYU, Departmental; Chair, 1995-1999; member, 1995-present; Chair, 2012-present)
College of Physical and Mathematical Science Rank and Status Committee (BYU, College level, 2012-present)
Technology in the Classroom Advisory Committee (BYU, University level, 2012-2013)
Brigham Young University Faculty Advisory Council (This is BYU's version of a Faculty Senate; BYU, University level, 2010-2013)
Brigham Young University Faculty Advisory Council Teaching Committee co-Chair (BYU, University level, 2011-2013)

Brigham Young University Professorial Rank and Status Council (BYU, University level, 2023-present)

Manuscript Reviews

Accounts of Chemical Research
Analyst
Analytical Chemistry
Chemical Communications
Journal of the American Chemical Society
Journal of the American Society for Mass Spectrometry ("Top Reviewer" award)
Journal of Mass Spectrometry
Journal of Physical Chemistry
Supramolecular Chemistry
International Journal of Mass Spectrometry and Ion Processes
Journal of Inclusion Phenomena and Molecular Recognition in Chemistry
Journal of Organic Chemistry
Dalton Transactions
Energy & Fuels

Proposal Reviews

The Petroleum Research Fund, administered by the American Chemical Society
National Science Foundation
International Science Foundation
Idaho National Engineering Laboratory / Massachusetts Institute of Technology University Consortium
National High Magnetic Field Laboratory Fourier Transform Ion Cyclotron Resonance Mass Spectrometry Facility
United States Department of Energy

Miscellaneous Citizenship

Supervised Departmental mass spectrometry facility, University of Texas at Arlington, 1990-1993.

Mentor for high school student John Gonsoulin (of Austin, TX), a participant in the 1992 Welch Summer Scholars program at the University of Texas at Arlington (Summer 1992).

Organized University of Texas at Arlington chemistry departmental seminar program, 1992-1993 academic year.

Mentor for high school student Gwendolyn Dawson (of Houston, TX), a participant in the 1993 Welch Summer Scholars program at the University of Texas at Arlington (Summer 1993).

Faculty advisor to Latter-day Saint Student Association, University of Texas at Arlington, 1992-1993.

Judge for the 1994 ACS Meeting-in-Miniature, held at Brigham Young University, May 1994.

Advisory Panel Member, National High Magnetic Field Ion Cyclotron Resonance Mass Spectrometry Laboratory, Tallahassee, FL, 1996-1999. Advised this NSF-funded national facility on instrument purchases, personnel, budget, and selection of proposals for work to be carried out.

Interest Group Coordinator, American Society for Mass Spectrometry Young Mass Spectrometrists' Interest Group (2-year term beginning in September, 1994). Representing the Young Mass Spectrometrists' Interest Group, organizing and conducting workshops at the national ASMS meetings (Organized and conducted a workshop titled "Building Job Security" at the 43rd ASMS Conference on Mass Spectrometry and Allied Topics in Atlanta, GA, May 21-26, 1995; "How to Write Referee Reports," 44th ASMS Conference on Mass Spectrometry and Allied Topics in Portland, OR, May 12-16, 1996).

Judge for Utah State School Science Fair, held April 19, 1995 at Brigham Young University.

Chair-elect, Central Utah Section, American Chemical Society, 1996.

Session Chair, "Host-Guest Interactions," 44th ASMS Conference on Mass Spectrometry and Allied Topics; Portland, OR; May 12-16, 1996.

Chair, Central Utah Section, American Chemical Society, 1997. Section was awarded a "Certificate of Excellence" for performance during 1997.

Session Chair, "Ion Chemistry and Ion-Molecule Reactions," First North American FT-ICR MS Conference; Tallahassee, FL; March 13-15, 1997.

Interest Group Coordinator, American Society for Mass Spectrometry Metal Ion Coordination Chemistry Interest Group (2-year term beginning in July, 1997).

Guest Editor, *International Journal of Mass Spectrometry and Ion Processes* special issue on molecular recognition, jointly with Professor Jennifer Brodbelt of the University of Texas, Austin; published Dec. 1999.

Session Chair, 1998 Conference on Ion Chemistry and Mass Spectrometry; Lake Arrowhead, CA; January 23-25, 1998.

Chemistry Department Coordinator, 1998 Spring Research Conference; Brigham Young University; Provo, UT; March 28, 1998.

Invited speaker at BYU Faculty Development Seminar, 11 May 1998, "Reflections on Gaining Continuing Status"

National Chemistry Week Coordinator, Central Utah Section, American Chemical Society, 1999-2001.

School Demonstration Coordinator, Central Utah Section, American Chemical Society, 1999-2002.

Session Chair, 2000 Conference on Ion Chemistry and Mass Spectrometry; Lake Arrowhead, CA; January 28-30, 2000.

Judge for Utah State School Science Fair, held March 23, 2000 at Brigham Young University.

Session Chair, American Society for Mass Spectrometry Conference on Mass Spectrometry and Allied Topics; Long Beach, CA; June 11-15, 2000.

Numerous elementary and secondary school chemistry demonstration shows.

Nominating committee, American Society for Mass Spectrometry, (Spring 2001-Spring 2002).

Organizing committee, 27th International Symposium on Macrocyclic Chemistry; Park City, UT; June 23—27, 2002.

Publications committee, American Society for Mass Spectrometry, Spring 2009-Spring 2012.

Science category judge, Sterling Scholar Awards, Spring 2014.

TEACHING

Courses Taught

Chemistry 2451 (UT-Arlington, Sophomore Level, Quantitative Analysis, 4 credits)

I taught this course seven times, Fall 1990, Spring 1991, Fall 1991, Spring 1992, Fall 1992, Spring 1993 and Fall 1993. I updated the course and modified the curriculum a great deal, and introduced a new textbook (D. C. Harris, *Quantitative Chemical Analysis*, 3rd. edition; Freeman: New York, 1991). I changed the laboratory curriculum to decrease the emphasis on titration and increase coverage of instrumental techniques, with focus on socially relevant problems. New experiments I introduced include a redox analysis to determine the stoichiometry in a high-temperature "1-2-3" superconductor, colorimetric analysis of iron in commercial vitamin supplements, and gas chromatographic analysis of gasoline for the detection and quantitation of methanol. I also introduced computer-aided instruction into the curriculum, with computer-generated lecture presentations and spreadsheet data analysis and modeling being key features.

Chemistry 226 (BYU, Freshman Level, Introductory Analytical Chemistry, 4 credits)

I taught this course Fall semester, 1994 (enrollment: 63 students), and Winter semester, 1996 (enrollment: 70 students). The entire course is presented to the students using computerized multimedia including the use of animation, digitized still images, sound, digital video, and dynamic linking to other software such as spreadsheets and word processors. Using the Authorware Professional authoring software package, I have produced a set of about 20 multimedia presentations to accompany the full one-semester course, covering topics such as use of analytical balances, titrations, statistical analysis of laboratory results, chemical equilibria, solubility, acid-base chemistry, oxidation-reduction, and a scheme for qualitative elemental analysis. The presentations, intended primarily to replace traditional "chalk and eraser" lectures, are delivered with a laptop computer and either an overhead projection plate or an RGB projector, and are also placed on a campus server and made available to the students as "interactive notes". The software runs on both Macintosh and DOS/Windows platforms, and includes limited hyperlinking to maximize flexibility in presentation. More recently, I have added digitized video demonstrations of the laboratory work to the presentations.

Chemistry 227 (BYU, Sophomore Level, Introductory Analytical Chemistry, 4 credits)

I taught this course Spring term 1995 (enrollment: 36 students), Fall semester 1995 (enrollment: 26 students), and Fall semester 1996 (enrollment: 27 students). I developed multimedia materials similar to those used in Chem 226 for this follow-up course, including more advanced tutorials on statistics in chemistry, acid-base interactions, optical spectroscopy, and chromatography.

Chemistry 391 (BYU, Junior/Senior Level, Technical Writing Using Chemical Literature, 3 credits)

I taught this course Winter semester 1997 (enrollment: 43 students), jointly with Professor S. Scott Zimmerman, and on my own Winter semester 1998 (enrollment, about 30 students), Winter

semester 1999 (enrollment, about 28 students), Fall semester 1999 (enrollment, about 22 students) and Fall semester 2000 (enrollment, 28 students). This is an intensive technical writing course based on chemical literature sources. It fulfills the General Education Advanced Writing requirement at BYU. The course includes literature awareness and searching techniques, word processing and desktop publishing, and technical writing. I maintained an extensive web site for the course, comprised of the syllabus, assignment descriptions and examples, handouts, etc.

Physical Science 100 (BYU, General Education, Physical Science, 3 credits)

I taught this course Winter semester 1998 (enrollment: about 200 students), Winter semester 1999 (enrollment: about 150 students) Winter semester 2000 (enrollment: about 150 students), Winter semester 2001 (3 sections, total enrollment about 300 students), Winter semester 2002 (2 sections, total enrollment about 200 students), Spring term 2013, Spring term 2014, Fall semester 2015, Winter semester 2016, Spring term 2016, Fall semester 2016, and Spring term 2022, as well as teaching many times at the BYU Salt Lake Center. The course covers important concepts in physics, chemistry, astronomy, and geology, and uses a rich set of demonstrations to supplement more traditional lectures. Most of the lecture material is delivered via a laptop computer running PowerPoint, and extensive notes are posted on the web.

Chemistry 729R (BYU, Special Topics: Mass Spectrometry, 2 credits)

I taught this course Winter semester 2000 (enrollment: 7 students) and again in 2009. This was an advanced graduate course in mass spectrometry, drawing about half its material from *Interpretation of Mass Spectra* by McLafferty and Turecek, and about half from *Journal of Mass Spectrometry* special features articles.

Chemistry 223 (BYU, Quantitative and Qualitative Analysis, 4 credits)

I taught this course Spring term 2002 (enrollment: 24 students), Fall semester 2002 (enrollment, 34 students), Spring term 2003 (enrollment: 19 students), Fall semester 2003 (enrollment, 47 students), Spring term 2004 (enrollment: 21 students), Fall semester 2004 (enrollment: 27 students), and Spring term 2005 (enrollment: 25 students). This is an introductory laboratory course in analytical chemistry for students who are not chemistry majors (most are taking the course to fulfill requirements for a chemistry minor). I worked to modernize the curriculum for this course; for example, I added new experiments each time I have taught it. I have converted almost all the presentation material to PowerPoint.

Chemistry 105 (BYU, General College Chemistry, 4 credits)

I have taught this course a number of times beginning in Winter semester 2005 (enrollment: about 235 students) through Winter 2011. This is a 4-credit-hour, introductory course in general college chemistry; it is one of the largest service courses taught by our department. I developed media-rich material, much of which was based on the Chemistry 105 Online material, and made extensive use of online technologies to try to provide interactive experiences for the students despite the large enrollment in the course.

Honors 100R (BYU, Late Summer Honors "Is Anybody Out There: Modern Science and the Search for Extraterrestrial Life," 1 credit (the designation later changed to HNRS 101))

I created and taught this course in August 2010 (enrollment: 7 students) and taught it each year through about 2014. This course covered background material in physics, biology, geology,

astronomy, and chemistry, and described current efforts to find extraterrestrial life, both within the solar system and beyond. It was fun for me and I hope was fun for the students.

Chemistry 111 (BYU, Honors Principles of Chemistry, 3 credits (changed to 4 in 2013))

I taught this course for the first time in Fall semester 2010 (enrollment: 77 students) and taught it each year thereafter through fall 2021. This is the introductory chemistry course primarily targeted at majors in Chemistry and Chemical Engineering. It is a 3-credit hour course taught using calculus and includes an extensive introduction to quantum mechanics. It includes some limited laboratory work in addition to 3 lectures and 1 review day each week.

Chemistry 629R (BYU, Mass Spectrometry, 3 credits)

I created and taught this graduate mass spectrometry course for the first time in Fall semester 2012 (enrollment: 23 students). This was an adaptation of Chem 729R (Mass Spectrometry), which was an optional course, to a new course that is required for all analytical chemistry graduate students.

University 292 (BYU, Unexpected Connections, 3 credits)

This is an Honors class team taught by myself and a colleague, exploring connections between the physical sciences and the general education global and cultural awareness requirement; together, we created the course. It is centered around the science of searching for extraterrestrial intelligence, and explores what it means to be "alien" and the cultural consequences of different cultures encountering each other. I taught the course during both Winter and Fall 2015 and Winter of 2016.

Chemistry 521 (BYU, Instrumental Analysis Lecture, 2 credits)

This course is for senior chemistry/biochemistry majors and graduate students, and covers principles and concepts dealing with the use of instruments in qualitative and quantitative analysis. I have taught this course once (Fall 2022) so far.

Chemistry 523 (BYU, Instrumental Analysis Lab, 2 credits)

This course is for senior chemistry/biochemistry majors and graduate students, and is a lab course involving the use of instruments for qualitative and quantitative analysis. I have taught this course once (Winter 2023) so far.

Undergraduate Research Students

The following undergraduates have carried out work in my lab: Barbara J. Antonio (NSF-REU, 1991), Samuel G. Leming (Welch, 1991-1992), Thomas Cook (NSF-REU, 1992), Judith Carmona (NSF-AMP, 1993), Kevin Cannell (NSF-REU, 1993), Jeremy Nicoll (1994-1995), Spencer Carter (1996), Greg Wheeler (1996), Israel Haroldsen (1996-1997), Daniel Austin (1996-1998), Laura Sneddon Cunningham (1997-1999), Lauren Bergeson (1998-1999), Eric Handberg (1999-2001), Jordan van Orman (2000, 2002-2003), Eric Poulsen (2001-2002), Kevin Walker (2001-2002), Jason Slade (2002-2003), Mark Rogers (2002-2003), Tyler Ferrell (2003-2004), Daniel Hatch (2004), and Patrick Smith (2004). Many since then, averaging about 4 per year, but I've stopped keeping track!

Most past students have been successful enough to have some of their work presented at meetings or written up for publication. In addition, Sam Leming won third place in the undergraduate division at the 1992 Dallas/Fort Worth Section American Chemical Society Meeting-in-Miniature competition, Kevin Cannell won an award from the UT-Arlington NSF-REU program for best written description of his work, summer 1993, Daniel Austin was awarded a BYU ORCA Scholarship in 1997, Laura S. Cunningham was awarded a BYU ORCA Scholarship in 1998, and Eric Handberg was awarded a BYU ORCA Scholarship and a Minority Student Scholarship in 1999, and the Minority Student Scholarship again in 2000-2001. Spencer Johnson won an outstanding poster presentation award at the 2022 American Society for Mass Spectrometry Conference on Mass Spectrometry and Allied Topics in Minneapolis, MN in June 2022.

Theses Supervised

1. Hong Zhang, M. S., The University of Texas at Arlington (July 1992)
   "Gas Phase Studies of the Ion-Molecule Reactions of Crown Ethers and Glymes"

2. Philip Shu Hung Wong, M. S., The University of Texas at Arlington (August 1992)
   "Gas Phase Studies of the Host-Guest Ion Chemistry of Calixarenes and Natural Ionophores"

3. In-Hou Chu, Ph. D., The University of Texas at Arlington (December 1993)
   "Recognition of Alkali Metal Cations and Ammonium Cations by Crown Ethers in the Gas Phase"

4. XueJun Yu, M. S., The University of Texas at Arlington (August 1994)
   "Study of Ion-Molecule Reactions in the Gas Phase: 1. Gas Phase Ion-Molecule Chemistry of Calixarenes. 2. Molecular Recognition of Ammonium Cations by Crown Ethers and Cryptands in the Gas Phase. 3. Recognition of Alkaline Earth Monohalides by 18-Crown-6"

5. Jeremy B. Nicoll, M. S., Brigham Young University (December 1997)
   "Isotopic Labeling Kinetic Experiments with Crown Ether — Alkali Metal Complexes in the Gas Phase by FT-ICR Mass Spectrometry"

6. Nanzhu Shen, Ph. D., Brigham Young University (April 1998)
   "Host-Guest Ion Molecule Interactions in the Gas Phase Using Fourier Transform Ion Cyclotron Resonance Mass Spectrometry"

7. Yongjiang Liang, Ph. D., Brigham Young University (August 1998)
   "Host-guest Chiral Recognition in the Gas Phase by Fourier Transform Ion Cyclotron Resonance Mass Spectrometry"

8. Daniel E. Austin, B. S. (Honors), Brigham Young University (April 1998)
   "Collision Cross Section Measurements in a Fourier Transform Ion Cyclotron Resonance Mass Spectrometer"

9. Katherine A. Kellersberger, M. S., Brigham Young University (December 1998)
   "Gas Phase Studies of Ammonium—Cyclodextrin Compounds"

10. Sarah N. Ward, M. S., Brigham Young University (December 2001)
"Microsolvation of Host-Guest Complexes: A Study of 12-Crown-4, Ligated with Lithium or Sodium Alkali Ion, with Adducts of Methanol, Acetone, Acetonitrile, or 12-Crown-4"

11. Joseph D. Anderson, M. S., Brigham Young University (April 2002)
"Anion Effects in Ligand Exchange Reactions and Affinity of Dibenzo-18-Crown-6 for Alkali Metal Ions in the Gas Phase Using FT-ICR Mass Spectrometry"

12. Katherine A. Kellersberger, Ph. D., Brigham Young University (April 2002)
"Gas Phase Studies of Decamethylcucurbit[5]uril and Cyclodextrin Inclusion Complexes"

13. Haizhen Zhang, Ph. D., Brigham Young University (December 2006)
"Characterization of Cucurbituril Complex Ions in the Gas Phase Using Electrospray Ionization Fourier Transform Ion Cyclotron Resonance Mass Spectrometry"

14. Nannan Fang, Ph.D., Brigham Young University (December 2009)
"Gas Phase Chiral Recognition, Characterization of Porous Polymer Monolith Nanospray Ionization, and the Negative Mode CRAFTI Method Using Fourier Transform Ion Cyclotron Resonance Mass Spectrometry"

15. Ruijun Shi, M.S., Brigham Young University (December 2011)
"Influence of Weak Interactions on Supramolecular Binding: Characterization of Cucurbituril Complexes with Alkylmonoammonium Ions Using Fourier Transform Ion Cyclotron Resonance Mass Spectrometry"

16. Fan Yang, Ph.D., Brigham Young University (December 2012)
"Gas Phase Characterization of Supramolecules Using Cross-sectional Areas by FTICR and Sustained Off-resonance Irradiation Collision Induced Dissociation Techniques in a Fourier Transform Ion Cyclotron Resonance Mass Spectrometer"

17. Chad A. Jones, Ph.D., Brigham Young University (December 2014)
"Ion Structure and Energetics in the Gas Phase Characterized Using Fourier Transform Ion Cyclotron Resonance Mass Spectrometry"

18. Anupriya, Ph.D., Brigham Young University (August 2016)
"Gas Phase Structure Characterization Using Fourier Transform Ion Cyclotron Resonance Mass Spectrometry"

19. Jiewen Shen, Ph.D., Brigham Young University (December 2020)
"Structures and Characteristics of Macromolecular Interactions in the Gas Phase Using Fourier Transform Ion Cyclotron Resonance Mass Spectrometry"

20. Jamir Shrestha, Ph.D., Brigham Young University (April 2022)
"Gas Phase Structure Characterization of Host-Guest Systems Using Ion Mobility Spectrometry"

21. Tina Heravi, Ph.D., Brigham Young University (August 2022)

"Ion Structure Characterization and Energetics in the Gas Phase Using Fourier Transform Ion Cyclotron Resonance Mass Spectrometry and Ion Mobility Spectrometry"

22. Andrew J. Arslanian, Ph.D., Brigham Young University (August 2022)
"Gas Phase Techniques for the Study of Biomolecular and Supramolecular Structures and Chemistry"

Teaching Proposals

1. "Multimedia with Digital Video for Laboratory Science," BYU Faculty Center, 5/95-9/95, $11,000 (direct). Funded.

2. "State Multimedia Center of Excellence" (with John Lamb and Lu Giddings), State of Utah, 1 year (1996), $10,000 (direct). Denied.

3. "Multimedia Teaching Materials for General and Analytical Chemistry" (with John Lamb and Lu Giddings), The Camille and Henry Dreyfus Foundation, 1 year (1996-1997), $30,000 (direct). Denied.

4. "A Mentoring Environment for Undergraduate Research in Gas Phase Molecular Recognition", BYU Environments for Mentoring Program, 1 year (January-December 2002), $18,900 (direct). Denied.

5. "Gas Phase Molecular Recognition", BYU Environments for Mentoring Program, 1 year (January-December 2003), $18,900 (direct). Denied.

6. "Graduate Mentoring in Classroom Teaching", BYU Graduate Mentoring in Classroom Teaching Program, 1 year (May 2003-April 2004), $4000 (direct). Funded.