IAN KILBY WEBB
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CURRENT POSITION

Assistant Professor in the Department of Chemistry and Chemical Biology, Indiana University - Purdue University Indianapolis, August 2018–present

Affiliate Member of the Center for Computational Biology and Bioinformatics, Indiana University School of Medicine, August 2020-present

PREVIOUS POSITIONS

Research Scientist, October 2015 – July 2018
Pacific Northwest National Laboratory

EDUCATION

Postdoctoral Research Associate, January 2013 – September 2015
Pacific Northwest National Laboratory
Advisor: Richard D. Smith

PhD, Analytical Chemistry, November 2012
College of Science, Purdue University, West Lafayette, IN
Advisor: Scott A. McLuckey

Bachelor of Science in Chemistry, Mathematics Minor May 2008, Magna Cum Laude
School of Arts and Sciences, The College of William and Mary, Williamsburg, VA
Advisor: John C. Poutsma

RESEARCH EXPERIENCE

Assistant Professor – Indiana University Purdue University Indianapolis
Currently the principal investigator of a research laboratory with 5 graduate students. Developing gas-phase chemistries with ion mobility and high resolution, high mass accuracy mass spectrometry for mixture analysis and biomacromolecule structural investigations. Also, currently developing Chemical Labeling/Crosslinking approaches for determining the effects of various proteoforms and protein-protein interactions on the structural ensembles of disordered and dynamic proteins.

Research Scientist - Omics Instrument Development (October 2016 – July 2018)

Developed a multi-pass, ultra-high resolution travelling wave ion mobility spectrometry (TWIMS) Structures for Lossless Ion Manipulations (SLIM) module. Achieved separations for lipids, peptides, proteins, metabolites, and other sample types with resolutions unattainable by the current state-of-the-art drift ion mobility instrumentation.

Postdoctoral Research - Omics Instrument Development (January 2013 – September 2015)

Developed and implemented a method for mass-resolved fragmentation of mobility-separated ions on a hybrid ion mobility/time-of-flight (IM/TOF) instrument and demonstrated high fragmentation efficiencies. Implemented and evaluated printed circuit board Structures for Lossless Ion Manipulations (SLIM) IM/MS instrumentation.

Doctoral Research - Structural Characterization of Biopolymers in a Mass Spectrometer (December 2008-November 2012)

Studied the variables involved in introducing solvated bio-ions into the gas-phase, including humidity, trapping time, ionization time, and solution conditions. Utilized dipolar DC inside the modified collision cell of a linear ion trap/time-of-flight mass spectrometer to perform broadband collision induced dissociation on small molecules, proteins, peptides, and oligonucleotides. Covalently cross-linked ubiquitin protein cations via reactions with anions of linker reagents inside of the collision cell of a mass spectrometer.

Undergraduate Research – Gas-Phase Thermochemistry of Amino Acids (September 2004-May 2008)

Studied gas-phase ion energetics by the kinetic method in an ion trap mass spectrometer. Measured proton affinities and gas-phase acidities by measuring dissociation ratios between a reference and analyte proton-bound dimer upon collision induced dissociation (Cooks' Kinetic Method).

FUNDING

1. National Institutes of Health R35GM151251. Intrinsically Disordered Protein Structural Dynamics from Combined Solution and Gas-Phase Approaches. Project Period July 2023 – April 2028. $1,949,969
2. Release Time for Research, IUPUI. Project Period May – August 2023. $10,000.
3. National Science Foundation CHE 2143755. CAREER: Measuring the Structural Transitions of Electrosprayed Proteins. Project Period June 2022 – July 2027. $610,023.
4. American Society for Mass Spectrometry Research Award. Project Period June 2020-May 2021. $35,000
5. National Institutes of Health R21GM134408. Gas-Phase Cross-Linking with Ion/Ion Chemistry Coupled to Ion Mobility/Mass Spectrometry. Project Period August 2019 – July 2022. $399,942
6. Center for Computational Biology and Bioinformatics, IU School of Medicine, Pilot Grant. Project Period December 2020 – December 2021. $12,500.
7. Startup Account, IUPUI School of Science.

PUBLICATIONS (* for in-rank)

1. Cheung See Kit, M., Cropley, T. C., Bleiholder, C., Sobott, F. Chouinard, C. D., **Webb, I. K.*** The Role of Solvent and Charge on Solution and Gas-phase Conformational Spaces of α-Synuclein. Manuscript in preparation.
2. Cheung See Kit, M., **Webb, I. K.*** Surveying the Conformational Landscape of α-Synuclein Using Native Crosslinking, Ion Mobility-Mass Spectrometry and Ensemble Modeling. ChemRxiv. https://doi.org/10.26434/chemrxiv-2023-bb6p4.
3. Gurav, A. B., **Webb, I. K.*** Charge Inversion Ion/Ion Reactions Coupled to Ion Mobility/Mass Spectrometry:

Oligosaccharides. *J. Am. Soc Mass Spectrom.* **2023,** *34,* 1153-1159.

4. Cain, R. L., **Webb, I. K.*** Online Protein Unfolding Characterized by Ion Mobility Electron Capture Dissociation Mass Spectrometry: Cytochrome C from Neutral and Acidic Solutions. *Analytical and Bioanalytical Chemistry*. ABC Highlights: authored by Rising Stars & Top Experts, **2023,** *415,* 749-758.

5. Cheung See Kit, M., **Webb, I. K.*** Application of Multiple Length Crosslinkers to the Characterization of Gaseous Protein Structure. Editor's Highlight Article. *Anal. Chem.* **2022,** *94*, 13301–13310.

6. Chaturvedi, R., **Webb, I. K.*** Multiplexed Conformationally-Selective, Localized Gas-Phase Hydrogen Deuterium Exchange of Protein Ions Enabled by Transmission-Mode Electron Capture Dissociation. *Anal. Chem.* **2022,** *94,* 8975-8982.

7. **Webb, I. K.*** Recent technological developments for native mass spectrometry. *BBA-Proteins and Proteomics.* **2022**, *1870,* 140732.

8. Lee, J., Bilbao, A., Conant, C. R., Bloodsworth, K. J., Orton, D. J., Zhou, M., Wilson, J. W., Zheng, X, **Webb, I. K.*** Li, A, Hixson, K. K., Fjeldsted, J. C., Ibrahim, Y. M., Payne, S. H., Jansson, C., Smith, R. D., Metz, T. O. Autoccs: Automated Collision Cross Section Calculation Software for Ion Mobility Spectrometry-Mass Spectrometry. *Bioinformatics.* **2021,** *6,* 4193-4201.

9. Cheung See Kit, M., Shepherd, S.O., Prell, J.S., **Webb, I.K.*** Experimental Determination of Activation Energies for Covalent Bond via Ion/Ion Reactions and Competing Processes. *J. Am. Soc. Mass Spectrom.,* **2021,** *32,* 2313-2321.

10. Cheung See Kit, M., Carvalho, V.V., Vilseck, J.Z., **Webb, I.K.*** Gas-Phase Ion/Ion Chemistry for Structurally Sensitive Probes of Gaseous Protein Ion Structure: Electrostatic and Electrostatic to Covalent Cross-Linking. *Int. J. Mass Spectrom.* **2021,** *463,* 116549.

11. Carvalho, V. V., Cheung See Kit, M., **Webb, I.K.*** Ion Mobility and Gas-Phase Covalent Labeling Study of the Structure and Reactivity of Gaseous Ubiquitin Ions Electrosprayed from Aqueous and Denaturing Solutions. *J. Am. Soc. Mass Spectrom.* **2020,** *31,*1037-1046.

12. **Webb, I. K.***, Morrison, L. J., Brown, J. Dueling electrospray implemented on a traveling-wave ion mobility/time-of-flight mass spectrometer: Towards a gas-phase workbench for structural biology. *Int. J. Mass Spectrom.* **2019,** *444,* 116177.

13. Attah, I. K., Garimella, S. V. B., **Webb, I. K.***, Nagy, G, Norheim, R. V., Shimelfenig, C. E., Ibrahim, Y. M., Smith, R. D. Dual Polarity Ion Confinement and Mobility Separations. *J. Am. Soc. Mass Spectrom.* **2019,** *30,* 967-976.

14. Nagy, G., Chouinard, C. D., Attah I. K., **Webb, I. K.***, Garimella, S. V. B., Ibrahim, Y. M., Baker, E. S., Smith R. D. Distinguishing Enantiomeric Amino Acids with Chiral Cyclodextrin Adducts and Structures for Lossless Ion Manipulations. *Electrophoresis.* **2019,** *39* (24), 3148-3155.

15. Chouinard, C. D., Nagy, G., **Webb, I. K.**, Garimella, S. V. B., Baker, E. S., Ibrahim, Y. M., Smith R. D. Rapid Ion Mobility Separations of Bile Acid Isomers Using Cyclodextrin Adducts and Structures for Lossless Ion Manipulations. *Anal. Chem.* **2018,** *90* (18), 11086-11091.

16. Chouinard, C. D., Nagy, G., **Webb, I. K.**, Shi, T., Baker, E. S., Prost, S. A., Liu, T., Ibrahim, Y. M., Smith, R. D. Improved Sensitivity and Separations for Phosphopeptides using Online LC Coupled with Structures for Lossless Ion Manipulations (SLIM) IM-MS. *Anal. Chem.* **2018**, *90* (18), 10889-10896.

17. Zheng, X., Renslow, R. S., Makola, M. M., **Webb, I. K.**, Deng, L., Thomas, D. G., Govind, N., Ibrahim, Y. M., Kabanda, M. M., Dubery, I. A., Heyman, H. M., Smith, R. D., Madala, N. E., Baker, E. S. Structural Elucidation of cis/trans Dicaffeoylquinic Acid Photoisomerization Using Ion Mobility Spectrometry-Mass Spectrometry. *J. Phys. Chem. Lett.* **2017,** *8* (7), 1381-1388.

18. Wojcik, R., **Webb, I. K.**, Deng, L., Garimella, S. V. B., Prost, S. A., Ibrahim, Y. M., Baker, E. S., Smith, R. D. Lipid and Glycolipid Isomer Analyses Using Ultra-High Resolution Ion Mobility Spectrometry Separations. *Int. J.*

Molecular Sci. **2017,** *18* (1), 183-194.

19. Metz, T. O., Baker, E. S., Schymanski, E. L., Renslow, R. S., Thomas, D. G., Causon, T. J., **Webb, I. K.**, Hann, S., Smith, R. D., Teeguarden, J. G. Integrating ion mobility spectrometry into mass spectrometry-based exposome measurements: what can it add and how far can it go? *Bioanalysis* **2017,** *9* (1), 81-98.

20. Ibrahim, Y. M., Hamid, A. M., Deng, L., Garimella, S. V. B., **Webb, I. K.**, Baker, E. S., Smith, R. D. New frontiers for mass spectrometry based upon structures for lossless ion manipulations. *Analyst* **2017,** *142* (7), 1010-1021.

21. Hosseinzadeh, P., Bhardwaj, G., Mulligan, V. K., Shortridge, M. D., Craven, T. W., Pardo-Avila, F., Rettie, S. A., Kim, D. E., Silva, D. A., Ibrahim, Y. M., **Webb, I. K.**, Cort, J. R., Adkins, J. N., Varani, G., Baker, D. Comprehensive computational design of ordered peptide macrocycles. *Science* **2017,** *358* (6369), 1461-1466.

22. **Webb, I. K.**$^{+}$, Garimella, S. V. B.$^{+}$, Prabhakaran, A., Attah, I. K., Ibrahim, Y. M., Smith, R. D. Design of a TW-SLIM Module for Dual Polarity Confinement, Transport, and Reactions. *J. Am. Soc. Mass Spectrom.* **2017,** *28* (7), 1442-1449.

23. **Webb, I. K.**$^{+}$, Deng, L.$^{+}$, Garimella, S. V. B., Hamid, A. M., Zheng, X., Norheim, R. V., Prost, S. A., Anderson, G. A., Sandoval, J. A., Baker, E. S., Ibrahim, Y. M., Smith, R. D. Serpentine Ultralong Path with Extended Routing (SUPER) High Resolution Traveling Wave Ion Mobility-MS using Structures for Lossless Ion Manipulations. *Anal. Chem.* **2017,** *89* (8), 4628-4634.

24. Deng, L., Garimella, S. V. B., Hamid, A. M., **Webb, I. K.**, Attah, I. K., Norheim, R. V., Prost, S. A., Zheng, X., Sandoval, J. A., Baker, E. S., Ibrahim, Y. M., Smith, R. D. Compression Ratio Ion Mobility Programming (CRIMP) Accumulation and Compression of Billions of Ions for Ion Mobility-Mass Spectrometry Using Traveling Waves in Structures for Lossless Ion Manipulations (SLIM). *Anal. Chem.* **2017,** *89* (12), 6432-6439.

25. **Webb, I. K.**, Garimella, S. V. B., Norheim, R. V., Baker, E. S., Ibrahim, Y. M., Smith, R. D. A Structures for Lossless Ion Manipulations (SLIM) Module for Collision Induced Dissociation. *J. Am. Soc. Mass Spectrom.* **2016,** *27* (7), 1285-1288.

26. Hamid, A. M., Garimella, S. V. B., Ibrahim, Y. M., Deng, L., Zheng, X., **Webb, I. K.**, Anderson, G. A., Prost, S. A., Norheim, R. V., Tolmachev, A. V., Baker, E. S., Smith, R. D. Achieving High Resolution Ion Mobility Separations Using Traveling Waves in Compact Multiturn Structures for Lossless Ion Manipulations. *Anal. Chem.* **2016,** *88* (18), 8949-8956.

27. Garimella, S. V. B., Ibrahim, Y. M., Tang, K., **Webb, I. K.**, Baker, E. S., Tolmachev, A. V., Chen, T. C., Anderson, G. A., Smith, R. D. Spatial Ion Peak Compression and its Utility in Ion Mobility Spectrometry. *J. Am. Soc. Mass Spectrom.* **2016,** *27* (6), 1128-1135.

28. Garimella, S. V. B., Hamid, A. M., Deng, L., Ibrahim, Y. M., **Webb, I. K.**, Baker, E. S., Prost, S. A., Norheim, R. V., Anderson, G. A., Smith, R. D. Squeezing of Ion Populations and Peaks in Traveling Wave Ion Mobility Separations and Structures for Lossless Ion Manipulations Using Compression Ratio Ion Mobility Programming. *Anal. Chem.* **2016,** *88* (23), 11877-11885.

29. Deng, L., Ibrahim, Y. M., Hamid, A. M., Garimella, S. V. B., **Webb, I. K.**, Zheng, X., Prost, S. A., Sandoval, J. A., Norheim, R. V., Anderson, G. A., Tolmachev, A. V., Baker, E. S., Smith, R. D. Ultra-High Resolution Ion Mobility Separations Utilizing Traveling Waves in a 13 m Serpentine Path Length Structures for Lossless Ion Manipulations Module. *Anal. Chem.* **2016,** *88* (18), 8957-8964.

30. Deng, L., Ibrahim, Y. M., Garimella, S. V. B., **Webb, I. K.**, Hamid, A. M., Norheim, R. V., Prost, S. A., Sandoval, J. A., Baker, E. S., Smith, R. D. Greatly Increasing Trapped Ion Populations for Mobility Separations Using Traveling Waves in Structures for Lossless Ion Manipulations. *Anal. Chem.* **2016,** *88* (20), 10143-10150.

31. Chen, T. C., Ibrahim, Y. M., **Webb, I. K.**, Garimella, S. V. B., Zhang, X., Hamid, A. M., Deng, L., Karnesky, W. E., Prost, S. A., Sandoval, J. A., Norheim, R. V., Anderson, G. A., Tolmachev, A. V., Baker, E. S., Smith, R. D. Mobility-Selected Ion Trapping and Enrichment Using Structures for Lossless Ion Manipulations. *Anal. Chem.*

2016, *88* (3), 1728-1733.

32. Zhang, X., Garimella, S. V. B., Prost, S. A., **Webb, I. K.**, Chen, T. C., Tang, K., Tolmachev, A. V., Norheim, R. V., Baker, E. S., Anderson, G. A., Ibrahim, Y. M., Smith, R. D. Ion Trapping, Storage, and Ejection in Structures for Lossless Ion Manipulations. *Anal. Chem.* **2015,** *87* (12), 6010-6016.

33. Hamid, A. M., Ibrahim, Y. M., Garimella, S. V. B., **Webb, I. K.**, Deng, L., Chen, T. C., Anderson, G. A., Prost, S. A., Norheim, R. V., Tolmachev, A. V., Smith, R. D. Characterization of Traveling Wave Ion Mobility Separations in Structures for Lossless Ion Manipulations. *Anal. Chem.* **2015,** *87* (22), 11301-11308.

34. Garimella, S. V. B., Ibrahim, Y. M., **Webb, I. K.**, Ipsen, A. B., Chen, T. C., Tolmachev, A. V., Baker, E. S., Anderson, G. A., Smith, R. D. Ion manipulations in structures for lossless ion manipulations (SLIM): computational evaluation of a 90 degrees turn and a switch. *Analyst* **2015,** *140* (20), 6845-6852.

35. Chen, T. C., **Webb, I. K.**, Prost, S. A., Harrer, M. B., Norheim, R. V., Tang, K., Ibrahim, Y. M., Smith, R. D. Rectangular ion funnel: a new ion funnel interface for structures for lossless ion manipulations. *Anal. Chem.* **2015,** *87* (1), 716-722.

36. **Webb, I. K.**, Garimella, S. V. B., Tolmachev, A. V., Chen, T. C., Zhang, X., Norheim, R. V., Prost, S. A., LaMarche, B., Anderson, G. A., Ibrahim, Y. M., Smith, R. D. Experimental evaluation and optimization of structures for lossless ion manipulations for ion mobility spectrometry with time-of-flight mass spectrometry. *Anal. Chem.* **2014,** *86* (18), 9169-9176.

37. **Webb, I. K.**, Garimella, S. V. B., Tolmachev, A. V., Chen, T. C., Zhang, X., Cox, J. T., Norheim, R. V., Prost, S. A., LaMarche, B., Anderson, G. A., Ibrahim, Y. M., Smith, R. D. Mobility-resolved ion selection in uniform drift field ion mobility spectrometry/mass spectrometry: dynamic switching in structures for lossless ion manipulations. *Anal. Chem.* **2014,** *86* (19), 9632-9637.

38. **Webb, I. K.**, Chen, T. C., Danielson, W. F., 3rd, Ibrahim, Y. M., Tang, K., Anderson, G. A., Smith, R. D. Implementation of dipolar resonant excitation for collision induced dissociation with ion mobility/time-of-flight MS. *J. Am. Soc. Mass Spectrom.* **2014,** *25* (4), 563-571.

39. Tolmachev, A. V., **Webb, I. K.**, Ibrahim, Y. M., Garimella, S. V. B., Zhang, X., Anderson, G. A., Smith, R. D. Characterization of ion dynamics in structures for lossless ion manipulations. *Anal. Chem.* **2014,** *86* (18), 9162-9168.

40. Garimella, S. V. B., Ibrahim, Y. M., **Webb, I. K.**, Tolmachev, A. V., Zhang, X., Prost, S. A., Anderson, G. A., Smith, R. D. Simulation of electric potentials and ion motion in planar electrode structures for lossless ion manipulations (SLIM). *J. Am. Soc. Mass Spectrom.* **2014,** *25* (11), 1890-1896.

41. **Webb, I. K.**, Mentinova, M., McGee, W. M., McLuckey, S. A. Gas-phase intramolecular protein crosslinking via ion/ion reactions: ubiquitin and a homobifunctional sulfo-NHS ester. *J. Am. Soc. Mass Spectrom.* **2013,** *24* (5), 733-743.

42. **Webb, I. K.**, Gao, Y., Londry, F. A., McLuckey, S. A. Trapping mode dipolar DC collisional activation in the RF-only ion guide of a linear ion trap/time-of-flight instrument for gaseous bio-ion declustering. *J. Mass Spectrom.* **2013,** *48* (9), 1059-1065.

43. **Webb, I. K.**, Londry, F. A., McLuckey, S. A. Implementation of dipolar direct current (DDC) collision-induced dissociation in storage and transmission modes on a quadrupole/time-of-flight tandem mass spectrometer. *Rapid Commun. Mass Spectrom.* **2011,** *25* (17), 2500-2510.

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+ Both authors contributed equally.

PATENTS

1. **Webb, I. K.** "Method for Ion/Ion Reaction for Ion Mobility Mass Spectrometry" In Review.
2. **Webb, I. K.**, Tang K., Smith R. D., Ibrahim, Y. M., Anderson G. A. "Apparatus and Method of Dissociating Ions in a Multipole Ion Guide" United States Patent US8772711 Issued July 8, 2014
3. McLuckey S. A., **Webb, I. K.** "Method and Apparatus for Dipolar DC Collisional Activation of Ions Transmitted Through an Electrodynamic Multipole Device" United States Patent Application WO 2012174198 Filed June 14, 2012

RECENT PRESENTATIONS FROM DR. WEBB AND WEBB LAB TRAINEES (presenter(s) bolded)

1. "Developing Various Length Gaseous Electrostatic to Covalent Crosslinkers: Towards Understanding the Effects of Solvation and Desolvation on Protein Structure." **Black, K. L.,** Webb, I. K. Advancing Mass Spectrometry for Biophysics and Structural Biology. University of Texas Austin, July 2023. Poster.
2. "Elucidation of Denatured Protein Structures in Solution and the Gas Phase Using Electrospray Ionization Mass Spectrometry Coupled with Crosslinking." **Cain, R. L.,** Webb, I. K. Advancing Mass Spectrometry for Biophysics and Structural Biology. University of Texas Austin, July 2023. Poster.
3. "Structural Elucidation of Phosphorylated Alpha-Synuclein using Ion-Mobility Mass Spectrometry." **Gurav, A. B.,** Dollar, A. N., Renbarger, E. Cheung See Kit, M., Webb. I. K. Advancing Mass Spectrometry for Biophysics and Structural Biology. University of Texas Austin, July 2023. Poster.
4. "Solution and Gaseous Ensembles of α-Synuclein: Towards a Biophysical Understanding of "Unstructured" Protein IM/MS." Cheung See Kit, M., Cropley, T. C., Bleiholder, C., Sobott, F. Chouinard, C. D., **Webb, I. K.** American Society for Mass Spectrometry National Meeting, Houston, June 2023. Talk.
5. "Mapping the C-Terminus of α-Synuclein Conformers by Native Crosslinking and Ion Mobility Mass Spectrometry." **Cheung See Kit., M.,** Webb, I. K. American Society for Mass Spectrometry National Meeting, Houston, June 2023. Poster.
6. **Invited Talks (Tenure Tour).** "Exploiting Chemical Modifications for Structural Elucidation by Mass Spectrometry." **Webb, I. K.,** et al. The Ohio State University, Georgia Institute of Technology, University of Georgia, University of North Carolina, Chapel Hill, Vanderbilt University, Texas A&M University, University of Texas, Austin, University of Florida, Florida State University, University of Wisconsin, Madison, University of Massachusetts, Amherst, Purdue University, University of California, Los Angeles, University of California, Riverside, Clemson University, University of Utah, University of Arizona.
7. "Native Protein Crosslinking and Ion Mobility-Mass Spectrometry (IM-MS) to Capture the Structural Variety of α-Synuclein." **Cheung See Kit, M.,** Webb, I. K. ACS Spring 2023 Meeting, Indianapolis, March 2023. Talk.
8. **Invited Talk.** "New Directions in Tandem Mass Spectrometry Applied to Protein Structure." **Webb, I. K.,** et al. Lake Louise Tandem Mass Spectrometry Workshop, Lake Louise, Alberta, CA, December 2022. Talk.
9. **Invited Talk.** "Analysis of Protein Structure via Crosslinking IM-MS/MS and Molecular Modeling." **Cheung See Kit, M.,** Webb, I. K. ACS Fall 2022 Meeting, Chicago, August 2022. Talk.
10. **Invited Talk.** "Charge Inversion Ion/Ion Chemistry Improves Isomer Separation by Ion Mobility." Gurav, A. B., **Webb, I. K.** ACS Fall 2022 Meeting, Chicago, August 2022. Talk.
11. "Charge-state Dependent Structural Analysis of α-Synuclein Conformers by Gas-phase Ion/Ion Cross-linking." **Cheung See Kit, M.,** Webb, I. K. American Society for Mass Spectrometry National Meeting, Minneapolis, June 2022. Poster.
12. "Charge Inversion Ion/Ion Reactions for Resolution of Unsaturated Fatty Acid Isomers Using IM-MS separations." **Gurav, A.B.,** Webb, I. K. American Society for Mass Spectrometry National Meeting, Minneapolis, June 2022. Poster.

13. "Characterization of Protein Structural Changes in the Solution- and Gas-Phases using Electrospray Ionization and Electron Capture Dissociation." **Cain, R. L.,** Webb, I. K. American Society for Mass Spectrometry National Meeting, Minneapolis, June 2022. Poster.

14. "Insights into Protein Folding from Ion/Ion Chemistry, Tandem Mass Spectrometry, and Molecular Dynamics." Cheung See Kit, M., Cain, R. L., **Webb, I. K.** Agilent Symposium on Measurement Science, Ann Arbor, MI, April 2022. Talk and Poster.

15. "Capturing the Structural Intricacies of α-Synuclein Conformers via Gas-phase Ion/Ion Cross-linking Coupled to Ion Mobility/Time-of-flight Mass Spectrometry." **Cheung See Kit, M.**, Webb, I. K. American Society for Mass Spectrometry Asilomar Conference, Asilomar, CA, December 2021. Talk and Poster.

16. "Rapid Solution and Gas-Phase Hydrogen Deuterium Exchange for Characterization of Pathological Intrinsically Disordered Proteins." Chaturvedi, R., **Webb, I. K.** American Society for Mass Spectrometry Asilomar Conference, Asilomar, CA, December 2021. Talk and Poster.

17. "Cross-Linking Reagents as Molecular Calipers to Probe Protein Structure Via Gas-Phase Ion/Ion Reactions Coupled to Ion Mobility/Time-Of-Flight Mass Spectrometry." **Cheung See Kit, M.,** Webb, I. K. American Society for Mass Spectrometry National Meeting, Philadelphia, November 2021. Talk.

18. "Charge Inversion Ion/Ion Reactions for Enhancing Ion Mobility-Mass Spectrometry Separations of Oligosaccharide Anions." **Gurav, A. B.,** Webb, I. K. American Society for Mass Spectrometry National Meeting, Philadelphia, November 2021. Poster.

19. "Residue-Specific Characterization of Protein Conformations Using Gas Phase-Hydrogen Deuterium Exchange Mass Spectrometry (GP-HDX MS)." Chaturvedi, R., **Webb, I. K.** American Society for Mass Spectrometry National Meeting, Philadelphia, November 2021. Poster.

20. "Time-Resolved Electrospray Ionization Combined with Electron Capture Dissociation for Characterization of Protein Folding Intermediates." **Cain, R. L.**, Webb, I. K. American Society for Mass Spectrometry National Meeting, Philadelphia, November 2021. Poster.

21. **Invited Talk** "Local and Global HDX of Nascent Gas-Phase Protein Ions." Chaturvedi R., **Webb, I. K.** Scientific Exchange (SciX) Meeting, Providence, September 2021. Talk.

22. **Invited Talk** "Ion/Ion, Ion/Neutral, and Ion/Electron Interactions for Rapid and Accurate Structural Biology." **Webb, I. K.** et al., Departmental Seminar, Indiana State University, Online, February 2021. Seminar talk.

23. "Solution is Not a Solution." **Chaturvedi, R., Cheung See Kit, M., Webb, I. K.** Ion Mobility Spectrometry Seminar Series, December 2020. Talk.

24. "Increasing the Resolution of Ion Mobility Separations with Broadly Applicable Ion/Ion Reagents." **Chaturverdi R.**, Webb, I. K. American Society for Mass Spectrometry National Meeting, Online, June 2020. Poster.

25. "Ion/Ion Proton Transfer Reaction for Enhancing Peak Capacity in Ion Mobility/Mass Spectrometry Bottom-up Proteomics Experiment." **Cain, R. L.**, Webb, I. K. American Society for Mass Spectrometry National Meeting, Online, June 2020. Poster.

26. "Gas-phase Cross-linking Reactions for Protein Structural Characterization via Ion/Ion Reactions Coupled to Ion Mobility/Time-of-flight Mass Spectrometry." **Cheung See Kit, M.**, Webb, I. K. American Society for Mass Spectrometry National Meeting, Online, June 2020. Poster.

27. "Ion/Ion Proton Transfer Reaction for Enhancing Peak Capacity in Ion Mobility/Mass Spectrometry Bottom-up Proteomic Experiment." **Cain, R. L.**, Webb, I. K. Pittcon 2020, Chicago, IL, USA. March 2020. Poster.

28. "Peptide Structural Assessment in Gas-phase via Intramolecular Crosslinking by Native Ion Mobility-tandem Mass Spectrometry." **Carvalho, V. V.**, Webb, I. K. Pittcon 2020, Chicago, IL, USA. March 2020. Poster.

29. **Invited Talk** "Gas-Phase Chemistry for Structural Biology and Mixture Analysis." **Webb, I. K.** et al., Departmental Seminar, DePauw University, Greencastle, IN, USA. February 2020. Seminar talk.

30. "Ion/Ion Reactions, Tandem Mass Spectrometry, and Ion Mobility: A Match Made in Heaven." **Webb, I. K.** Midwestern Universities Analytical Chemistry Conference, Indianapolis, IN, USA. November 2019. Talk.

31. **Invited Talk:** "Covalent Ion/Ion Reactions in an Ion Mobility Mass Spectrometer." **Webb, I. K.** et al., SciX Conference, Palm Springs, CA, USA. October 2019.

32. "Covalent Modification via Ion/Ion Reactions with Ion Mobility/Mass Spectrometry Structural Analyses." **Carvalho, V. V.,** Webb, I.K. Advancing Mass Spectrometry for Biophysics and Structural Biology. University of Massachusetts Amherst, July 2019. Poster.

33. "ESI/ESI Ion/Ion Reactions in the Traveling Wave Trap of an Ion Mobility/Mass Spectrometer for Gas-Phase Structure" **Webb, I. K.** et al., American Society for Mass Spectrometry National Meeting, Atlanta, GA, USA. June 2019. Talk.

34. "Covalent Modification via Ion/Ion Reactions with Ion Mobility/Mass Spectrometry Structural Analyses" **Carvalho, V. V.**, Webb, I. K., American Society for Mass Spectrometry National Meeting, June 2019. Poster.

35. **Invited Talk:** "Integration of Gas-Phase Covalent Ion/Ion Reactions with Ion Mobility Spectrometry" **Webb, I. K.** et al., American Chemical Society Spring National Meeting and Exposition, Orlando, FL, USA. April 2019.

36. **"**Pseudo-MS^4 on a Tandem Ion Mobility/Time-of-Flight for Gas-Phase Covalent Modification" **Webb, I. K.**, Morrison L. J. Lake Louise Tandem Mass Spectrometry Workshop, Lake Louise, AB, Canada. November 2018. Poster.

CLASSROOM EXPERIENCE

Faculty, IUPUI (August 2018-present)

Courses:

Chem 310/Chem 311 (Spring and Fall 2019) Instructor for Analytical Chemistry and Analytical Chemistry Lab. Develop course content and activities/formative assessment to help engage students in their learning. Lecture topics include statistical analysis, chemical equilibria, and instrumental analysis.

Chem 621 (Fall 2018) Instructor of Advanced Analytical Chemistry Course for graduate students. Designed course content, examinations, and other forms of assessment. Devised in-class activities to help students learn importantconcepts. Led discussions of literature on topics in analytical chemistry.

Chem 699 (Spring 2021, 2023) Instructor for Special Topics in Chemistry: Mass Spectrometry. Designed course content, examinations, and other forms of assessment. Facilitated bringing in external speakers to give lectures on their areas of expertise. Topics included ion sources, ion optics, mass analyzers, detection, thermochemistry, kinetics, physics of ion motion, and applications.

Teaching Assistant, General Chemistry (August 2008-December 2008, August 2009-December 2009)

Instructor for general chemistry lab section. Assisted students with experiments and graded lab reports. Maintained laboratory safety for students. Instructed a weekly recitation section. Answered students' homework questions, proctored exams, reviewed material from lecture.

Teaching Assistant, Physical Chemistry Laboratory (January 2007-May 2007)

Assisted students with physical chemistry laboratories, including molecular spectroscopy.

PROFESSIONAL ORGANIZATIONS

American Chemical Society (May 2014-present)
American Society for Mass Spectrometry (February 2009-present)

HONORS & AWARDS

School of Science Tenure Track Research Award (April 2021)
BBA Rising Stars Finalist (March 2021)
ASMS Research Award (June 2020)
Analytical Chemistry Top Reviewer of 2020
ASMS Emerging Scientist Luncheon (June 2019)
Purdue Research Foundation International Travel Grant (November 2018)
R&D 100 Award (December 2017)
Postdoc Mentor Award (December 2017)
Outstanding Performance Award (September 2014)
Patent Award (April 2014)
Phi Lambda Upsilon Travel Grant (May 2012)
ASMS Student Assistantship (June 2011)
Frederick N. Andrews Fellowship, Purdue University Graduate School (August 2008-August 2010)
American Chemical Society / Merck Undergraduate Award (May 2008)
Undergraduate Research Thesis, High Honors (May 2008)
Beckman Scholar, Arnold and Mabel Beckman Foundation (May 2007-August 2008)
Howard Hughes Medical Institute Undergraduate Research Fellowship (May 2006-August 2006)

PROFESSIONAL SERVICE

Session Chair, Advancing Mass Spectrometry for Biophysics and Structural Biology (July 2023)
Organizer, Ion Mobility Mass Spectrometry Symposium, Fall ACS National Meeting (August 2022)
Education Committee Member, American Society for Mass Spectrometry (2022-present)
Session Chair and Organizer, Scientific Exchange (SciX) Meeting (September 2021)
Department of Chemistry Diversity and Climate Committee, Chair (2021-present)
Session Chair, American Society for Mass Spectrometry Meeting (June 2020)
National Institutes of Health, Biophysics of Neural Systems Study Section (BPNS) Member, (2020)
Department of Chemistry Executive Committee (2020-present)
Department of Chemistry Graduate Education Committee (2020–2021)
Department of Chemistry Graduate Recruitment Committee (2018–present)
Department of Chemistry Instrumentation Committee (2018-2019)
Department of Chemistry Seminar Committee, Chair (2020-2021)
Session Chair, Sanibel Conference for Mass Spectrometry (January 2019)
Session Chair, American Chemical Society Spring Meeting (April 2019)
Session Chair, Advancing Mass Spectrometry for Structural Biology (July 2019)
Session Chair, Midwestern Universities Analytical Chemistry Conference (November 2019)
Ion Mobility-Mass Spectrometry Interest Group Coordinator (2018 – 2021)
Reviewer, Analytical Chemistry, Journal of the American Society for Mass Spectrometry, Scientific Reports and International Journal of Mass Spectrometry (2017 – present)

ONLINE REFERENCES

Google Scholar
https://scholar.google.com/citations?user=O6XtQcMAAAAJ&hl=en

NCBI – My Bibliography
https://www.ncbi.nlm.nih.gov/myncbi/ian.webb.1/bibliography/public/