Christian Bleiholder

Department of Chemistry and Biochemistry
Florida State University
Tallahassee, Florida 32306-4390

cbleiholder@fsu.edu
www.chem.fsu.edu/~bleiholder

DEGREES, HONORS, AND EDITORSHIPS

7/2007 D.Sc. in Chemistry, *summa cum laude*. University of Heidelberg, Heidelberg, Germany and German Cancer Research Center, Heidelberg, Germany. (supervisors: Rolf Gleiter & Sandor Suhai / Bela Paizs).
6/2004 M.Sc. in Chemistry, *summa cum laude*. University of Heidelberg, Heidelberg, Germany (thesis supervisor: Rolf Gleiter, Institute of Organic Chemistry).

Early-Career and Emerging Researchers in Physical Chemistry Special Issue, Journal of Physical Chemistry B (2023).
Guest Editor, Journal of Mass Spectrometry, Special Issue on Ion Mobility Mass Spectrometry (2023).
GAP Commercialization Investment Program Award, Florida State University (2023).
Editorial Advisory Board, Analytical Science Advances (2020–present).
Young Scientists Virtual Special Issue, Journal of Physical Chemistry B (2019).
Citation for Highly Cited Research, Royal Society of Chemistry/Analyst (2019, top 5% of highly cited articles).
Emerging Investigator, American Society for Mass Spectrometry (2017).
NSF CAREER Award, National Science Foundation (2017).
Young Scientist Feature, International Journal of Mass Spectrometry (2017).
Young Scientist Feature, International Journal of Mass Spectrometry (2016).
Citation for Highly Cited Research, International Journal of Mass Spectrometry (2016).
Emerging Investigator, Royal Society of Chemistry/Analyst (2016).
First Year Assistant Professor Award, Florida State University (2014).
Postdoctoral Research Award, American Chemical Society, Physical Chemistry Division (2011).
Feodor-Lynen Research Fellowship, Alexander-von-Humboldt Foundation (2008–2011).
Fellow, Alexander-von-Humboldt Foundation (2008).
Dissertation Fellowship, German Cancer Research Centre (2004–2007; 9 fellowships were awarded).
Procter & Gamble Award for Best Undergraduate Studies, Department of Chemistry, University of Heidelberg (2000).

ACADEMIC APPOINTMENTS

2019- Associate Professor, Florida State University
2013-2019 Assistant Professor, Florida State University
2008-2013 Postdoctoral Researcher, University of California at Santa Barbara (Michael T. Bowers)

FEDERAL GRANTS

National Science Foundation (CHE-2305173) *Enabling ion mobility spectrometry/mass spectrometry methods to study conformational dynamics of protein systems.* 7/1/2023 – 6/30/2026, $389,999.
National Institutes of Health (R01GM135682, Percentile: 7) *Elucidating the structural heterogeneity of differentially modified protein systems by tandem-ion mobility spectrometry/mass spectrometry methods.* 8/1/2019 – 7/31/2024, $1,321,840.
National Science Foundation (CHE-1654608) *CAREER: Ion Mobility Spectrometry - Mass Spectrometry for de novo protein structure elucidation.* 4/1/2017 – 9/30/2023, $564,592.

PEER-REVIEWED PUBLICATIONS & PATENTS (55 PUBLICATIONS, 1 BOOK CHAPTER, 3 PATENTS)

ISI Web of Knowledge (excluding self-citations): total of 2999 citations; average of 50 citations per article; H-index 28

1) Cheung See Kit, M., Cropley, T.C., Bleiholder, C., Chouinard, C. D., Sobott, F., & Webb, I. K. The Role of Solvation on the Conformational Landscape of α-Synuclein. *Analyst* (submitted).

2) Panczyk, E., Lin, Y.-F., Snyder, D., Liu, F. C., Ridgeway, M. E., Park, M. A., Bleiholder, C., & Wysocki, V. Evaluation of a Commercial TIMS-Q-TOF Platform for Native Mass Spectrometry. *Journal of The American Society for Mass Spectrometry* (in revision).

3) Will, A., Oliinyk, D., Bleiholder, C., & Meier, F. (**2023**) Peptide collision cross sections of 22 post-translational modifications. *Analytical and Bioanalytical Chemistry* (doi.org/10.1007/s00216-023-04957-4). *(Paper in Forefront)*

4) Liu, F. C., Cropley, T. C., & Bleiholder, C. (**2023**) Elucidating structures of protein complexes by collision-induced dissociation at elevated gas pressures. *Journal of The American Society for Mass Spectrometry* 34, 2247–2258. (*Special Issue in Honor of Erin Baker*)

5) Liu, F. C., Ridgeway, Wootton, C. A., Theisen, A., Panczyk, E., Meier, F., Park, M. A., & Bleiholder, C. (**2023**) Top-down protein analysis by tandem-trapped ion mobility spectrometry/mass spectrometry (tandem-TIMS/MS) coupled with ultraviolet photodissociation (UVPD) and parallel accumulation/serial fragmentation (PASEF) MS/MS analysis. *Journal of The American Society for Mass Spectrometry* 34, 2232–2246. (*Special Issue in Honor of Erin Baker*)

6) Cropley, T. C., Liu, F. C., Hossain, MD A., Agar, J. N., & Bleiholder, C. (**2023**). Structure relaxation approximation (SRA) for elucidation of protein structures from ion mobility measurements (II). Protein complexes. *Journal of Physical Chemistry B* 127, 5553–5565. (*Special Issue: Early-Career and Emerging Researchers in Physical Chemistry*)

7) Cropley, T. C., Chai, M., Liu, F. C., & Bleiholder, C. (**2023**). Perspective on the potential of tandem-ion mobility /mass spectrometry methods for structural proteomics applications. *Frontiers in Analytical Science* 3:1106752. (*Special Issue on Emerging Structural Proteomics Methodologies*)

8) Lee, J.; Chai, M.; & Bleiholder, C. (**2023**). Differentiation of isomeric, non-separable carbohydrates using tandem-trapped ion mobility spectrometry – mass spectrometry (tTIMS/MS). *Analytical Chemistry* 95 (2), 747–757.

9) Liu, F. C., Ridgeway, M E., Park, M. A., & Bleiholder, C. (**2022**). CRITICAL REVIEW ARTICLE: Tandem-trapped ion mobility spectrometry/mass spectrometry (tTIMS/MS): a promising analytical method for investigating heterogenous samples. *Analyst* 147, 2317-2337. (*Invited Contribution*)

10) Liu, F. C., Kirk, S. R., Caldwell, K. A., Pedrete, T., Meier, F., & Bleiholder, C. (**2022**). Tandem trapped ion mobility spectrometry/mass spectrometry (tTIMS/MS) reveals sequence-specific determinants of top-down protein fragment ion cross sections. *Analytical Chemistry* 94 (23), 8146–8155.

11) Bleiholder, C., Liu, F. C. & Chai, M. (**2021**). Calculation of momentum transfer cross-sections. Ion Mobility – Mass Spectrometry: Fundamentals and Applications. Sobott, F., Ashcroft, A. E. (Eds). Royal Society of Chemistry, pp. 26-51. (*Invited Contribution*)

12) Liu, C., Ridgeway, M. E., Winfred, J. S. R. V., Polfer, N. C., Lee, J., Theisen, A., Wootton, C. A., Park, M. A. & Bleiholder, C. (**2021**). Tandem-trapped ion mobility spectrometry/mass spectrometry coupled with ultraviolet photodissociation. *Rapid Communications in Mass Spectrometry* 35, e9192. *(citation for most downloaded paper)*

13) Chai, M., & Bleiholder, C. (**2021**). Structure-elucidation of human CCL5 by integrating trapped ion mobility spectrometry-mass spectrometry (TIMS-MS) with structure relaxation approximation (SRA) analysis. *International Journal of Mass Spectrometry* 469, 116682. (*Special Issue on Native Mass Spectrometry for Structural Biology*)

14) Liu, F. C., Cropley, T. C., Ridgeway, M. E., Park, M. A., & Bleiholder, C. (**2020**). Structural analysis of the glycoprotein complex avidin by tandem-trapped ion mobility spectrometry-mass spectrometry (Tandem-TIMS/MS). *Analytical Chemistry* 92(6), 4459-4467.

15) Bleiholder, C., Liu, F. C., & Chai, M. (**2020**). Comment on effective temperature and structural rearrangement in trapped ion mobility spectrometry. *Analytical Chemistry* 92(24), 16329-16333.

16) Bleiholder, C., & Liu, F. C. (**2019**). Structure relaxation approximation (SRA) for elucidation of protein structures from ion mobility measurements. *Journal of Physical Chemistry B* 123, 2756-2769. (*Special Issue: Young Scientists Virtual Special Issue*)

17) Kirk, S. R., Liu, F. C., Cropley, T., Carlock, H., & Bleiholder, C. (**2019**). On the preservation of non-covalent peptide assemblies in a tandem-trapped ion mobility spectrometer-mass spectrometer (TIMS-TIMS-MS). *Journal of The American Society for Mass Spectrometry* 30, 1204-1212.

18) Gabelica, V., Shvartsburg, A. A., Afonso, C., Barran, P., Benesch, J. L. P., Bleiholder, C., Bowers, M. T., Bilbao, A., Bush, M. F., Campbell, J. L., Campuzano, I. D. G., Causon, T., Clowers, B. H., Creaser, C. S., De Pauw, E., Far, J., Fernandez-Lima, F., Fjeldsted, J. C., Giles, K., Groessl, M., Hogan, C. J., Hann, S., Kim, H. I., Kurulugama, R. T.,

May, J. C., McLean, J. A., Pagel, K., Richardson, K., Ridgeway, M. E., Rosu, F., Sobott, F., Thalassinos, K., Valentine, S. J., & Wyttenbach, T. (**2019**). Recommendations for reporting ion mobility Mass Spectrometry measurements. *Mass Spectrometry Reviews* 38(3), 291-320.

19) Ridgeway, M.E., Bleiholder, C., Mann, M., & Park, M. A. (**2019**). Trends in trapped ion mobility-mass spectrometry instrumentation. *Trends in Analytical Chemistry* 116, 324-331. (*Invited Contribution*)

20) Chai, M., Young, M. N., Liu, F. C., & Bleiholder, C. (**2018**). A transferable, sample-independent calibration procedure for trapped ion mobility spectrometry (TIMS). *Analytical Chemistry* 90, 9040-9047.

21) Liu, F. C., Ridgeway, M. E., Park, M. A., & Bleiholder, C. (**2018**). Tandem trapped ion mobility spectrometry. *Analyst 143*, 2249-2258. (*back cover article*)

22) Gleiter, R., Haberhauer, G., Werz, D. B., Rominger, F., & Bleiholder, C. (**2018**). From noncovalent chalcogen–chalcogen interactions to supramolecular aggregates: Experiments and calculations. *Chemical Reviews* 118, 2010–2041. (*Invited Contribution*)

23) Bleiholder, C., Dupuis, N. F., Gessel M. M., & Bowers, M. T. (**2017**). Structural effects of chirally mutated Enkephalin neurotransmitters: an argument for biological homochirality. *International Journal of Mass Spectrometry* 413, 52-60. *(Young Scientist Feature)*

24) Bleiholder, C., & Bower, M. T. (**2017**). The Solution Assembly of Biological Molecules Using Ion Mobility Methods: From Amino Acids to Amyloid -Protein. *Annual Review of Analytical Chemistry* 10 (1), 365-386. (*Invited Contribution*)

25) Young, M. N., & Bleiholder, C. (**2017**). Molecular Structures and Momentum Transfer Cross Sections: The Influence of the Analyte Charge Distribution. *Journal of The American Society for Mass Spectrometry* 28 (4), 619-627. (*Special Focus Issue: Emerging Investigators*)

26) Liu, F. C., Kirk, S. R., & Bleiholder, C. (**2016**). On the Structural Denaturation of Biological Analytes in Trapped Ion Mobility Spectrometry – Mass Spectrometry. *Analyst* 141, 3722-3730. (*Special Issue: Emerging Investigators; citation for highly cited research*)

27) Bleiholder, C. (**2016**). Towards measuring ion mobilities in non-stationary gases and non-uniform and dynamic electric fields. *International Journal of Mass Spectrometry* 399-400, 1-9. *(Young Scientist Feature & cover article)*

28) Bleiholder, C. (**2015**). A local collision probability approximation for predicting momentum transfer cross sections. *Analyst*, 14, 6804-6813. (*Special Issue on Ion Mobility Mass Spectrometry*)

Patents

29) Park, M. A., Ridgeway, M. E., Bleiholder, C., & Liu, F. C. (**2020, 2021**). Tandem ion mobility spectrometer. *Patent No.* 10,794,861 (US); CN201910133494.3A (China); EP3531122B1 (Europe), *Bruker Corporation & Florida State University*.

30) Bleiholder, C. (**2020**) Determining molecular and molecular assembly structures from a momentum transfer cross section distribution. *Patent No.* 10,605,773 (U.S.).

31) Bleiholder, C. (**2017**) Approximation algorithm for solving a momentum transfer cross section. *Patent No.* 9,829,466 (US); ZL201580008715.4 (China), 1229530A (Hong-Kong).

POSTDOCTORAL RESEARCH RELATED TO ION MOBILITY / MASS SPECTROMETRY & AMYLOID FORMATION

with Michael T. Bowers, UC Santa Barbara

32) Wyttenbach, T., Bleiholder, C., Anderson, S.E., & Bowers, M. T. (**2015**). A new algorithm to characterise the degree of concaveness of a molecular surface relevant in ion mobility spectrometry. *Molecular Physics* 113, 2344-2349.

33) Bleiholder, C., Johnson, N. R., Contreras, S., Wyttenbach, T., & Bowers, M. T. (**2015**). Molecular Structures and Ion Mobility Cross Sections: Analysis of the Effects of He and N2 Buffer Gas. *Analytical Chemistry* 87, 7196-7203.

34) Warnke, S., Seo, J., Boschmans, J., Sobott, F., Scrivens, J. H., Bleiholder, C., Bowers, M. T., Gewinner, S., Schöllkopf, W., Pagel, K., & Helden, G. v. (**2015**). Protomers of Benzocaine: Solvent and Permittivity Dependence. *Journal of the American Chemical Society* 137, 4236-4242.

35) Bleiholder, C., Contreras, S., Do, T. D., & Bowers, M. T. (**2013**). A novel projection approximation algorithm for the fast and accurate computation of molecular collision cross sections (II). Model parameterization and definition of empirical shape factors for proteins. *International Journal of Mass Spectrometry* 345-347, 89-96.

36) Bleiholder, C., Contreras, S., & Bowers, M. T. (**2013**). A novel projection approximation algorithm for the fast and accurate computation of molecular collision cross sections (IV). Application to polypeptides. *International Journal of Mass Spectrometry* 354-355, 275-280.

37) Seo, Y., Andaya, A., Bleiholder, C., Bowers, M. T., & Leary, J. A. (**2013**). Differentiation of CC vs CXC chemokine dimers with GAG octasaccharide binding partners: An ion mobility mass spectrometry approach. *Journal of the American Chemical Society* 135, 4325-4332.

38) Bleiholder, C., Dupuis, N. F., Gessel, M. M., & Bowers, M. T. (**2013**). Dimerization of chirally mutated Enkephalin neurotransmitters: implications for peptide and protein aggregation mechanisms. *Journal of Physical Chemistry B* 117, 1770-1779.

39) Wyttenbach, T., Bleiholder, C., & Bowers, M. T. (**2013**). Factors contributing to the collision cross section of molecular ions in the kilodalton to gigadalton range. *Analytical Chemistry* 85, 2191-2199.

40) Do, T. D., Economou, N. J., LaPointe, N. E., Kincannon, W. M., Bleiholder, C., Feinstein, S. C., Teplow, D. B., Buratto, S. K., & Bowers, M. T. (**2013**). Factors that drive peptide assembly and fibril formation: Experimental and theoretical analysis of Sup35 NNQQNY mutants. *Journal of Physical Chemistry B* 117, 8436-8446.

41) Bleiholder, C., Do, T. D., Wu, C., Economou, N. J., Bernstein, S. S., Buratto, S. K., Shea, J., & Bowers, M. T. (**2013**). Ion Mobility Spectrometry Reveals the Mechanism of Amyloid Formation of A(25-35) and its Modulation by Inhibitors at the Molecular Level: Epigallocatechin Gallate and Scyllo-Inositol. *Journal of the American Chemical Society* 135, 16926-16937.

42) Anderson, S. E., Bleiholder, C., Brocker, E. R., Stang, P. J., & Bowers, M. T. (**2012**). A novel projection approximation algorithm for the fast and accurate computation of molecular collision cross sections (III). Application to Supramolecular Coordination-Driven Assemblies. *International Journal of Mass Spectrometry* 330-332, 78-84

43) Bleiholder, C., Dupuis, N. F., Wyttenbach, T., & Bowers, M. T. (**2011**). Ion mobility–mass spectrometry reveals a conformational conversion from random assembly to β-sheet in amyloid fibril formation. *Nature Chemistry*, 3, 172-177.

44) Bleiholder, C., Wyttenbach, T., & Bowers, M. T. (**2011**). A novel projection approximation algorithm for the fast and accurate computation of molecular collision cross sections (I). Method. *International Journal of Mass Spectrometry* 308, 1-10.

PH.D. RESEARCH RELATED TO GAS-PHASE FRAGMENTATION OF PEPTIDES IN BOTTOM-UP PROTEOMICS

with Sandor Suhai & Bela Paizs, Theoretical Biophysics, German Cancer Research Center / University of Heidelberg, Germany

45) Bleiholder, C., Suhai, S., Harrison, A. G., & Paizs, B. (**2011**). Towards understanding the tandem mass spectra of protonated oligopeptides. 2: The proline effect in collision-induced dissociation of protonated Ala-Ala-Xxx-Pro-Ala (Xxx =Ala, Ser, Leu, Val, Phe, and Trp). *Journal of the American Society for Mass Spectrometry* 22, 1032-1039.

46) Bleiholder, C., & Paizs, B. (**2010**). Competing gas-phase fragmentation pathways of asparagine-, glutamine-, and lysine- containing protonated dipeptides. *Theoretical Chemistry Accounts* 125, 387-396.

47) Bleiholder, C., Osburn, S., Williams, T., Suhai, S., Stipdonk, M. Van, Harrison, A., & Paizs, B. (**2008**). Sequence scrambling fragmentation pathways of protonated peptides. *Journal of the American Chemical Society* 130, 17774-17789.

48) Pingitore, F., Bleiholder, C., Paizs, B., & Wesdemiotis, C. (**2007**). Unimolecular chemistry of metal ion-coordinated Alpha-dipeptide radicals. *International Journal of Mass Spectrometry* 265, 251-260.

49) Bleiholder, C., Suhai, S., & Paizs, B. (**2006**). Revising the proton affinity scale of the naturally occuring Alpha-amino acids. *Journal of the American Society for Mass Spectrometry* 17, 1275-1281.

50) Harrison, A. G., Young, A. B., Bleiholder, C., Suhai, S., & Paizs, B. (**2006**). Scrambling of sequence information in collision-induced dissociation of peptides. *Journal of the American Chemical Society* 128, 10364-10365.

51) Wang, P., Polce, M. J., Bleiholder, C., Paizs, B., & Wesdemiotis, C. (**2006**). Structural characterization of peptides via tandem mass spectrometry of their dilithiated monocations. *International Journal of Mass Spectrometry* 249, 45-59.

PH.D. RESEARCH RELATED TO CHALCOGEN INTERACTIONS

with Rolf Gleiter, Institute of Organic Chemistry, University of Heidelberg, Germany

52) Bleiholder, C., Rominger, F., & Gleiter, R. (**2009**). Alpha-Metallocenylmethylium ions and their isoelectronic congeners a comparison based on DFT calculations. *Organometallics* 28, 1014-1017.

53) Lari, A., Bleiholder, C., Rominger, F., & Gleiter, R. (**2009**). Intramolecular nonbonded interactions between divalent selenium centers with donor and acceptor substituents. *European Journal of Organic Chemistry* 17, 2765-2774.

54) Gleiter, R., Bleiholder, C., & Rominger, F. (**2007**). Alpha-Metallocenylmethylium ions and isoelectronic fulvene complexes of d6 to d9 metals. Structural considerations. *Organometallics* 26, 4850-4859.

55) Bleiholder, C., Gleiter, R., Werz, D. B. & Kppel, H. (**2007**). Theoretical investigations on heteronuclear chalcogen-chalcogen interactions: On the nature of weak bonds between chalcogen centers. *Inorganic Chemistry* 46, 2249-2260.

56) Gath, S., Gleiter, R., Rominger, F., & Bleiholder, C. (**2007**). Transannular interactions in mixed superphanes with one thiophene and one CpCo-stabilized cyclobutadiene ring: Syntheses, structures, and electrochemistry. *Organometallics* 26, 644-6.

57) Werz, D. B., Bleiholder, C., Gleiter, R., & Rominger, F. (**2006**). Strong distortions in hexacarbonyldicobalt complexes by push-pull effects. *Journal of Organometallic Chemistry* 691, 3943-3947.

58) Bleiholder, C., Werz, D. B., Köppel, H., & Gleiter, R. (**2006**). Theoretical investigations on chalcogen-chalcogen-interactions: What makes these nonbonded interactions bonding? *Journal of the American Chemical Society* 128, 2666-2674.

59) Bleiholder, C., Borzel, H., Comba, P., Ferrari, R., Heydt, M., Kerscher, M., Kuwata, S., Laurenczy, G., Lawrance, G. A., Lienke, A., Martin, B., Merz, M., Nuber, B., & Pritzkow, H. (**2005**). Coordination chemistry of a new rigid, hexadentate bispidine-based bis(amine)tetrakis (pyridine) ligand. *Inorganic Chemistry* 44, 8145-8155.

ORAL PRESENTATIONS AT SCIENTIFIC MEETINGS (SELECTED)

Oral presentations at the Annual ASMS Conference on Mass Spectrometry and Allied Topics:
2023 (2x), 2022 (2x), 2021, 2020, 2019 (2x), 2018, 2017 (2x), 2015, 2014, 2012, 2011, 2010.

Invited Oral Presentations at ACS Fall & Spring National Meetings:
2024, 2022, 2019 (Spring & Fall), 2017, 2016, 2014, 2011, 2010.

Invited Oral Presentations at Scientific Meetings:

- 36th Asilomar Conference on Mass Spectrometry (*Role of Mass Spectrometry in Neurodegenerative Disease Research* **2021**)
- Gordon Research Conference on Molecular and Ionic Clusters (*Molecular Models of Chemical Structure and Dynamics* **2020**)
- 28th Sanibel Conference on Mass Spectrometry Asilomar (*Computational Modelling in Mass Spectrometry and Ion Mobility: Methods for Ion Structure and Reactivity Determination* **2018**)
- Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy (**2014** & **2017**).

OUTREACH & OUTSIDE SERVICE HIGHLIGHTS

1) Dissemination of our theoretical PSA and SRA methods for predicting molecular cross sections and ion mobility spectra through a webserver (psa.chem.fsu.edu; ~150 registered users from the US, Europe, & Asia) and download (https://bitbucket.org).
2) NSF-sponsored Summer School on Protein Structure Elucidation with Ion Mobility Spectrometry (March 2023, CAREER Award CHE-1654608, https://www.chem.fsu.edu/ims-summerschool).
3) NSF-sponsored Summer School on Protein Structure Elucidation with Trapped IMS and Computational Modelling (funding for 2024, 2025, & 2026 from award CHE-2305173).
4) Organizer and host of the FSU-Bruker Virtual Colloquium on Trapped Ion Mobility Spectrometry/Mass Spectrometry

(TIMS/MS) (2022, https://www.chem.fsu.edu/tims-ms-colloquium); invited speakers include John R. Yates III, Vicki Wysocki, Matthias Mann.

5) NSF Reviewer (CHE CLP/CMI/CSDM-A)
6) Service to ASMS: Chair of Fundamentals Interest Group Meeting (2019: *Structural Elucidation of Proteins* & 2018: *Frontiers in Ion Spectroscopy*), Session Chair (2014), ASMS Awards Committee member.
7) Organizer, visit of undergraduate students from local college for graduate recruiting (Valdosta State University, with F. C. Liu)
8) Organizer of symposia at national meetings (selected)
   - Symposium "*Advances in Ion Mobility Spectrometry"* at the 2019 ACS Spring National Meeting (with F. Fernandez-Lima).
   - Symposium "*Native Analysis of Biomolecules by Mass Spectrometry"* at the 2017 Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy (invited speakers: Michael T. Bowers, Joseph A. Loo, Richard M. Caprioli, Evan R. Williams).

DEPARTMENTAL SERVICE

Graduate Recruiting and Admissions Committee (GRAC)	2014/15/16.
Graduate Advising and Counseling Committee (GACC)	2017/18/19/20/21/22/23.
Faculty Additions Committee	2019/20/21/22/23.
Promotion & Tenure Evaluation Committee	2021/22.
Graduate Research Program Enhancement (chair)	2019.
NMR Committee	2019.
Mass Spectrometry Bioanalytical Analysis and Synthesis Services Laboratory (MASS/BASS)	2017/18.
Faculty Search Committee, including 2x as chair	2015/16/17/18/20/21/22/23.
Departmental Laboratory Safety Committee	2017/18.

GRADUATE COURSES DEVELOPED

- 2014 CHM 5180 Ion mobility spectrometry (taught 2014/2020).
- 2015 CHM 5180 Analytical Methods in the Life Sciences (taught 2015/2017/2021).
- 2018 CHM 5140 Introduction to Chemical Instrumentation: *Electronic Circuits and Chemical Instrumentation* (taught 2018).
- 2020 CHM 5140 Introduction to Chemical Instrumentation: *Data Analysis and Signal Processing* (taught 2020).
- 2023 CHM 5138 Mass Spectrometry (taught Fall 2023).

UNDERGRADUATE COURSES TAUGHT

- CHM 3120 Introduction to Analytical Chemistry 2019(2x)/2022
- CHM 4130 Introduction to Instrumental Analysis 2015/2016/2017/2021/2022

PROFESSIONAL AND HONORARY MEMBERSHIPS

- American Society for Mass Spectrometry
- American Chemical Society
- Fellow, Alexander-von-Humboldt Foundation (Germany)