Eric Van Dornshuld, Ph.D.

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EXPERIENCE

Mississippi State University, Mississippi State, MS

Associate Clinical Professor	(effective Aug. 2024)
Assistant Clinical Professor	2018–2024
Instructor	2017–2018
Post-Doctoral Associate	2014–2017

The University of Mississippi, University, MS

Research Assistant	2009–2014
Teaching Assistant	2009–2010

The University of North Florida, Jacksonville, FL

Research Assistant	2006–2009
Teaching Assistant	2007–2008

EDUCATION

Ph.D. Chemistry The University of Mississippi, University, MS August 2014
Dissertation: "Characterizing non-covalent interactions and peptide bond formation with electronic structure theory"
Advisor: Prof. Gregory S. Tschumper

B.S. Chemistry The University of North Florida, Jacksonville, FL May 2009
Advisor: Prof. Robert Vergenz (retired)

AWARDS

ChemDawg Recognition Award for "*Outstanding effort and contributions to the Department of Chemistry*"	2020
MS ACS Local Section – ACS ChemLuminary Award for "*Best National Chemistry Week Event Organized By a Student Group*"	2019
MS ACS Local Section – ACS Student Chapter of the Year (SMACS)	2018
ACS Graduate Research Award	2014
Dissertation Fellowship Award	2014

GRANTS

ACS Innovative Project Grant	2019

PUBLICATIONS

1. Olive, L. N., E. V. Dornshuld and G. S. Tschumper. Competition Between Solvent/Solvent and Solvent/Solute Interactions in the Microhydration of the Tetrafluoroborate Anion, $BF_4^-(H_2O)_{n=1,2,3,4}$. *J. Phys. Chem. A* (accepted 9/12/23)
2. Olive, L. N., E. V. Dornshuld and C. E. Webster. The curious case of DMSO: A CCSD(T)/CBS(aQ56+*d*) benchmark and DFT study. *J. Chem. Phys.* **2021**. 114304, doi:10.1002/jcc.23522
3. Frey, N. C., E. V. Dornshuld and C. E. Webster. Benchmarking the Fluxional Processes of Organometallic Piano-Stool Complexes. *Molecules*. **2021**. *26*, 2310, doi:10.3390/molecules26082310

4. Bhavsar-Jog, Y., E. V. Dornshuld, T.A. Brooks, G. S. Tschumper, and R. M. Wadkins. Co-Localization of DNA i-Motif-Forming Sequences and 5-Hydroxymethyl-cytosines in Human Embryonic Stem Cells. *Molecules*. **2019**. *24*, 3619, doi:10.3390/molecules24193619.
5. Dornshuld, E. V. and G. S. Tschumper. Big Changes for Small Noncovalent Dimers: Revisiting the Potential Energy Surfaces of $(P_2)_2$ and $(PCCP)_2$ with CCSD(T) Optimizations and Vibrational Frequencies. *J. Chem. Theory Comput.* **2016**. *12*, 4, 1534–1541, doi:10.1021/acs.jctc.5b01105.
6. Dornshuld, E. V., R. A. Vergenz, and G. S. Tschumper. Peptide bond formation via glycine condensation in the gas phase. *J. Phys. Chem. B*. **2014**. *118* (29), 8583–8590, doi:10.1021/jp504924c.
7. Dornshuld, E. V., C. M. Holy and G. S. Tschumper. Homogeneous and heterogeneous non-covalent dimers of formaldehyde and thioformaldehyde: structures, energetics, and vibrational frequencies. *J. Phys. Chem. A*. **2014**. *118* (18), 3376–3385, doi:10.1021/jp502588h.
8. Bhavsar-Jog, Y., E. V. Dornshuld, T.A. Brooks, G. S. Tschumper, and R. M. Wadkins. Epigenetic modification, dehydration, and molecular crowding effects on the thermodynamics of i-motif structure formation from C-rich DNA. *Biochemistry*. **2014**. *53* (10), 1586–1594, doi:10.1021/bi401523b.
9. Dornshuld, E. V. and G. S. Tschumper. Characterization of the potential energy surfaces of two small but challenging noncovalent dimers: $(P_2)_2$ and $(PCCP)_2$. *J. Comput. Chem.* **2014**. *35* (6), 479–487, doi:10.1002/jcc.23522.
10. Reddy, V., R. Kota, E. V. Dornshuld, D. L. Mattern, G. S. Tschumper, D. Jiang, and A. Dass. Interstaple dithiol cross-linking in $Au_{25}(SR)_{18}$ nanomolecules: a combined mass spectrometric and computational study. *J. Am. Chem. Soc.*. **2011**. *133* (50), 20258–20266, doi:10.1021/ja206436x.
11. Dornshuld, E. V., M. Zhang, T. Keith Hollis, and C. E. Webster. Predicting ^{195}Pt-NMR chemical shifts in organometallic compounds with non-relativistic density functional approaches. (in preparation)

TEACHING EXPERIENCE

CH-1213 – Chemistry I
CH-1223 – Chemistry II
CH-1141 – Prof. Chem: Paths
CH-2141 – Prof. Chem: Tools
CH-3141 – Prof. Chem: Literature
CH-4711 – Senior Seminar
CH-8990 – Prof. Chem: Current Problems (computational chemistry project support)

ONLINE COURSE DEVELOPMENT

CH-1223 - Chemistry II Course Website – https://dornshuld.chemistry.msstate.edu/courses/chem2/
and Chemistry Student Handbook – https://dornshuld.chemistry.msstate.edu/books/chemistry/

WEBSITE LIFETIME ANALYTICS (03/2020 to 08/2023)
Users: 81,844 from 180 countries
Page Views: 785,681

CH-1213 - Chemistry I Course Website – https://general.chemistry.msstate.edu/
and Chemistry I Resource – https://general.chemistry.msstate.edu/books/chem1/

SERVICE

DEPARTMENT

Faculty Advisor to Chi Chi Sigma (College Chemistry Society)	2021–2022
Faculty Co-advisor to Chemistry Graduate Student Association (CGSA)	2020–2022
Faculty Advisor to the MSU Esports	2020–2022
Undergraduate Curriculum Committee Member	2020–2023
Distance Education Committee Member	2020–2023
Department of Chemistry Website Manager	2018–2020
Undergraduate Curriculum Development	2017–present
Faculty Advisor to the MSU SMACS	2016–present

COLLEGE

College of Arts & Sciences Scholarship Committee 2018–2021

PROFESSIONAL

National Chemistry Week Coordinator (MS Local ACS Section) 2019–present

AUTHORED CURRICULUM

Investigations in Chemistry I CH-1211 Lab Manual, 2nd ed. 2023
T. Brown, Dornshuld, E. V., W. Nettles, and C. E. Webster
Investigations in Chemistry II CH-1221 Lab Manual, 3rd ed.
T. Brown, Dornshuld, E. V., W. Nettles, and C. E. Webster
CH-1213 Chemistry I Coursebook, 6th ed.
Dornshuld, E. V., W. Nettles, and C. E. Webster
CH-1223 Chemistry II Coursebook, 7th ed.
Dornshuld, E. V., W. Nettles, and C. E. Webster
Investigations in Chemistry I CH-1211 Lab Manual, 1st ed. 2022
T. Brown, Dornshuld, E. V., W. Nettles, and C. E. Webster
Investigations in Chemistry II CH-1221 Lab Manual, 2nd ed.
T. Brown, Dornshuld, E. V., W. Nettles, and C. E. Webster
CH-1213 Chemistry I Coursebook, 5th ed.
Dornshuld, E. V., W. Nettles, and C. E. Webster
CH-1223 Chemistry II Coursebook, 6th ed.
Dornshuld, E. V., W. Nettles, and C. E. Webster
Investigations in Chemistry II CH-1221 Lab Manual, 1st ed. 2021
T. Brown, Dornshuld, E. V., W. Nettles, and C. E. Webster
CH-1213 Chemistry I Coursebook, 4th ed.
Dornshuld, E. V., W. Nettles, and C. E. Webster
CH-1223 Chemistry II Coursebook, 5th ed.
Dornshuld, E. V., W. Nettles, and C. E. Webster
CH-1213 Chemistry I Workbook, 3rd ed. 2020
Dornshuld, E. V., W. Nettles, and C. E. Webster
CH-1223 Chemistry II Workbook, 4th ed.
Dornshuld, E. V., W. Nettles, and C. E. Webster
CH-1213 Chemistry I Workbook, 2nd ed. 2019
Dornshuld, E. V., W. Nettles, and C. E. Webster
CH-1223 Chemistry II Workbook, 3rd ed.
Dornshuld, E. V., W. Nettles, and C. E. Webster
CH-1213 Chemistry I Workbook, 1st ed. 2018
Dornshuld, E. V., W. Nettles, and C. E. Webster
CH-1223 Chemistry II Workbook, 2nd ed.
Dornshuld, E. V., W. Nettles, and C. E. Webster
CH-1223 Chemistry II Workbook, 1st ed. 2017
Dornshuld, E. V.

INVITED TALKS

1. Dornshuld, E. V. Computational Chemistry: A Primer (or what you should know when you ~~want~~ have to talk to a computational chemist). *Ole Miss Physical Chemistry Summer Research Program Experience for Undergraduates*, University, MS, May, 21, 2023.

ORAL PRESENTATIONS

1. Dornshuld, E. V., M. Zhang, T. K. Hollis, and C. E. Webster. Characterizing ^{195} Pt NMR chemical shift with computationally tractable non-relativistic density functional approaches. *69th Southeastern Regional Meeting of the American Chemical Society*, Charlotte, NC, November 7–11, 2017.

2. Dornshuld, E. V. Computational Chemistry: A Primer (or what you should know when you ~~want~~ have to talk to a computational chemist). *Feeding and Powering the World*, University, MS, June 19, 2017.
3. Dornshuld, E. V., M. Zhang, T. K. Hollis, and C. E. Webster. Utilizing computational ^{195}Pt NMR chemical shifts for the prediction of meridional ligand donor ability in square planar complexes. *Feeding and Powering the World 2016: Building the Network*, University, MS, July 25–26, 2016
4. Dornshuld, E. V., R. A. Vergenz, R. Mourad, M. A. Carrasquillo, J. W. Vickers, and H. F. Schaefer. Mechanism for aqueous glycine condensation. *2008 ACS 236th National Meeting*, Philadelphia, PA, August 17–20, 2008.

WORKSHOPS

1. Telluride School on Theoretical Chemistry (TSTC) July 15–20, 2013

POSTER PRESENTATIONS

1. Dornshuld, E. V., M. Zhang, X. Zhang, T. K. Hollis, and C. E. Webster. Predicting ^{195}Pt NMR chemical shifts in small Pt(II) and Pt(IV) organometallic compounds with density functional approaches. *67th Southeast/71st Southwest Joint Regional Meeting of the American Chemical Society*, Memphis, TN, November 4–7, 2015.
2. Dornshuld, E. V., C. M. Holy, and G. S. Tschumper. New insight into $n \rightarrow \pi^*$ non-covalent interactions from two simple systems, formaldehyde dimer and thioformaldehyde dimer. *Mississippi Experimental Program to Stimulate Competitive Research State Meeting (EPSCoR)*, April 1, 2014.
3. Dornshuld, E. V., C. M. Holy, and G. S. Tschumper. New insight into $n \rightarrow \pi^*$ non-covalent interactions from two simple systems, formaldehyde dimer and thioformaldehyde dimer. *25th Austin Symposium on Molecular Structure and Dynamics (ASMD@D)*, March 1–4, 2014.
4. Dornshuld, E. V. and G. S. Tschumper. Characterization of the potential energy surfaces of the P_2 dimer and the PCCP dimer. *Southeast Theoretical Chemistry Association Annual Meeting (SETCA 2013)*, May 9–11, 2013.
5. Dornshuld, E. V. and G. S. Tschumper. Characterization of the potential energy surfaces of the P_2 dimer and the PCCP dimer. *Mississippi Experimental Program to Stimulate Competitive Research State Meeting (EPSCoR)*, April 18, 2013.
6. Dornshuld, E. V. and G. S. Tschumper. Characterization of the potential energy surfaces of the P_2 dimer and the PCCP dimer. *53rd Sanibel Symposium*, February 17–22, 2013.
7. Dornshuld, E. V. and G. S. Tschumper. Characterization of the potential energy surfaces of the P_2 dimer and the PCCP dimer. *Mississippi Experimental Program to Stimulate Competitive Research Fall Forum (EPSCoR)*, August 28, 2012.
8. Dornshuld, E. V. and G. S. Tschumper. Characterization of the potential energy surfaces of the P_2 and PCCP dimers. *Southeast Theoretical Chemistry Association Annual Meeting (SETCA 2012)*, May 17–19, 2012.
9. Dornshuld, E. V. and G. S. Tschumper. Characterization of the potential energy surfaces of the P_2 and PCCP dimers. *Mississippi Experimental Program to Stimulate Competitive Research State Meeting*, April 10, 2012.
10. Dornshuld, E. V. and G. S. Tschumper. Characterization of the potential energy surfaces of the P_2 and PCCP dimers. *Mississippi Experimental Program to Stimulate Competitive Research Fall Forum (EPSCoR)*, September 20, 2011.
11. Dornshuld, E. V. and G. S. Tschumper. The molecular structures of the P_2 and PCCP dimers. *Southeast Theoretical Chemistry Association Annual Meeting (SETCA 2011)*, May 13–14, 2011.
12. Dornshuld, E. V. and G. S. Tschumper. The molecular structures of the P_2 and PCCP dimers. *Mississippi Experimental Program to Stimulate Competitive Research State Meeting (EPSCoR)*, April 14, 2011.
13. Dornshuld, E. V., R. A. Vergenz, H. F. Schaefer, III, and G. S. Tschumper. Exploring the stepwise mechanism of aqueous glycine condensation. *19th Conference on Current Trends in Computational Chemistry (CCTCC 2010)*, October 29–30, 2010.

14. Dornshuld, E. V., R. A. Vergenz, H. F. Schaefer, III, and G. S. Tschumper. Exploring the mechanism for aqueous glycine condensation. *Mississippi Experimental Program to Stimulate Competitive Research State Meeting (EPSCoR)*, April 15, 2010.
15. Dornshuld, E. V., R. A. Vergenz, and R. Mourad. Mechanism for aqueous glycine condensation. *48th Sanibel Symposium*, February 21–26, 2008.
16. Bruno, P., M. Carrasquillo, N. Durtshi, E. V. Dornshuld, and J. Vickers. Do weak methyl-donated hydrogen bonds affect protein folding and stability? *Colorado Protein Stability Conference*, July 19, 2007.

CONTRIBUTED PRESENTATIONS

1. Olive, L., E. V. Dornshuld, and C. E. Webster. Curious case of DMSO: A computational study. *52nd Southeastern Undergraduate Research Conference*, Tuscaloosa, AL, January 25, 2020.
2. Olive, L., E. V. Dornshuld, and C. E. Webster. Curious case of DMSO: A computational study. *258th ACS National Conference and Exposition*, San Diego, CA, August 25–29 2019.
3. Olive, L., E. V. Dornshuld, and C. E. Webster. New insights into assessing the performance of DFT energetics on small oxygen/sulfur containing compounds. *Summer Undergraduate Research Symposium*, Mississippi State, MS, August 2019.
4. Olive, L., E. V. Dornshuld, and C. E. Webster. Assessing the performance of DFT energetics on small oxygen/sulfur containing compounds. *Feeding and Powering the World 2019: The Next Generation*, University, MS, July 15–16, 2019.
5. Frey, N. C., E. V. Dornshuld, F. Aghabozorgi, and C. E. Webster. Characterizing the fluxional behavior in $(TMCOT)M(CO)_3$ and $(COT)Cr(CO)_3$ complexes with computational approaches. *Feeding and Powering the World 2019: The Next Generation*, University, MS, July 15–16, 2019.
6. Frey, N. C., E. V. Dornshuld, F. Aghabozorgi, and C. E. Webster. Examining the electronic properties of twisted pyrene compounds. *Feeding and Powering the World 2019: The Next Generation*, University, MS, July 15–16, 2019.
7. Autry, S., M. Zhang, E. V. Dornshuld, T. K. Hollis, and C. E. Webster. Probing the effects of environment on novel CCC-NHC-Pt(II) pincer complexes. *257th ACS National Meeting and Exposition*, Orlando, FL Mar. 31 – Apr. 4, 2019.
8. Zhang, M., E. V. Dornshuld, J. C. Bunquin, M. Delferro, T. K. Hollis, and C. E. Webster. The platinum electronic parameter (PtEP): A compliment to TEP. *Feeding and Powering the World 2018: Planning for the Future*, University, MS, July 16–17, 2018.
9. Adiraju, K., M. Zhang, E. V. Dornshuld, R. W. Lamb, G. Liang, C. E. Webster, and T. K. Hollis. State-of-the-art nitrogen reduction: Haber-Bosch to homogeneous back to heterogeneous. *Feeding and Powering the World 2018: Planning for the Future*, University, MS, July 16–17, 2018.
10. Zhang, M., S. Autry, V. Dixit, E. V. Dornshuld, J. Denny, N. Hammer, C. E. Webster and T. K. Hollis. Synthesis, characterization, and photophysics of CCC-NHC pincer platinum complexes. *255th ACS National Meeting and Exposition*, New Orleans, LA, March 18–22, 2018.
11. Dixit, V., E. V. Dornshuld, C. E. Webster, and T. K. Hollis. Theoretical study of substituted CCC-NHC palladium and platinum complexes for OLED applications. *255th ACS National Meeting and Exposition*, New Orleans, LA, March 18–22, 2018.
12. Hollis, T. K., C. E. Webster, M. Zhang, E. V. Dornshuld, V. Dixit, J. C. Bunquin, and M. Delferro. NHC pincer complex donor ability-PtEP (Platinum (Pt) electronic parameter): A donicity scale incorporating strictly meridional, tridentate ligands. *255th ACS National Meeting and Exposition*, New Orleans, LA, March 18–22, 2018.
13. Hollis, T. K., C. E. Webster, M. Zhang, E. V. Dornshuld, J. C. Bunquin, and M. Delferro. NHC pincer complex donor ability? PtEP (platinum (Pt) electronic parameter): A donicity scale incorporating strictly meridional tridentate ligands. *69th Southeastern Regional Meeting of the American Chemical Society*, Charlotte, NC, November 7–11, 2017.
14. V. Dixit, M. Zhang, E. V. Dornshuld, T. K. Hollis, C. E. Webster. Theoretical study of the effect of substituents on the optical spectra and ^{195}Pt NMR shift of CCC-NHC Pt(II) complexes. *69th Southeastern Regional Meeting of the American Chemical Society*, Charlotte, NC, November 7–11, 2017.

15. Zhang, M., E. V. Dornshuld, V. Dixit, J. A. Denny, C. E. Webster, and T. K. Hollis. Synthesis and characterization of CCC-NHC pincer platinum complexes. *Feeding and Powering the World 2016: Building the Knowledge Base*, University, MS, July 19–20, 2017.
16. Dixit, V. E. V. Dornshuld, and C. E. Webster. Substitution effects on the emission spectra of platinum CCC-NHC pincer complexes. *Feeding and Powering the World 2016: Building the Network*, University, MS, July 25–26, 2016.
17. Zhang, M., E. V. Dornshuld, X. Zhang, and C. E. Webster. Predicting metal complex reactivity for energy applications: Donicity of meridional tridentate ligands: ^{195}Pt NMR of CCC-NHC Pt pincer square planar complexes. *Feeding and Powering the World 2016: Building the Network*, University, MS, July 25–26, 2016.
18. Lamb, R. W., E. V. Dornshuld, and C. E. Webster. Computational investigation of linkage isomerization in sulfoxide-containing ruthenium complexes. *67th Southeast/71st Southwest Joint Regional Meeting of the American Chemical Society*, Memphis, TN, November 4–7, 2015.