

Curriculum Vitae

Elizabeth M. Diessner

PhD Candidate

Chemical, Applied, and Materials Physics Doctoral Program - Chemistry
Networks, Computation, and Social Dynamics Lab

The Department of Chemistry

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Education

(Expected) 2024 Ph.D. in Chemical, Applied, and Materials Physics - Chemistry

University of California - Irvine, Irvine, CA

The Department of Chemistry

Advisor: Carter Butts

2019 B.S. in Analytical and Environmental Chemistry

George Mason University, Fairfax, VA

The Department of Chemistry and Biochemistry

Advisor: Xiaoyan Tan

2016 A.S. in Science

Northern Virginia Community College, Annandale, VA

Awards and Honors

CSW College Chemistry Achievement Award, 2019

NSF MAPS Fellow, 2020-2021

Teaching Experience

Teaching Assistant, Department of Chemistry, University of California – Irvine

CHEM 1LD: October 2019 – March 2020

CHEM 1LC: April 2021 – June 2021

Conference Presentations

Diessner, Elizabeth M.; Thomas, Loring J.; and Butts, Carter T. (2/2023). “Phase Behavior of 1-ribbon and 2-ribbon Fibril Self-Assembly in a Simple Network Hamiltonian Model of Protein Fibrillization” Biophysical Society Meeting, San Diego, CA.

Diessner, Elizabeth M.; Wong, Eric; Prytkova, Vera; Freitas, J Alfredo; Tobias, Doug J; and Butts, Carter T. (2/2022). “Network Hamiltonian Models for Unstructured Protein Aggregates, With Application to γ D-Crystallin” Biophysical Society Meeting, San Fransisco, CA.

Diessner, Elizabeth M.; Takahashi, Gemma R.; Cross, Thomas J.; Butts, Carter T.; and Martin, Rachel W. (2/2022). "A Year In The Life Of SARS-CoV-2 Mpro: Molecular Modeling And Analysis Of Clinically Observed Mpro Variants From The First Year Of The Covid-19 Pandemic" Biophysical Society Meeting, San Fransisco, CA.

Diessner, Elizabeth M.; Zong, Zixiao; Cross, Thomas J.; Takahashi, Gemma R.; Crosby, Marquise G.; Farahmad, Vesta; Zhuang, Shannon; Martin, Rachel W.; and Butts, Carter T. (2/2021). "The Effect of Point Mutations on Structure and Dynamics of SARS-CoV-2 Main Protease Mutants." Biophysical Society Meeting (Virtual).

Diessner, Elizabeth M. (10/2020). "Mapping the Mutational Landscape of the SARS-CoV-2 Main Protease: Molecular Modeling and Comparative Analysis" Frontiers in Machine Learning for the Physical Sciences (Virtual).

Publications

Diessner, Elizabeth M., Gemma R. Takahashi, Rachel W. Martin, and Carter T. Butts. (2023). "Comparative Modeling and Analysis of Extremophilic D-Ala-D-Ala Carboxypeptidases" *Biomolecules*, 13 (2), 328. DOI:10.3390/biom13020328

Diessner, Elizabeth M.; Takahashi, Gemma R.; Cross, Thomas J.; Martin, Rachel W.; and Butts, Carter T. (2023) "Mutation Effects on Structure and Dynamics: Adaptive Evolution of the SARS-CoV-2 Main Protease." *Biochemistry*, 63 (3), 747-758. DOI:10.1021/acs.biochem.2c00479

Diessner, Elizabeth M.; Freitas, J. Alfredo; Tobias, Douglas J.; and Butts, Carter T. (2023). "Network Hamiltonian Models for Unstructured Protein Aggregates, with Application to γ D-Crystallin." *The Journal of Physical Chemistry B*, 127 (3), 685-697. DOI:10.1021/acs.jpcc.2c07672

Duong, Vy; **Diessner, Elizabeth M.**; Grazioli, Gianmarc; Martin, Rachel W.; and Butts, Carter T. (2021). "Neural Upscaling from Residue-level Protein Structure Networks to Atomistic Structure." *Biomolecules*. 11(12). 1788. DOI:10.3390/biom11121788

Kreutzer, Adam G., Krumberger, Maj, **Diessner, Elizabeth M.**, Parrocha, Chelsea M. T.; Morris, Michael A.; Guaglianone, Gretchen; Butts, Carter T.; and Nowick, James S. (2021). "A Cyclic Peptide Inhibitor of the SARS-CoV-2 Main Protease." *European Journal of Medicinal Chemistry*, 221(5), 113530. DOI:10.1016/j.ejmech.2021.113530

Cross, Thomas J.; Takahashi, Gemma R.; **Diessner, Elizabeth M.**; Crosby, Marquise G.; Farahmand, Vesta; Zhuang, Shannon; Butts, Carter T.; and Martin, Rachel W. (2020). "Sequence Characterization and Molecular Modeling of Clinically Relevant Variants of the SARS-CoV-2 Main Protease." *Biochemistry*, 9(39), 3741-3756. DOI:10.1021/acs.biochem.0c00462