

Darien J. Morrow

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EDUCATION

University of Wisconsin–Madison
PhD: Physical Chemistry. GPA: 4.0/4.0

2015 - Present
Madison, WI

- Adviser: John C. Wright.
- Developing ultrafast multidimensional spectroscopies to investigate coherent charge transfer in transition metal dichalcogenide heterostructures

Missouri Western State University
BS: Chemistry; Minors: Mathematics & Physics. GPA: 4.0/4.0

2011-2015
Saint Joseph, MO

RESEARCH & WORK EXPERIENCE

John C. Wright research Group
Graduate Assistant

2015 - Present
Madison, WI

- Using and developing a suite of ultrafast techniques to explore excited state dynamics of thin film semiconductors relevant to photovoltaics (perovskites and transition metal dichalcogenides). These techniques include transient transmittance, transient reflectance, and transient grating all with tunable pump and probe colors.
- Developing fully coherent probes that are exquisitely sensitive to coherent transfer between layers of a heterostructure.
- Studying non-linear mixing in non-resonant media.
- Practicing open science. For instance see our work on GitHub: github.com/wright-group & github.com/darienmorrow and the Open Science Framework: osf.io/x9743.

Christopher G. Elles research Group
REU Fellow

2014
Lawrence, KS

- Investigated the excited state dynamics of substituted thiophene photo-rearrangement reactions.
- Developed and implemented reaction quantum yield measurement technique.
- Used ultrafast transient absorption spectroscopy to probe singlet and triplet excited state manifolds.

Michael W. Ducey research Group
Undergraduate Assistant

2011 - 2012
Saint Joseph, MO

- Investigated the solvatochromism of room temperature ionic liquids (RTILs) in common solvents.
- Demonstrated the solvents can induce order in the alkyl side chains of methylimidazolium RTILs.

Morrow Contracting and Construction LLC
Skilled Laborer

2011 - 2015
Saint Joseph, MO

PUBLICATIONS

3. **Morrow, D. J.**; Kohler, D. D.; Wright, J. C. Group and phase velocity mismatch fringes in non-resonant triple sum-frequency spectroscopy. **in preparation**
2. Chen, J.; **Morrow, D. J.**; Fu, Y.; Zheng, W.; Zhao, Y.; Dang, L.; Stolt, M. J.; Kohler, D. D.; Wang, X.; Czech, K. J.; Hautzinger, M. P.; Shen, S.; Guo, L.; Pan, A.; Wright, J. C.; Jin, S. Single-Crystal Thin Films of Cesium Lead Bromide Perovskite Epitaxially Grown on Metal Oxide Perovskite (SrTiO₃). *JACS*, **accepted**
1. Fu, Y.; Rea, M. T.; Chen, J.; **Morrow, D. J.**; Hautzinger, M. P.; Zhao, Y.; Manger, L. H.; Wright, J. C.; Goldsmith, R. H.; Jin, S. Selective Stabilization and Photophysical Properties of Metastable Perovskite Polymorphs of CsPbI₃ in Thin Films. *Chem Mater.*, **accepted**

POSTERS & PRESENTATIONS

7. Poster. **Darien J. Morrow**, Jenna M. Wasylenko, Christopher G. Elles. Kinetics and Dynamics of the Photorearrangement Reactions of Aryl-Substituted Thiophenes. ACS National Meeting, Denver, CO. March 2015.
6. Poster. Michael W. Ducey, **Darien J. Morrow**, Bethany Thornton, Varun Lahoti. Conformational behavior and applications of mixed room temperature ionic liquid solvent systems examined with a panel of solvatochromic probes. ACS Midwest Regional Meeting, Columbia, MO. November 2014.
5. Poster. **Darien J. Morrow**, Jenna M. Wasylenko, Christopher G. Elles. Kinetics and Dynamics of the Photorearrangements of Conjugated Thiophenes. Council on Undergraduate Research, Research Experiences for Undergraduates Symposium, Arlington, VA. October 2014.
4. Poster. **Darien J. Morrow**, Jenna M. Wasylenko, Christopher G. Elles. Kinetics and Dynamics of the Photorearrangements of Conjugated Thiophenes. The University of Kansas, REU Poster Session, Lawrence, KS. July 2014.
3. Poster. Alexander K. Moore, **Darien J. Morrow**. How to Play Rock Paper Scissors Lizard Spock Like a Rational Person. Missouri Western State University, Multidisciplinary Research Symposium, St. Joseph, MO. May 2014.
2. Poster. Melanie Edlin, David J. Freeman, Nathan Harms, Xu Ho, Torin McKinley, Alexander Moore, **Darien J. Morrow**, Christopher Phillips, Jeffrey N. Woodford, Determination of Dimerization Constant of N-(isoquinolin-3-yl)Benzamide and N-(isoquinolin-2-yl)Benzamide. ACS Midwest Regional Meeting, Springfield, MO. October 2013.
1. Poster. **Darien J. Morrow**, Michael W. Ducey, Solvatochromic Properties of Ionic Liquid: Solvent and Polymer Systems Examined with PRODAN. Missouri Western State University, Multidisciplinary Research Symposium, St. Joseph, MO. May 2012.

TEACHING EXPERIENCE

Physical Chemistry: Thermodynamics

Fall 2016

Teaching Assistant

Madison, WI

- TA'd lecture section under Prof. Gilbert M. Nathanson.
- Implemented active learning problem solving sessions for all discussion sections and office hours.
- Wrote in-depth answer keys to all homework problems.
- Aided in course planning and exam preparation.

General Chemistry

Fall 2015 - Spring 2016

Teaching Assistant

Madison, WI

- TA'd Advanced General Chemistry (under Prof. Ive Hermans) and second-semester General Chemistry (under Dr. Paul Hooker).
- Implemented active learning strategies in discussion sections.

Organic Chemistry II

Fall 2013

Teaching Assistant

Saint Joseph, MO

- TA'd lab section under supervision of Prof. Steven P. Lorimor.

FELLOWSHIPS & SCHOLARSHIPS

- Pei Wang Fellowship. Fall 2015 - spring 2016.
- Golden Griffon Honors scholarship. Fall 2011 - spring 2015.
- NSF funded Midwest Apex Project scholarship. Fall 2011 - spring 2015.
- Missouri Bright Flight scholarship. Fall 2011 - spring 2015.
- J. B. Bruce scholarship.
- Marion Mitchell scholarship.
- Hillyard Chemistry scholarship.
- Western Excellence Chemistry scholarship.

AWARDS & HONORS

- NSF Graduate Research Fellowship Program, Honorable mention. 2017.
- MWSU Department of Chemistry, Edgar C. Little Outstanding Student Award. 2015.
- ACS Division of Analytical Chemistry, Undergraduate Award in Analytical Chemistry. 2015.
- ACS Division of Inorganic Chemistry, Undergraduate Award in Inorganic Chemistry. 2013.
- MWSU Presidents Honors List. Fall 2011 - spring 2015.

SERVICE ACTIVITIES & COMMUNITY INVOLVEMENT

- Taught/supervised electronics for a week to high schoolers in the PEOPLE program. Summer 2017.
- Served on panel to talk to REU students about experiences applying to and surviving graduate school. Summer 2017.
- Served as a moderator for the 3rd annual Wisconsin Middle School Science Bowl (sponsored by the DOE). Spring 2017.
- Talked and demonstrated to Institute of Chemical Education summer camp attendees about my research, renewable energy, and how solar cells work. Summer 2017.
- Served as vice-president (2014-2015) and member of Missouri Western State University's ACS affiliated Chemistry club. 2011-2015.
- Aided in the organization and implementation of Super Science Saturday and Chemathon at Missouri Western State University. 2011-2015.

REFERENCES

- Prof. John C. Wright — wright@chem.wisc.edu
- Prof. Gilbert M. Nathanson — nathanson@chem.wisc.edu
- Prof. Christopher G. Elles — elles@ku.edu
- Prof. Deniz D. Yavuz — yavuz@wisc.edu