



NSF-REU: Sunshine Institute for the Interaction of Light with Matter

(updated August 10, 2024 at 4:30 p.m.)



Ed Hilinski and Bridget DePrince

<https://www.chem.fsu.edu/reu/>

Department of Chemistry and Biochemistry

Florida State University

Tallahassee, Florida 32306-4390



Acknowledgment: We thank the NSF-Research Experiences for Undergraduates (REU) Sites program.
This material is based upon work supported by the NSF under Grant CHE-2150301.





Summer 2024 - May 28 to August 2

Ed Hilinski and Bridget DePrince

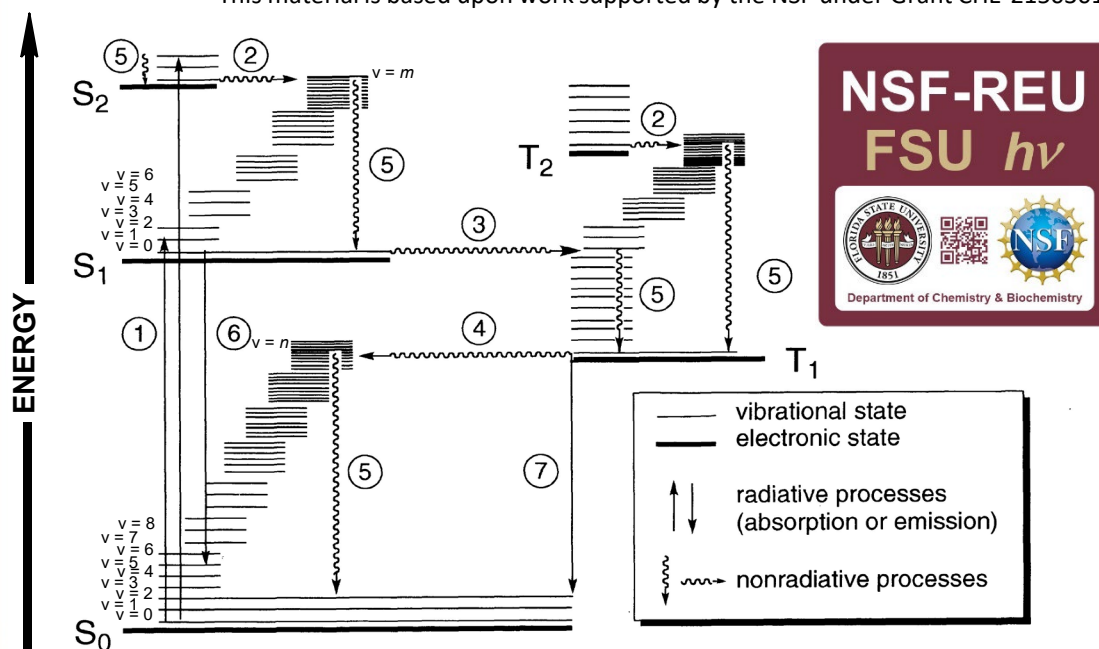
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A Chronology

First Day - May 28, 2024 – Welcome!



REU Participant	Home Institution	In-Lab Mentor	Faculty Advisor
Cianna Chung	Ursinus College	Tarannuma Ferdous Manny & Sahel Moslemi	Biwu Ma
Brody Farace	Lafayette College	Sulthana Fehroza P.P. & Fernando Melo	Jack Saltiel
Airionna Fordham	Valdosta State University	Michael Commodore & Lona Dutta	Igor Alabugin
Corbin Frisvold	Kutztown University	Andrew Cantrell & Raul Ortega	Geoffrey Strouse
Kaylee Head	Samford University	Lucy Jenkins	Lei Zhu
Elizabeth Holyat	SUNY Binghamton University	Rachel Weiss Clark	Bryan Kudisch
Luke Jodoin	Univ. Arkansas – Fort Smith	Ethan Lambert	Kenneth Hanson
Tsion Lemi	Univ. Maryland, Baltimore County	Divya Kumar & Dibya Mondal	Michael Shatruk
Mariia Grebenkina	Ithaca College	Divya Kumar & Dibya Mondal	Michael Shatruk
James Leone	Hendrix College	Justin Phillips	Eugene DePrince
Eduarda Stein Christ	Texas Lutheran University	Victoria Li	Michael Shatruk
Taylor Walker	Misericordia University	Amir Zarei	Susan Lattuner

Monday, May 20, 2024

12:00 noon-1:00 p.m. In-Lab Mentors Workshop – CSL 1005

– Drs. Bridget DePrince & Ed Hilinski



First Week Agenda

Tuesday, May 28, 2024

8:45-9:00 a.m.	Walk to DLC from Ragans Hall – Dr. Bridget DePrince
9:00-9:30 a.m.	Breakfast / Mingling – DLC 123
	Introduction to the Department – DLC 123
	Dept. Chair Wei Yang & Ed Hilinski
9:30-10:00 a.m.	Ice Breaker: Participants and Faculty Advisors Introductions
10:00-11:00 a.m.	Meet the In-Lab Mentors – Lab Tours
11:00-12:00 noon	Departmental Paperwork & HR
12:00-1:00 p.m.	Group Lunch – REU Participants & invited guests
	– Kearney Osceola Grille
1:30-2:30 p.m.	Safety Training –
	Ben Arline, Environ. Health & Safety – DLC 123
2:30-4:00 p.m.	Departmental Paperwork & FSU ID –
	Dr. Ed Hilinski – DLC 123 & FSU Card Center

First Week Agenda *(continued)*



Wednesday, May 29, 2024

3:30-4:30 p.m.	Work in the Research Labs Departmental Ice Cream Social - CSL Lobby
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Thursday, May 30, 2024

Work in the Research Labs

Friday, May 31, 2024

3:30-5:00 p.m.	Work in the Research Labs REU Weekly Seminar - Dr. Ed Hilinski Entry Surveys, Baseline Quiz, summary of the first week Research ethics, lab culture, lab notebooks, expectations Research resources, tutorials, learning beyond lab, Scifinder Scholar, NMR training, ChemDraw, other software
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Saturday, June 1, 2024

10:00 a.m.-12:30 p.m.	Saturday Seminar Series - Zoom
2:00 p.m.	River Boat Ride, Swimming, and Dining at Wakulla Springs, FL - Dr. Ed Hilinski

Weeks 2 - 10



	Date	Activity	Location, time
Week 2	T June 4	Photochemistry Café - Dr. Michael Shatruck	DLC 123, 9:00 a.m.
		Tour of Chemistry & Biochemistry Instrumentation Labs	DLC 123, 10:00 a.m.
	F June 7	REU Seminar - Ed Hilinski - discussion of research presentations	DLC 123, 3:30 p.m.
	Sa June 8	Coffee & Tea Conversations - Dr. Ed Hilinski at Black Dog Café	11:00 a.m.
Week 3	T June 11	Photochemistry Café – Dr. Biwu Ma - w/breakfast	DLC 123, 9:00 a.m.
	W June 12	Tour of the Magnet Lab at 10:00 a.m.	Tallahassee, FL
	F June 14	Photochemistry Café - Dr. Jack Saltiel	DLC 123, 3:30 p.m.
		REU Seminar (discussion of student research themes)	
	Sa June 8	Coffee & Tea Conversations - Dr. Ed Hilinski at Black Dog Café	11:00 a.m.
Week 4	T June 18	Tour of Nammo Perry Inc (depart at 7:30 am for tour at 9 am)	Perry, FL
	F June 21	REU Seminar (3-min student presentations: research themes)	DLC 123, 3:30 p.m.
	Sa June 22	Florida Caverns State Park - Dr. Ed Hilinski	2:00 p.m.
Week 5	T June 25	Photochemistry Café - Dr. Geoffrey Strouse	DLC 123, 9:00 a.m.
	F June 28	Photochemistry Café - Dr. Kenneth Hanson	DLC 123, 3:30 p.m.
		REU Seminar – Weekly Update with Ed Hilinski	
	Sa June 29	Coffee & Tea Conversations - Dr. Ed Hilinski at Black Dog Café	11:00 a.m.
Week 6	T July 2	Photochemistry Café - Dr. Kenneth Hanson - w/breakfast - Graduate School Demystified	DLC 123, 9:00 a.m.
	R July 4	Independence Day picnic (by invitation) 4:00 p.m.	DePrince Residence
	F July 5	FSU Closed in Observance of Independence Day	
Week 7	T July 9	Photochemistry Café - Dr. Lei Zhu - w/breakfast	DLC 123, 9:00 a.m.
	R July 11	Tyndall Air Force Base (depart 7:40 am EDT for a 10:00 am CDT tour)	Tyndall, FL
	F July 12	Photochemistry Café - Dr. Susan Lattuner	DLC 123, 3:30 p.m.
		REU Seminar - Dr. Ed Hilinski - weekly review and update	
	Sa July 13	Coffee & Tea Conversations - Dr. Ed Hilinski at Black Dog Café	11:00 a.m.

Weeks 2 - 10 (continued)

	Date	Activity	Location, time
Week 8	T July 16	Photochemistry Café - Dr. Bryan Kudisch - w/breakfast	DLC 123 9:00 a.m.
	F July 19	REU seminar (student 15-min research presentations)	DLC 123, 3:30 p.m.
		1. Elizabeth Holyat	
		2. Luke Jodoin	
		3. James Leone	
		4. Taylor Walker	
	Sa July 20	Coffee & Tea Conversations - Dr. Ed Hilinski at Black Dog Café	11:00 a.m.
Week 9	T July 23	Photochemistry Café - Dr. Igor Alabugin - w/breakfast	DLC 123, 9:00 a.m.
	T July 23	Dinner with REU Students, In-Lab Mentors & Faculty	Georgio's, 6:00 p.m.
	R July 25	REU seminar (student 15-min research presentations)	DLC 123, 3:30 p.m.
		5. Eduarda Stein Christ	
		6. Brody Farace	
		7. Cianna Chung	
		8. Tsion Lemi	
	F July 26	REU seminar (student 15-min research presentations)	DLC 123, 3:30 p.m.
		9. Airionna Fordham	
		10. Kaylee Head	
		11. Mariia Grebenkina	
		12. Corbin Frisvold	
	Sa July 27	Coffee & Tea Conversations - Dr. Ed Hilinski at Black Dog Café	11:00 a.m.
Week 10	T July 30	Photochemistry Café - Dr. Ed Hilinski - w/breakfast	DLC 123, 9:00 a.m.
	R Aug 1	Poster Session (student research presentations)	CSL lobby, 3:00 p.m..
	F Aug 2	Exit interviews and surveys	DLC 5 th Floor Conf. Rm.
	F Aug 2	REU seminar	DLC 123, 3:30 p.m.
		First Friday Festivities	6:30 p.m.
	Sa Aug 3	Coffee & Tea Conversations - Dr. Ed Hilinski at Black Dog Café	10:00 a.m.
	SaSu Aug 3-4	Student departures	



REU In-Lab Mentors Workshop

May 20, 2024 - Chemical Sciences Laboratory (CSL) Room 1005
with Drs. Bridget DePrince and Ed Hilinski



left to right: Michael Commodore; Lona Dutta; Justin Philips; Fernando Melo;
 Ethan Lambert; Dibya Mondal; Amir Zarei; Sahel Moslemi;
 Tarannuma Ferdous Manny; Sulthana Fehroza P.P.; Divya Kumar;
 Rachel Weiss Clark; Raul Ortega; Andrew Cantrell; Lucy Jenkins

After Arrival in Tallahassee... Finally Dinner !

May 26, 2024 – Liberty Bar & Restaurant, Tallahassee, Florida with Dr. Ed Hilinski



left to right: Tsion Lemi; Airionna Fordham; Kaylee Head; Brody Farace;
 James Leone; Luke Jodoin; Corbin Frisvold; Mariia Grebenkina;
 Taylor Walker; Elizabeth Holyat

The REU Participants Have Some Morning Beverages

May 27, 2024 - Black Dog Café, Tallahassee, Florida with Dr. Ed Hilinski



clockwise from 8 o'clock: Mariia Grebenkina; Kaylee Head; Elizabeth Holyat; Airionna Fordham; Taylor Walker; Brody Farace; James Leone; Luke Jodoin



Lunch at Midtown Caboose

May 27, 2024 – Midtown Caboose Restaurant, Tallahassee, Florida with Dr. Ed Hilinski



left to right: James Leone; Tsion Lemi; Airionna Fordham; Mariia Grebenkina; Brody Farace; Kaylee Head; Taylor Walker; Elizabeth Holyat; Luke Jodoin

Dinner at Midtown Noodles Bar

May 27, 2024 – Midtown Noodles Bar, Tallahassee, Florida with Dr. Ed Hilinski



left to right: James Leone; Corbin Frisvold; Elizabeth Holyat; Luke Jodoin; Brody Farace; Mariia Grebenkina; Tsion Lemi; Kaylee Head; Airionna Fordham; Taylor Walker; Cianna Chung



After Breakfast, Meeting with Faculty Advisors & In-lab Mentors, and Lab Tours... Lunch!

**May 28, 2024 – Kearney Osceola Grille, Tallahassee, Florida
with Drs. Ken Hanson, Bridget DePrince, and Ed Hilinski**



Some Outside Air before Cheesecake

May 28, 2024 – Bobby Bowden Field at Doak Campbell Stadium
outside the Kearney Osceola Grille, Tallahassee, Florida



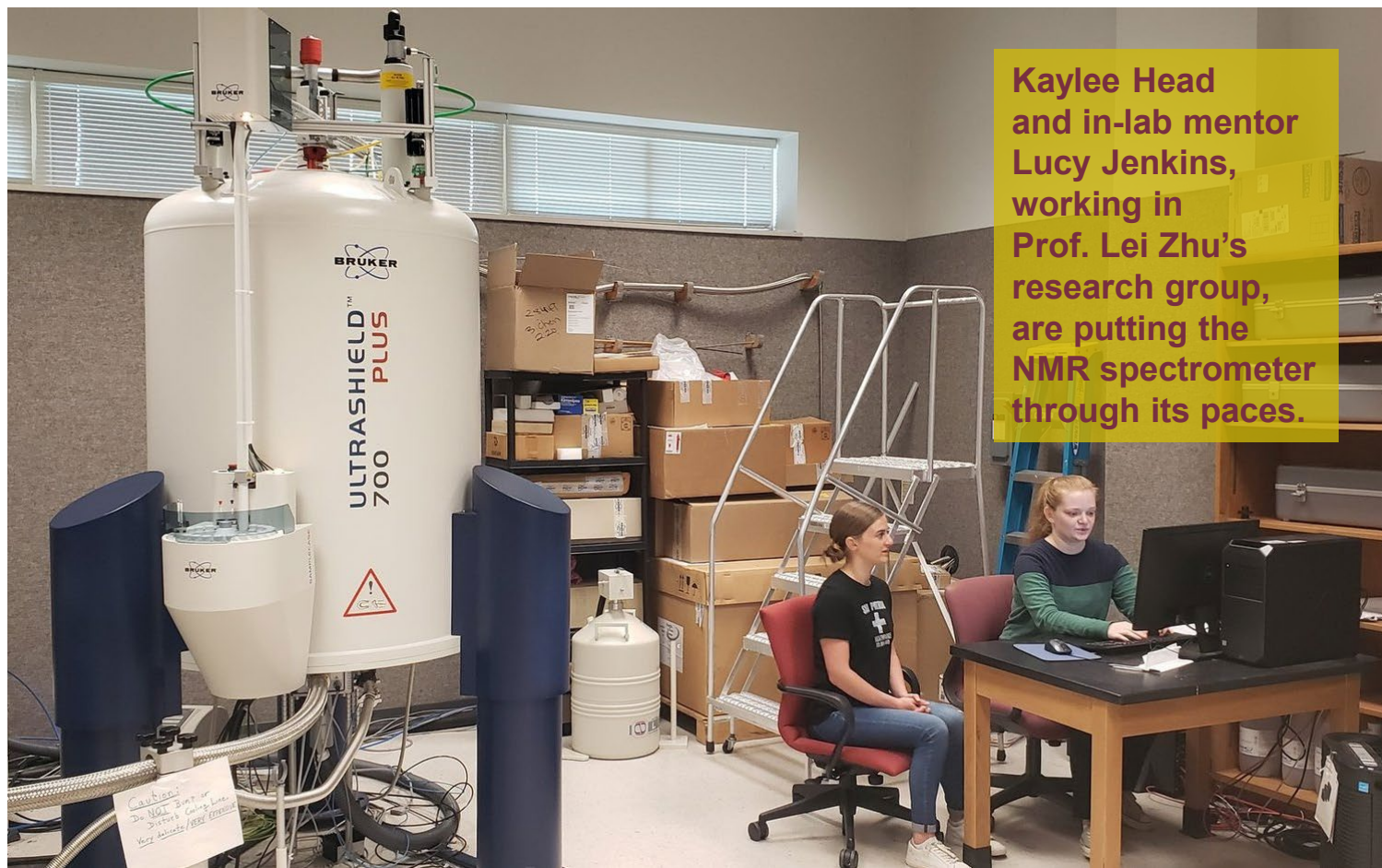
Back to Orientation... Safety Training

May 28, 2024 – DLC 123 with Ben Arline of FSU Environmental Health & Safety



Let the Work Begin!

May 29, 2024





Ice Cream Social

May 29, 2024 – 3:30 to 4:30 p.m. in the CSL Lobby

Everyone in the FSU Chemistry & Biochemistry Community is invited.



Ice Cream Social

May 29, 2024 – 3:30 to 4:30 p.m. in the CSL Lobby



REU Weekly Seminar

May 31, 2024 - DLC 123, 3:30-5:00 p.m. with Dr. Ed Hilinski

Entry survey, entry quiz, summary of the first week

Research ethics, lab culture, lab notebooks, expectations

Research resources, tutorials, learning beyond lab,

SciFinder Scholar, NMR training, ChemDraw, other software

<https://guides.lib.fsu.edu/c.php?g=352310&p=2380486>

<http://www.chem.fsu.edu/reu-links/>



Saturday Seminar Series: Light as Reagent and Product

Professor Robert S. H. Liu

Memorial Lectures (zoom)

Saturday, June 1, 2024

10:00 AM-12:30 PM (EDT)



Robert S. H. Liu
(1938-2024)



Prof. Jack Saltiel

Department of Chemistry and Biochemistry, Florida State University,
Tallahassee, Florida, USA

**The 2A state of 1,3-cyclohexadiene: is it
an intermediate in the 1B state
photochemical ring opening?**



Prof. Juan (Tito) Scaiano

Canada Research Chair in Applied Photochemistry,
Department of Chemistry, University of Ottawa, Ottawa, Canada

**Decatungstate photochemistry:
a wannabe carbonyl triplet**



Prof. Dario Bassani

Institut des Sciences Moléculaires - University of Bordeaux, France

**Fundamental and practical aspects
of double bond photoisomerization**

<https://miami.zoom.us/j/91076429404?pwd=b05scFV2SElVY3RmRUVJRTRxMVZ4Zz09>

Meeting ID: 910 7642 9404; Passcode: 868219

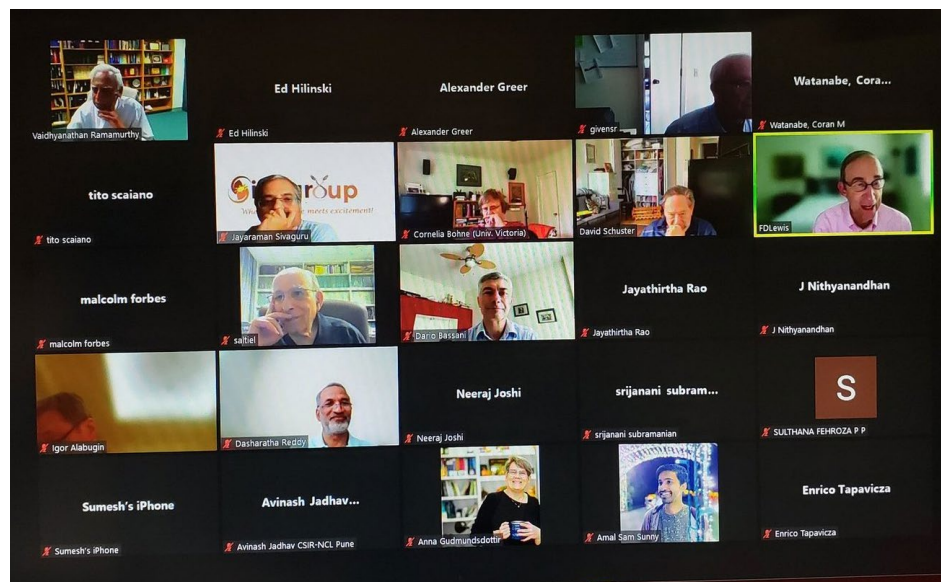
Group Watch Party Saturday Seminar Series: Light as Reagent and Product

<https://miami.zoom.us/j/91076429404?pwd=b05scFV2SElVY3RmRUVJRTRxMVZ4Zz09>

June 1, 2024

DLC 123, 10:00 a.m. – 1:00 p.m.

with Ed Hilinski

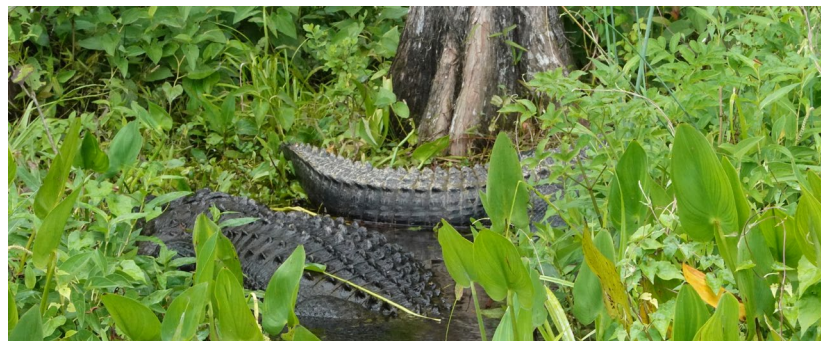


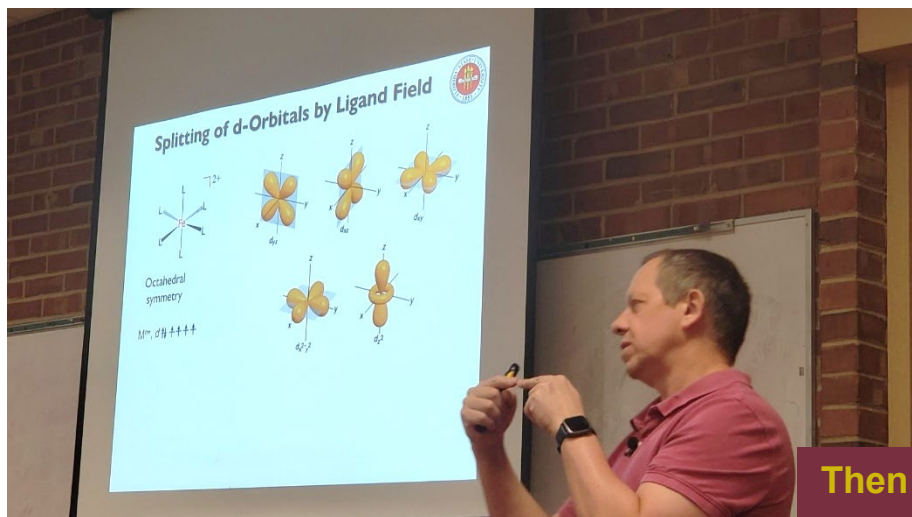


Trip to Wakulla Springs

www.floridastateparks.org/parks-and-trails/edward-ball-wakulla-springs-state-park

June 1, 2024
 Wakulla, Florida
 with Ed Hilinski





Photochemistry Café

“Bistability in Molecular Materials: From Spin-State Switching to Functional 2D Heterostructures”

<http://www.chem.fsu.edu/reu-links/>

Prof. Michael Shatruk

June 4, 2024, 9:00-10:00 a.m.
 DLC 123, Tallahassee, Florida



**Then on to a Tour of Departmental Instrumentation Labs
 with Prof. Kenneth Hanson**





REU Weekly Seminar

June 7, 2024 - DLC 123, 3:30-5:00 p.m.
with Drs. Ed Hilinski and Bridget DePrince

Second-week survey, summary of the second week
 Follow-up on: research ethics, lab culture, lab notebooks, expectations
 Overview about 3-minute & 15-minute oral presentations and poster presentations





NSF-REU: Sunshine Institute for the Interaction of Light with Matter

Department of Chemistry and Biochemistry, Florida State University



The REU Participants Have Some Morning Beverages

June 8, 2024 - Black Dog Café, Tallahassee, Florida with Drs. Ed Hilinski, Eugene DePrince & Wei Yang



An Afternoon at Lake Bradford

campusrec.fsu.edu/outdoors/reservation/

Live Lakefront Weather: <https://leon.weatherstem.com/fsurez>

June 8, 2024, FSU Lakefront Park, Tallahassee, Florida

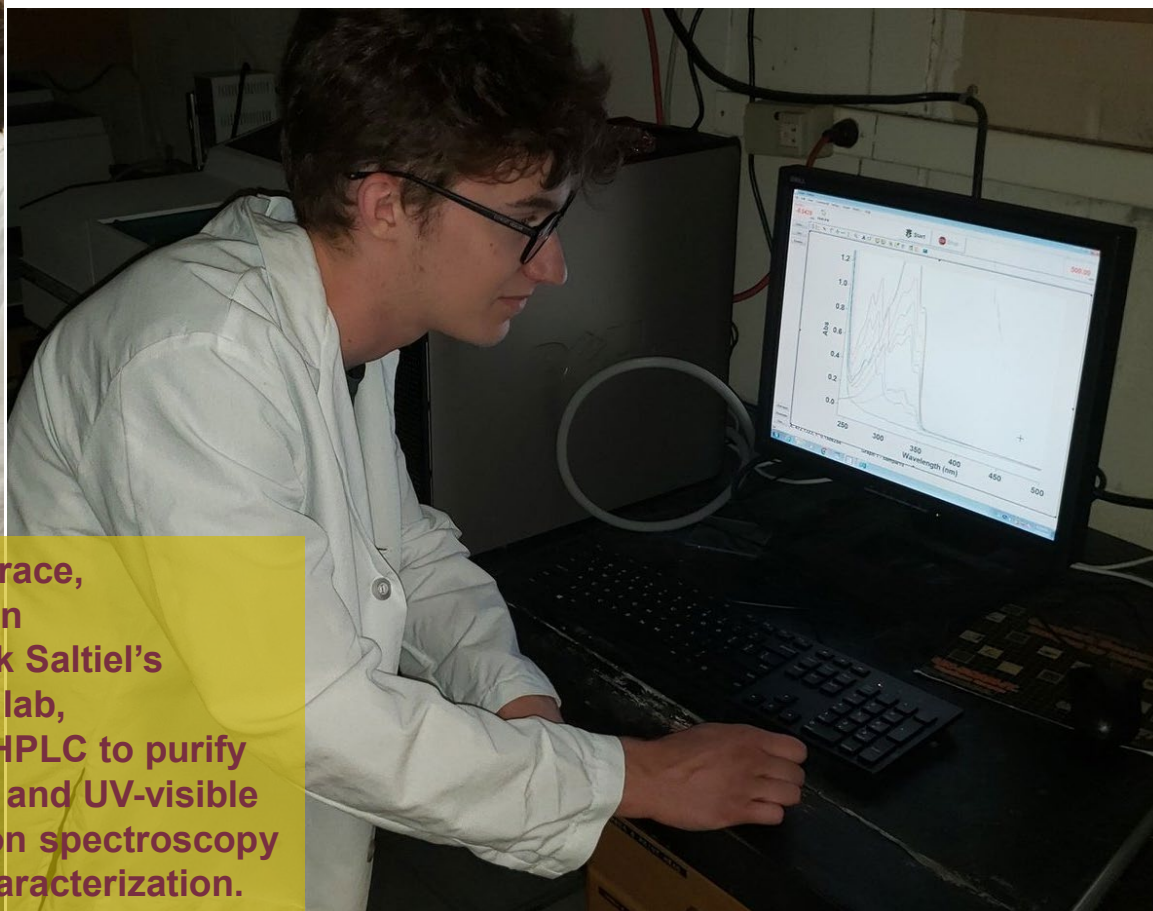


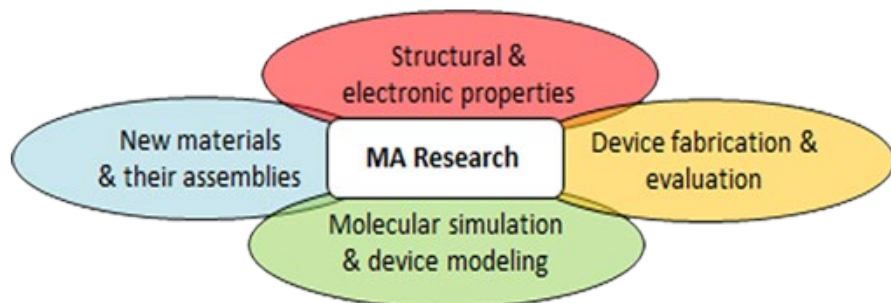
Multitasking in the Lab

June 10, 2024



Brody Farace,
 working in
 Prof. Jack Saltiel's
 research lab,
 is using HPLC to purify
 a sample and UV-visible
 absorption spectroscopy
 for its characterization.





Photochemistry Café

“Light Emitting Diodes Based on Metal Halide Perovskites and Beyond”

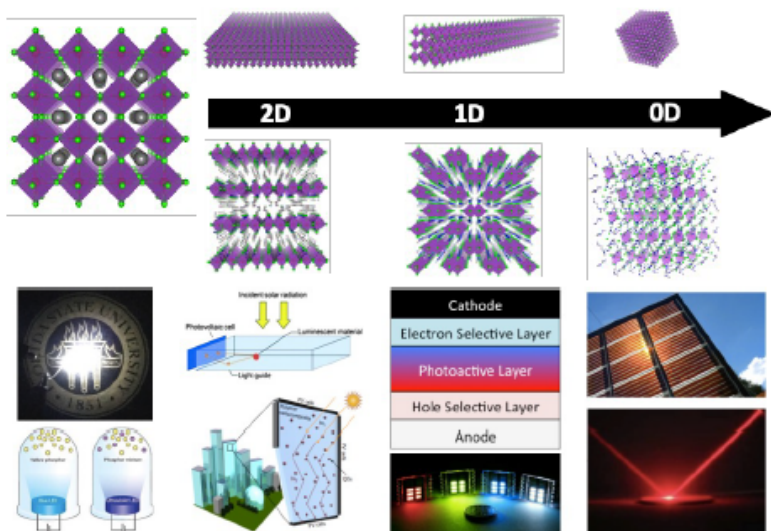
<http://www.chem.fsu.edu/reu-links/>

Prof. Biwu Ma

June 11, 2024, 9:00-10:00 a.m.
 DLC 123, Tallahassee, Florida



Metal Halide Perovskites and Beyond



Science Advances, 2020, 6, eaaz5961; *Nature Communications*, 2017, 8, 14051; 2020, 11, 4329; *JACS*, 2018, 140, 13181-13184; 2020, 142, 16001-16006; *Angew. Chem. Int. Ed.*, 2017, 56, 9018-9022; 2018, 57, 1021-1024; 2020, 59, 14120-14123; 2020, 59, 23067-23071; 2021, 133, 2515-2522; *Advanced Materials*, 2016, 28, 305-311; 2016, 28, 8983-8989; 2018, 30, 1707093; *ACS Energy Letters*, 2018, 3, 54-62; 2018, 3, 1443-1449; 2019, 4, 1579-1583; *Chemical Science*, 2017, 8, 8400-8404; 2018, 9, 586-593; *ACS Materials Letters*, 2019, 1, 594-498; 2020, 2, 376-380; 2020, 2, 633-638; *J. Phys. Chem. Lett.* 2018, 9, 2164-2169; 2019, 10, 5836-5840; 2019, 10, 5923-5928; 2021, 12, 8229-8236; *Materials Science & Engineering R*, 2019, 137, 38-65; *Advanced Optical Materials*, 2019, 7, 1801474; 2020, 9, 2001766; *Chemistry of Materials*, 2018, 30, 2374-2378; 2020, 32, 374-380





Getting Quizzed by Prof. Ma

<http://www.chem.fsu.edu/reu-links/>

June 11, 2024, 9:00-10:00 a.m.

DLC 123, Tallahassee, Florida



Tour of the National High Magnetic Field Laboratory

nationalmaglab.org/

June 12, 2023, 10:00-11:00 a.m. - Innovation Park, Tallahassee, Florida
 Depart from DLC 123 at 9:30 a.m. with Dr. Ed Hilinski



Tour of the National High Magnetic Field Laboratory

nationalmaglab.org/

June 12, 2023, 10:00-11:00 a.m. - Innovation Park, Tallahassee, Florida
 Depart from DLC 123 at 9:30 a.m. with Ed Hilinski and Carlos Villa





Lunch after the Mag Lab Tour

June 12, 2023, 11:30 a.m.-1:00 p.m.

Salty Dawg Pub and Deli, Tallahassee, Florida

<https://www.facebook.com/p/Salty-Dawg-Pub-and-Deli-100063995407700/>

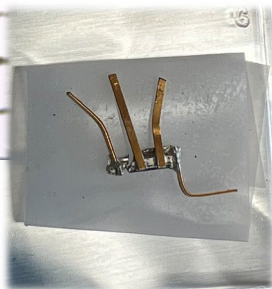
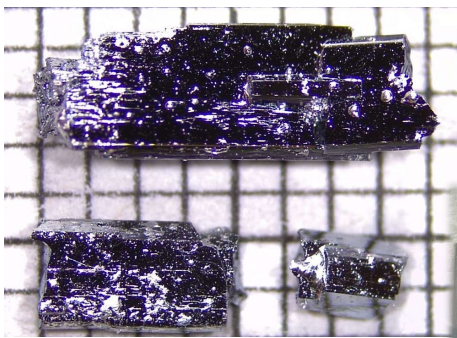


Having fun in the materials chemistry research lab!

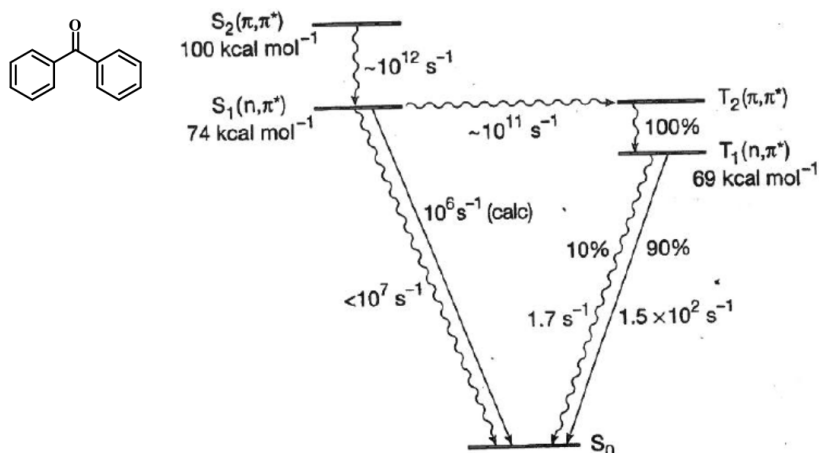
June 13, 2024



Taylor Walker, working in Prof. Susan Lattuner's research lab, is preparing, Isolating, and characterizing newly synthesized crystalline compounds.



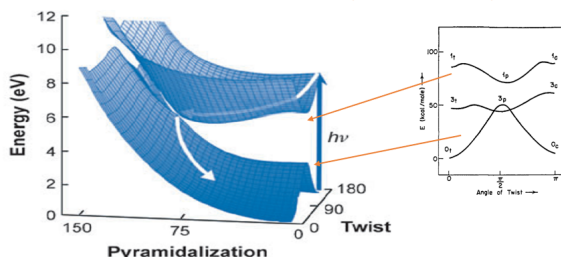
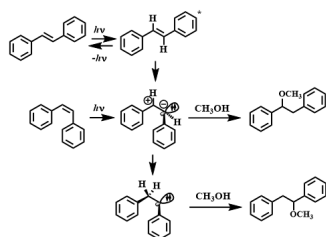
Benzophenone State Diagram



Bayrakçeken, F. (2008) *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy* 2008, 71(2), 603–608.

Multidimensional Isomerization – Conical Intersections – Trapping Twisted Intermediates

$$\vec{h}_{S_0S_1} = (E_1 - E_0)^{-1} \left\langle \psi_{S_0}^{el} \left| \frac{\partial \hat{H}}{\partial R} \right| \psi_{S_1}^{el} \right\rangle$$



Saltiel, J.; Gupta, S. Photochemistry of the Stilbenes in Methanol. Trapping the Common Phantom Singlet State. *J. Phys. Chem. A* **2018**, 122, 6089–6099.

B. G. Levine, T. J. Martinez. *Amu. Rev. Phys. Chem.* **2007**, 58, 613–34.

Photochemistry Café “Elementary Photophysical Transitions and Photochemical Reactions”

<http://www.chem.fsu.edu/reu-links/>

Prof. Jack Saltiel

June 14, 2024, 3:30–4:30 p.m.
DLC 123, Tallahassee, Florida



Photochemistry Café

“Elementary Photophysical Transitions and Photochemical Reactions”

<http://www.chem.fsu.edu/reu-links/>

Prof. Jack Saltiel

June 14, 2024, 3:30-4:30 p.m., DLC 123, Tallahassee, Florida



Followed by the **REU Weekly Seminar**

June 14, 2024 - DLC 123, 4:45-5:15 p.m.

with Dr. Ed Hilinski

Summary of and discussion about the third week



The REU Participants Catching Some Shade

June 15, 2024 - Black Dog Café, Tallahassee, Florida with Dr. Ed Hilinski



Happy Birthday, Elizabeth!

June 17, 2024 – DLC 123, Tallahassee, Florida with
 Drs. Ed Hilinski, Bryan Kudisch, and Jack Saltiel

Black Forest Cake from
Au Pêché Mignon French Pastry Shop
<https://www.frenchpastrytallahassee.com/>

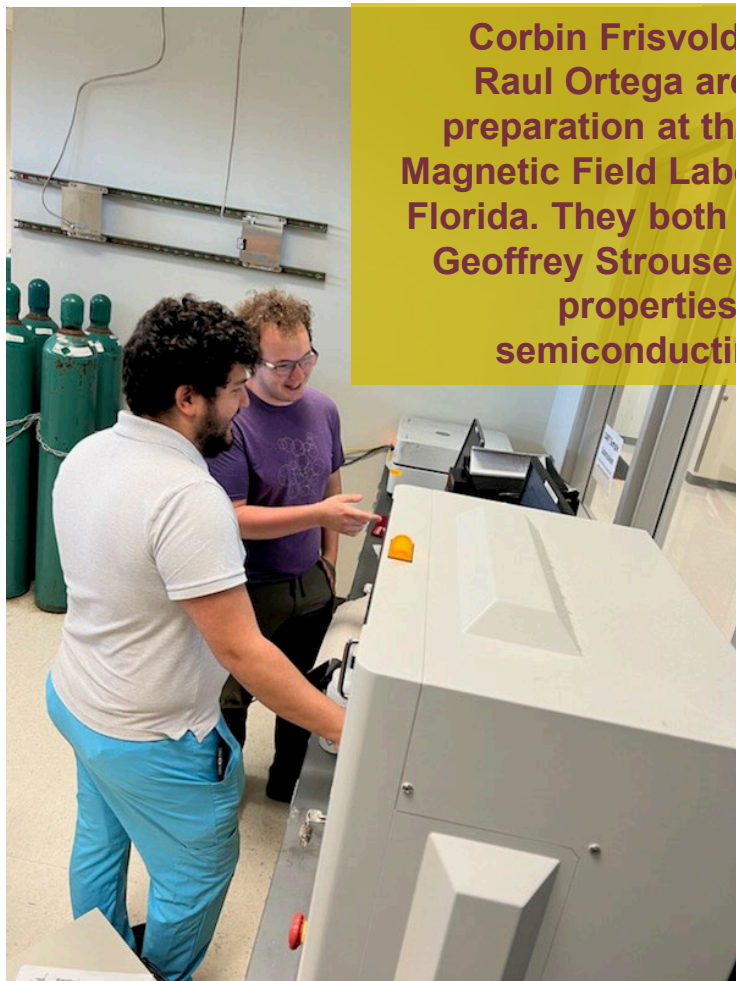


The Samples Are Ready for Measurements

June 17, 2024



Corbin Frisvold and in-lab mentor Raul Ortega are finalizing sample preparation at the NSF National High Magnetic Field Laboratory in Tallahassee, Florida. They both are working with Prof. Geoffrey Strouse on studies of carrier properties in plasmonic semiconducting nanocrystals.





Visit to Nammo Perry Inc

<https://www.nammo.com/location/perry/>

June 18, 2024 - Perry, Florida

(depart 7:30 a.m. EDT for 9:00 a.m. EDT tour)

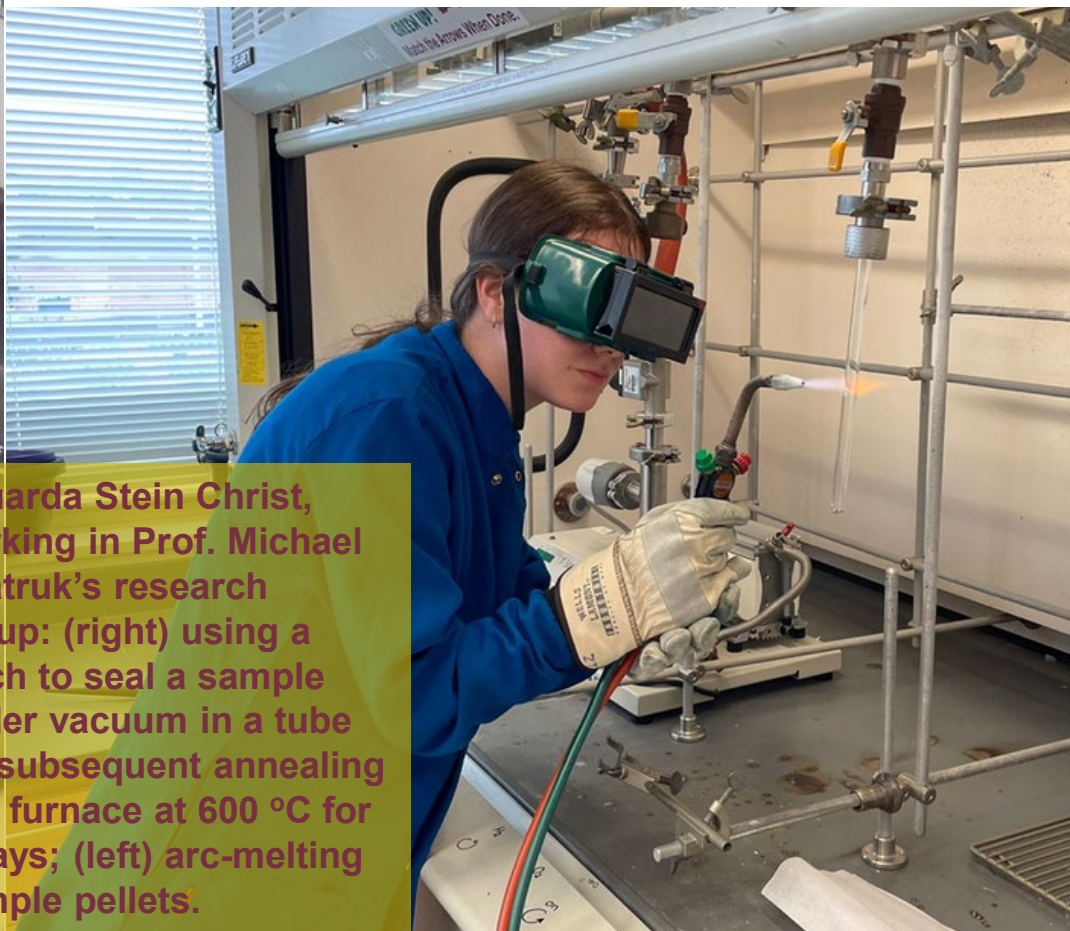


If You Think It's Hot Outside...

June 20, 2024



Eduarda Stein Christ, working in Prof. Michael Shatruk's research group: (right) using a torch to seal a sample under vacuum in a tube for subsequent annealing in a furnace at 600 °C for 5 days; (left) arc-melting sample pellets.



REU Weekly Seminar

Student Research Presentations: Introductory Overviews

moderated by Ed Hilinski
 June 21, 2024 - DLC 123, 3:30-5:00 p.m.
(in order of presentation)



Student Research Presentation – Introductory Overview **“Research Intro”**

Luke Jodoin – University of Arkansas-Fort Smith
Ethan Lambert & Prof. Kenneth Hanson - Florida State University
 June 21, 2024 - DLC 123, Tallahassee, Florida



Student Research Presentation – Introductory Overview

“Investigation of Photoinduced Conversion of the Tetrathiophenalenyl Radical (TTPLY)”

Mariia Grebenkina – Ithaca College



Divya Kumar, Dibya Mondal & Prof. Michael Shatruk - Florida State University

June 21, 2024 - DLC 123, Tallahassee, Florida

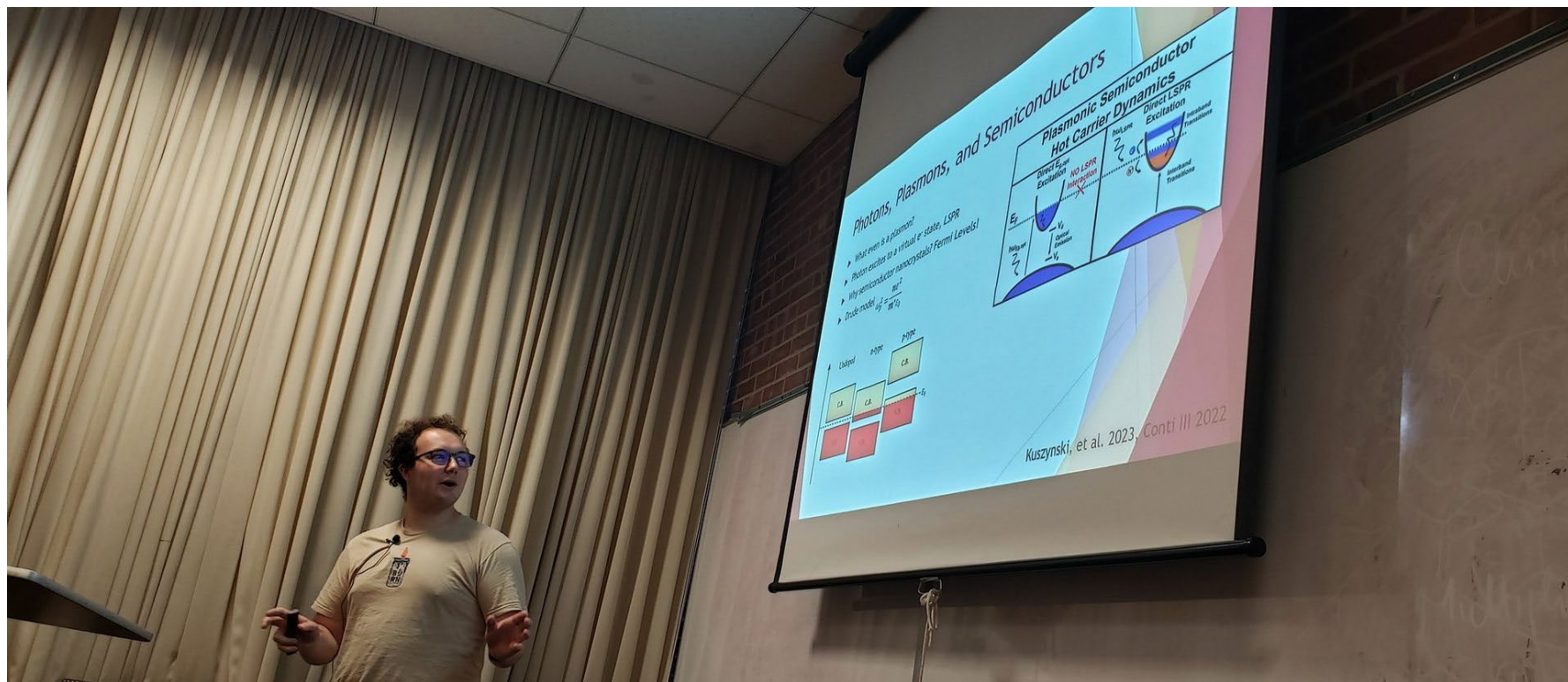


Student Research Presentation – Introductory Overview “Investigating Carrier Mobility Through Doped Plasmonic Semiconductor Nanocrystals”

Corbin Frisvold – Kutztown University

Andrew Cantrell, Raul Ortega & Prof. Geoffrey Strouse - Florida State University

June 21, 2024 - DLC 123, Tallahassee, Florida



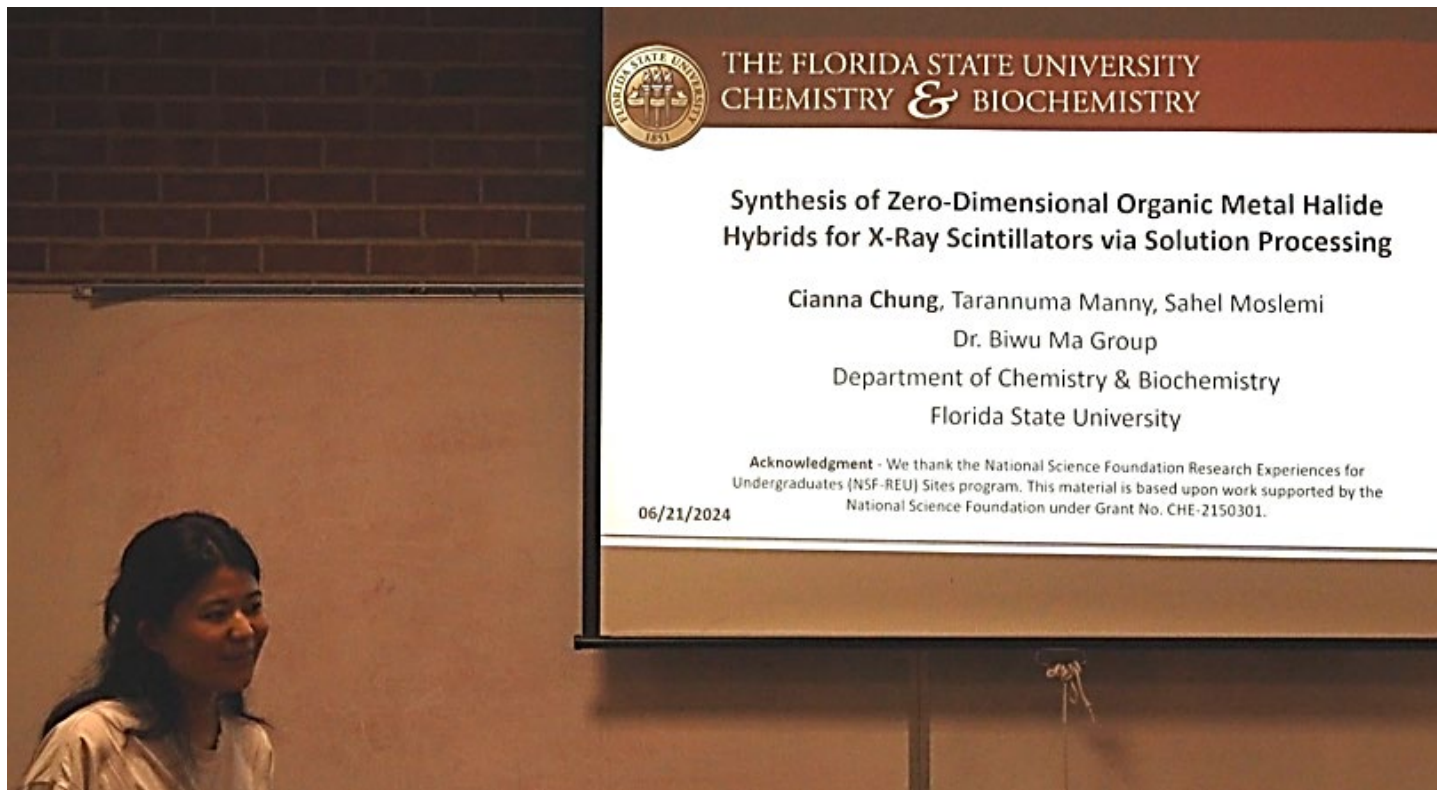
Student Research Presentation – Introductory Overview


“Synthesis of Zero-Dimensional Organic Metal Halide Hybrids for X-ray Scintillators via Solution Processing”

Cianna Chung – Ursinus College

Tarannuma Ferdous Manny, Sahel Moslemi & Prof. Biwu Ma - Florida State University

June 21, 2024 - DLC 123, Tallahassee, Florida



 THE FLORIDA STATE UNIVERSITY
 CHEMISTRY & BIOCHEMISTRY

Synthesis of Zero-Dimensional Organic Metal Halide Hybrids for X-Ray Scintillators via Solution Processing

Cianna Chung, Tarannuma Manny, Sahel Moslemi
 Dr. Biwu Ma Group
 Department of Chemistry & Biochemistry
 Florida State University

Acknowledgment - We thank the National Science Foundation Research Experiences for Undergraduates (NSF-REU) Sites program. This material is based upon work supported by the National Science Foundation under Grant No. CHE-2150301.

06/21/2024

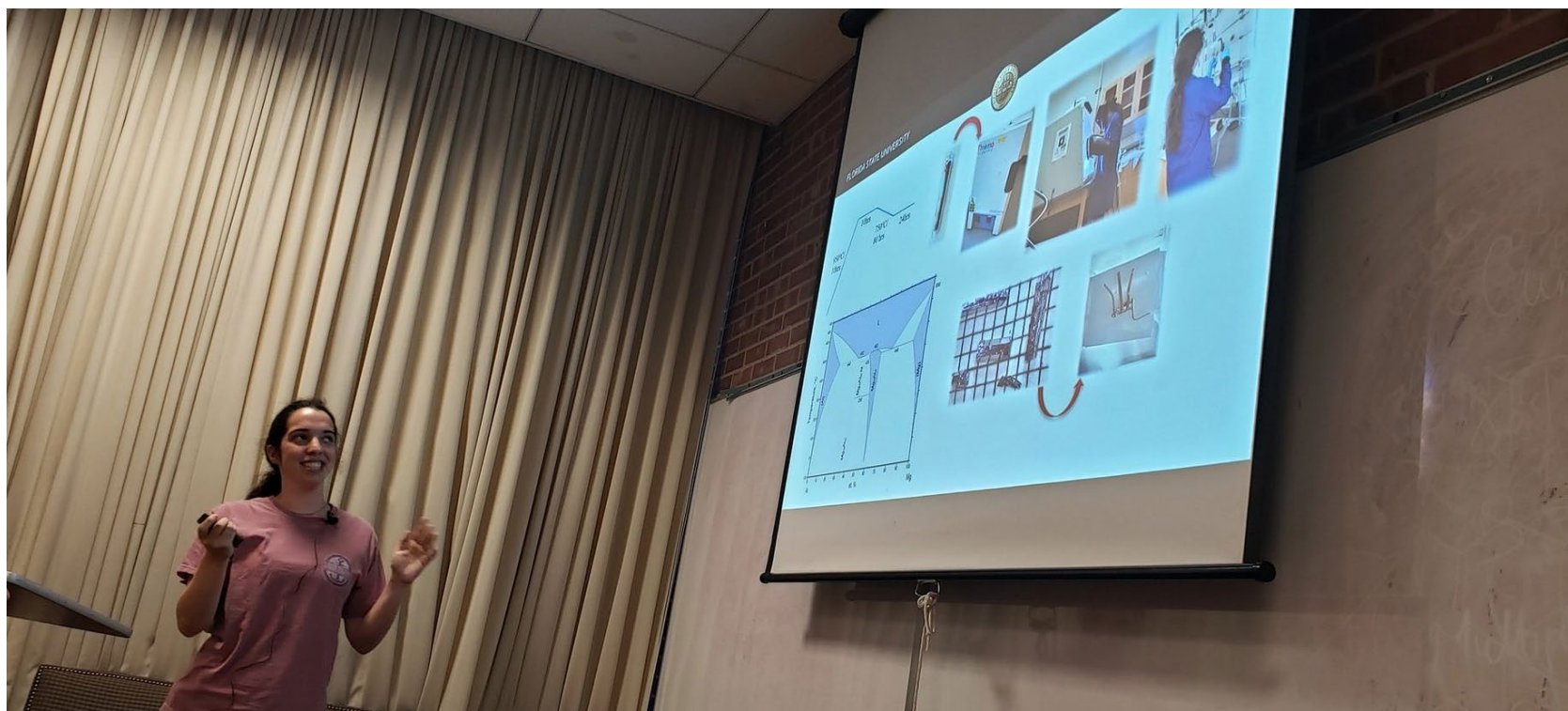


Student Research Presentation – Introductory Overview **“Synthesis and Characterization of Ba/Ca Mg Silicide Zintl Phase from Mg Flux”**

Taylor Walker – Misericordia University

Amir Zarei & Prof. Susan Lattuner - Florida State University

June 21, 2024 - DLC 123, Tallahassee, Florida



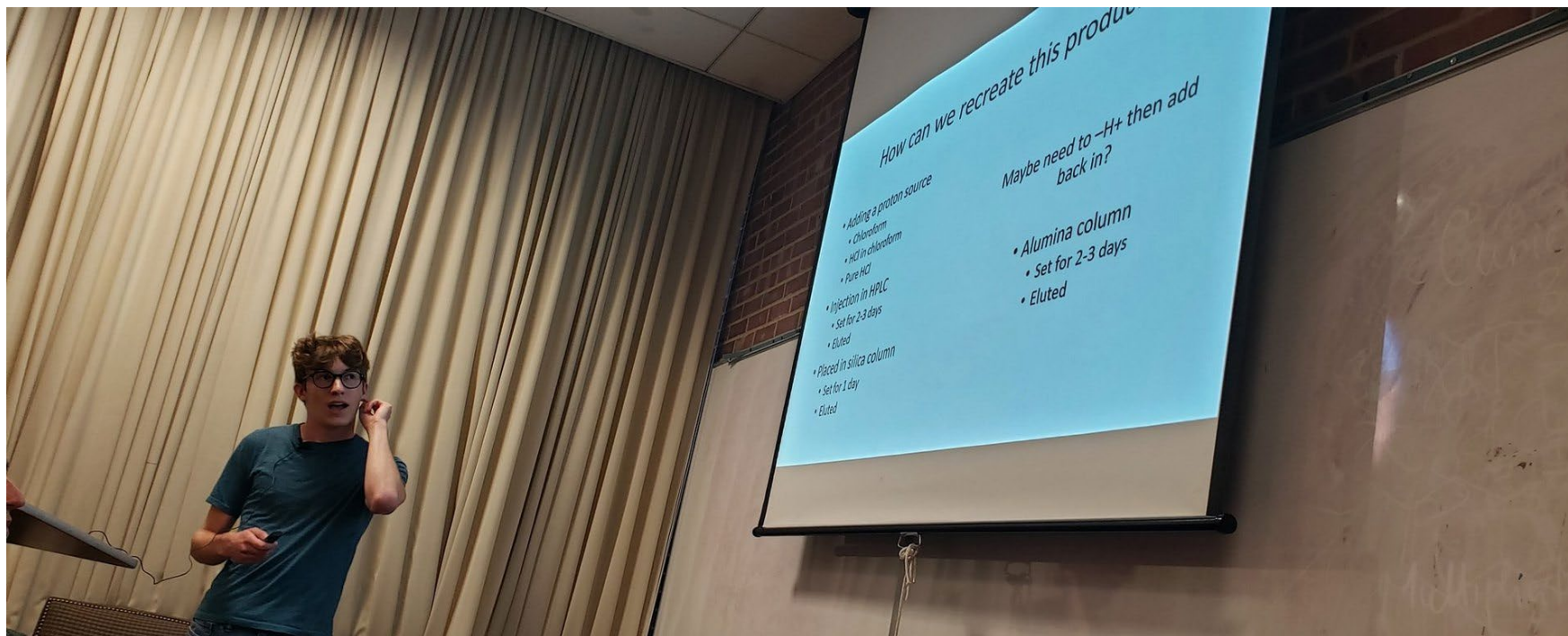
Student Research Presentation – Introductory Overview “Synthetic Pathways to Photoactive Organic Molecules”



Brody Farace – Lafayette College

Sulthana Fehroza P.P., Fernando Melo & Prof. Jack Saltiel - Florida State University

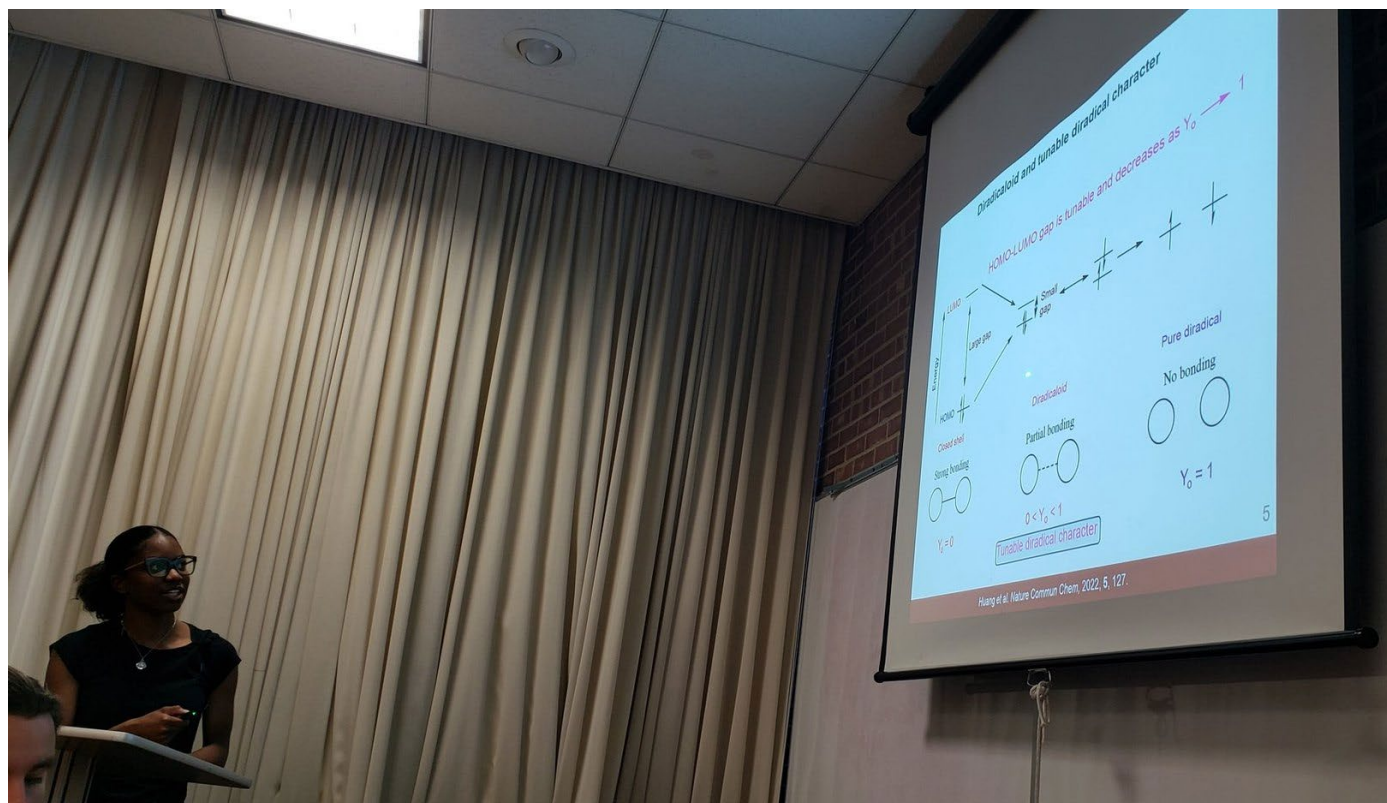
June 21, 2024 - DLC 123, Tallahassee, Florida



Student Research Presentation – Introductory Overview

“Synthesis and Characterization of Organic Diradical Molecules”

Airionna Fordham – Valdosta State University
Michael Commodore, Lona Dutta & Prof. Igor Alabugin - Florida State University
June 21, 2024 - DLC 123, Tallahassee, Florida



Student Research Presentation – Introductory Overview

“Photochemical Transformation of Coumarin-Substituted Triazoles to Pyrrolocoumarin Compounds”

Kaylee Head – Samford University

Lucy Jenkins & Prof. Lei Zhu - Florida State University

June 21, 2024 - DLC 123, Tallahassee, Florida



Student Research Presentation – Introductory Overview

“Investigation of BiCl_5^{2-} as a Photocatalyst”

Elizabeth Holyat – SUNY Binghamton University

Rachel Weiss Clark & Prof. Bryan Kudisch - Florida State University

June 21, 2024 - DLC 123, Tallahassee, Florida



Student Research Presentation – Introductory Overview

“Light-Induced Switching in Iron(III) Complexes with Tridentate Schiff-Base Ligands”



Tsion Lemi – University of Maryland, Baltimore County

Divya Kumar, Dibya Mondal & Prof. Michael Shatruk - Florida State University

June 21, 2024 - DLC 123, Tallahassee, Florida



Student Research Presentation – Introductory Overview “Vibronic Coupling to Hybrid Light-Matter States”

James Leone – Hendrix College

Justin Phillips & Prof. A. Eugene DePrince - Florida State University

June 21, 2024 - DLC 123, Tallahassee, Florida



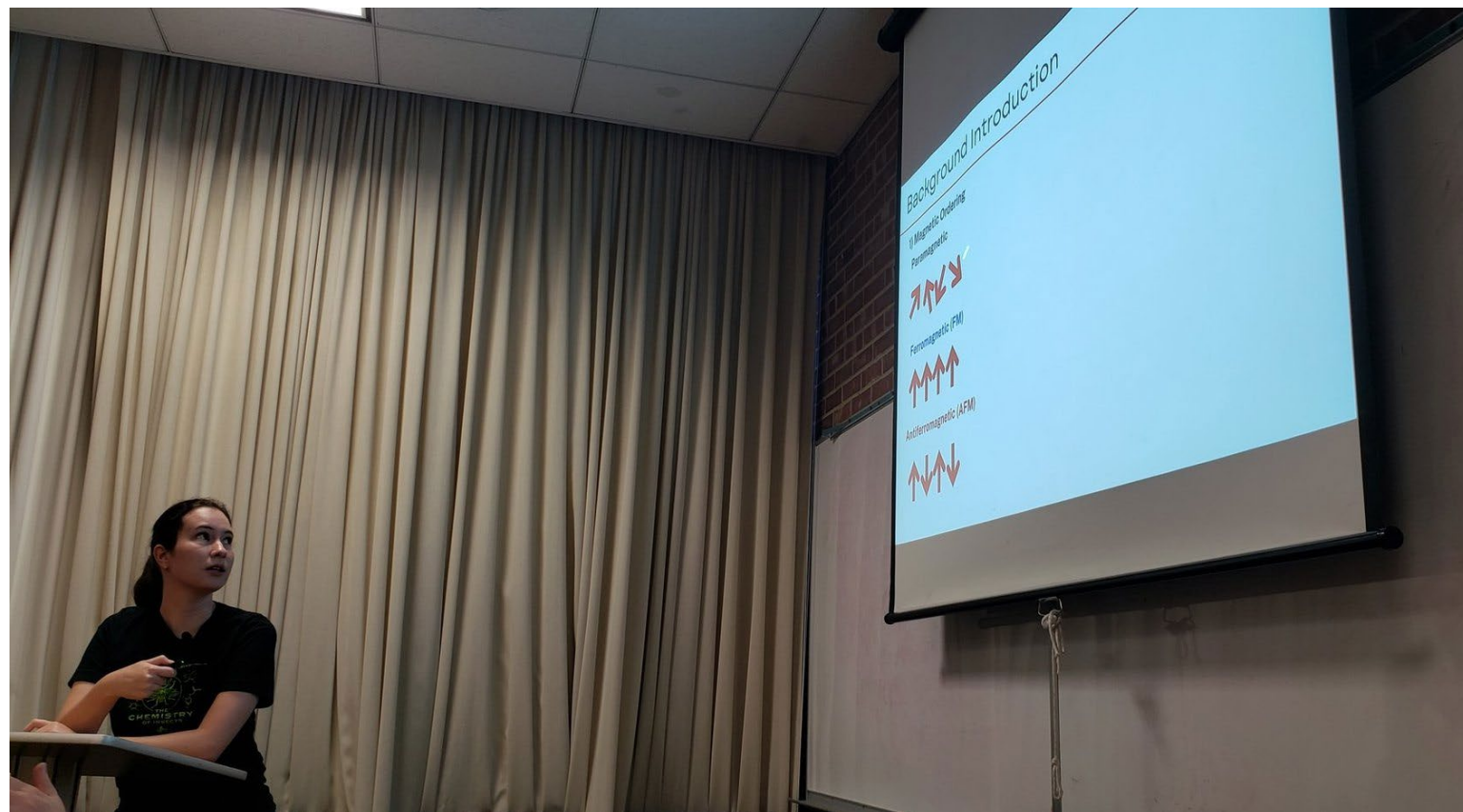
Student Research Presentation – Introductory Overview

“Mapping of Magnetic Ordering in Zr Kagome Solid Solutions”

Eduarda Stein Christ – Texas Lutheran University

Victoria Li & Prof. Michael Shatruk - Florida State University

June 21, 2024 - DLC 123, Tallahassee, Florida



Cool Times at Florida Caverns State Park

<https://www.floridastateparks.org/parks-and-trails/florida-caverns-state-park>

June 22, 2024 - Marianna, Florida with Dr. Ed Hilinski



**Civilian Conservation Corps (CCC)
 Statue at Florida Caverns State Park**

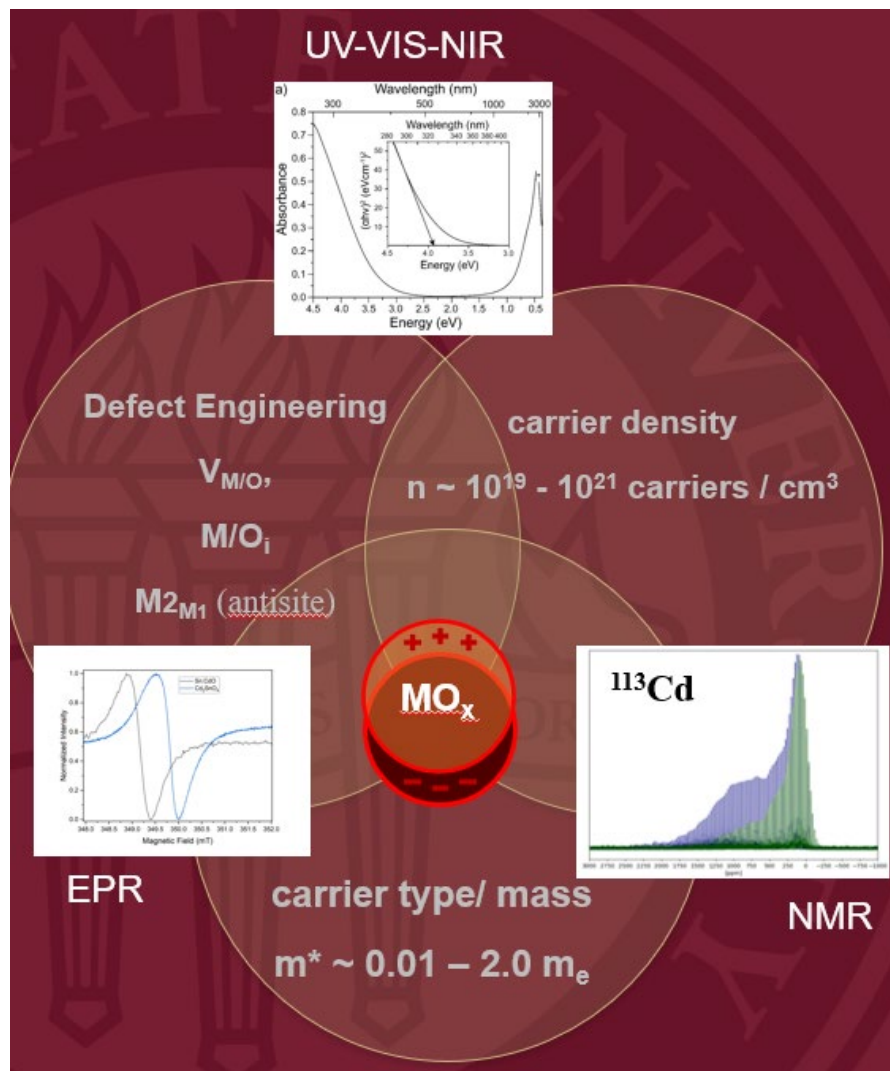


After the Caverns, Taqueria Miranda

<https://taqueriamirandatallahassee.fl.com/>

June 22, 2024 - Tallahassee, Florida with Dr. Ed Hilinski





Photochemistry Café

“Plasmonic Metal Oxide Nanocrystals: How a Semiconductor Acts Like a Metal”



<http://www.chem.fsu.edu/reu-links/>

Prof. Geoffrey Strouse

June 25, 2024, 9:00-10:00 a.m.

DLC 123, Tallahassee, Florida





Photochemistry Café **“Plasmonic Metal Oxide Nanocrystals: How a Semiconductor Acts Like a Metal”**



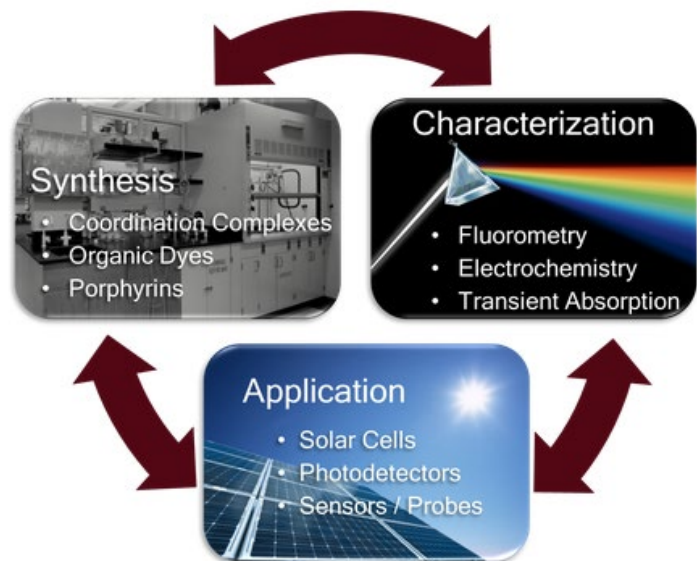
<http://www.chem.fsu.edu/reu-links/>

Prof. Geoffrey Strouse

June 25, 2024, 9:00-10:00 a.m.

DLC 123, Tallahassee, Florida





Photochemistry Café

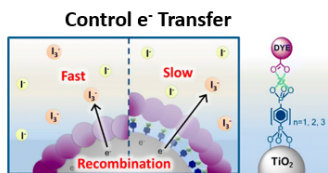
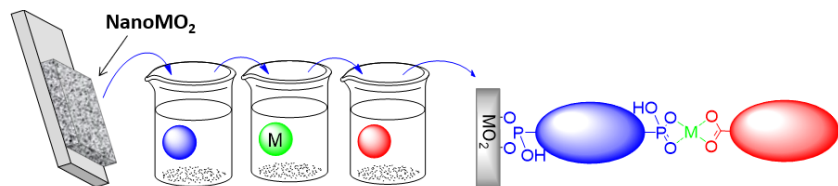
“Understanding and Controlling Molecular Excited State Processes Using Metal Oxide Surfaces”

<http://www.chem.fsu.edu/reu-links/>

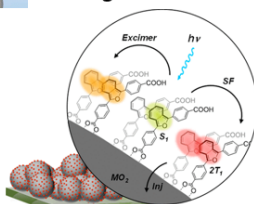
Prof. Kenneth Hanson

June 28, 2024, 3:30-4:30 p.m.

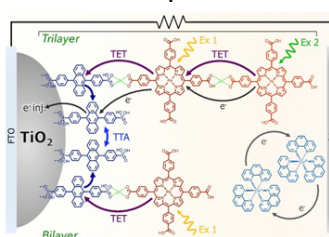
DLC 123, Tallahassee, Florida



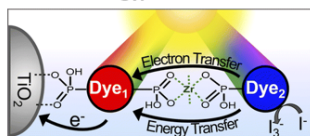
Singlet Fission

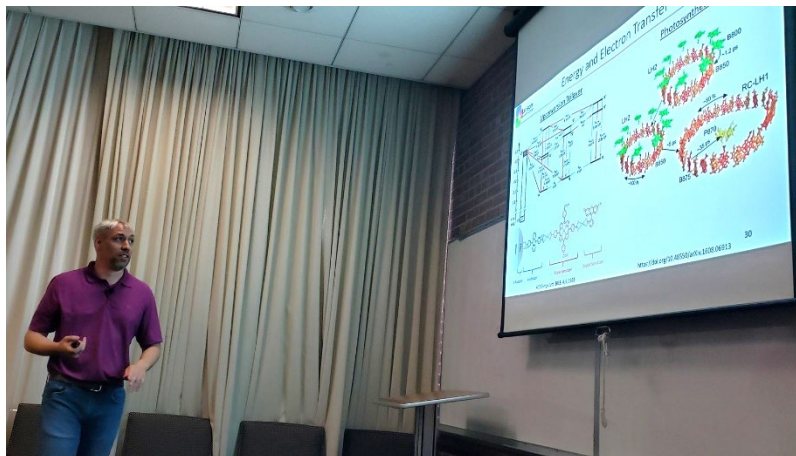


Photon Upconversion



Energy/e- Cascade





Photochemistry Café

“Understanding and Controlling Molecular Excited State Processes Using Metal Oxide Surfaces”

<http://www.chem.fsu.edu/reu-links/>

Prof. Kenneth Hanson

June 28, 2024, 3:30-4:30 p.m.
 DLC 123, Tallahassee, Florida



REU Weekly Seminar

June 28, 2024 - DLC 123, 4:30 p.m. with Dr. Ed Hilinski
Discussion about activities of the preceding week and research





On the Deck and Conversing

**June 29, 2024 - Black Dog Café,
Tallahassee, Florida
with Drs. Wei Yang and Ed Hilinski**



Photochemistry Café “Graduate School Demystified”

<http://www.chem.fsu.edu/reu-links/>

Prof. Kenneth Hanson

July 2, 2024, 9:00-10:00 a.m.
DLC 123, Tallahassee, Florida



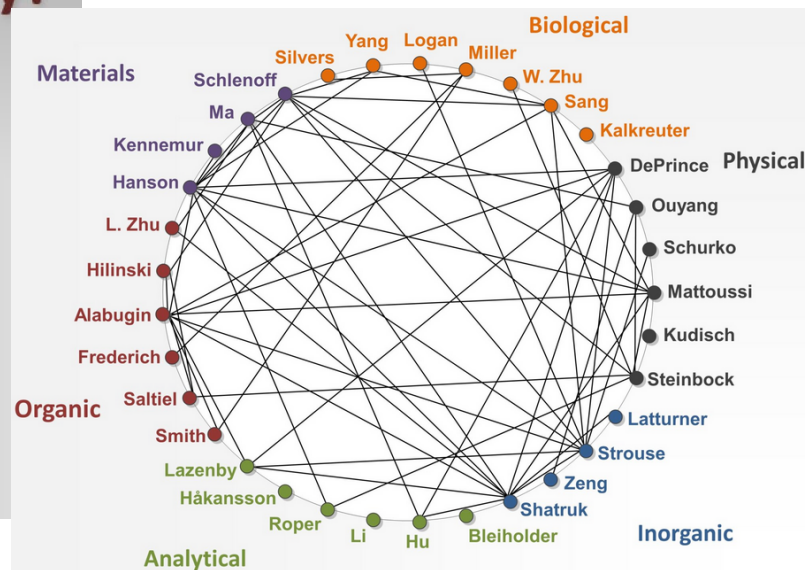
Graduate School Demystified: Outline

- 1) Application timeline
- 2) Deciding where to apply
- 3) The application/admission process
- 4) Graduate school timeline
- 5) Graduate school summary
- 6) After your Ph.D.



Where to Apply?

- Location
- Salary
- Department
- Resources
- Research





Photochemistry Café “Graduate School Demystified”

<http://www.chem.fsu.edu/reu-links/>

Prof. Kenneth Hanson

July 2, 2024, 9:00-10:00 a.m.
 DLC 123, Tallahassee, Florida



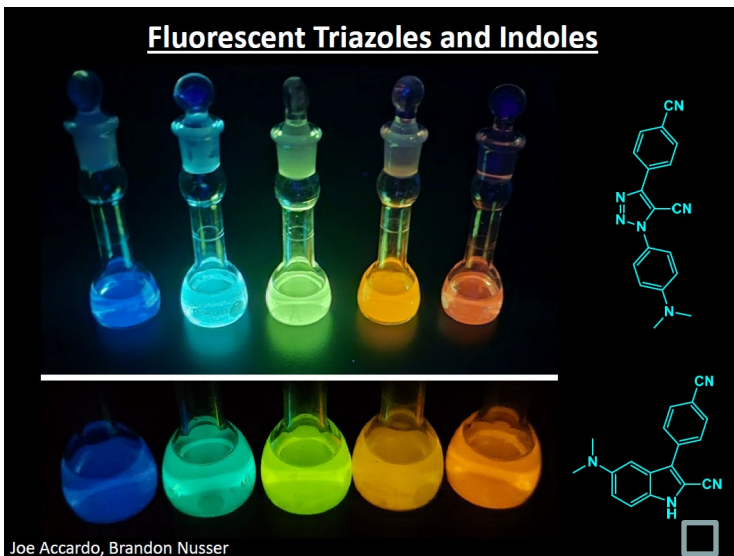
Independence Day Picnic

July 4, 2024

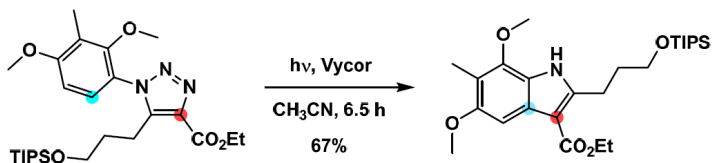
The DePrince Residence



Fluorescent Triazoles and Indoles



An early example of triazole photoconversion to indole



Light source?

Reaction vessel?

Concentration?

Wender and Cooper, *Tetrahedron Lett.* **1987**, 28, 6125-6128.

Photochemistry Café “Fluorescent Organic Molecules”

<http://www.chem.fsu.edu/reu-links/>

Prof. Lei Zhu

July 9, 2024, 9:00-10:00 a.m.
DLC 123, Tallahassee, Florida



Photochemistry Café “Fluorescent Organic Molecules”

<http://www.chem.fsu.edu/reu-links/>

Prof. Lei Zhu

July 9, 2024, 9:00-10:00 a.m.
DLC 123, Tallahassee, Florida



Trip to Tyndall Air Force Base

www.tyndall.af.mil

July 11, 2024

(depart 7:40 a.m. EDT for a 10:00 a.m. CDT tour)





... On to Mexico Beach, Florida

<https://mexicobeach.com/>

July 11, 2024



... Back to Tallahassee and Taqueria Miranda

<https://taqueriamirandatallahassee.fl.com/>

July 11, 2024 - Tallahassee, Florida with Dr. Ed Hilinski

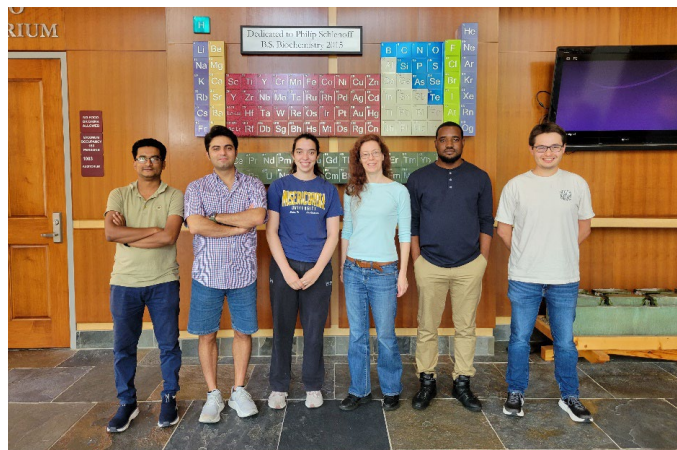
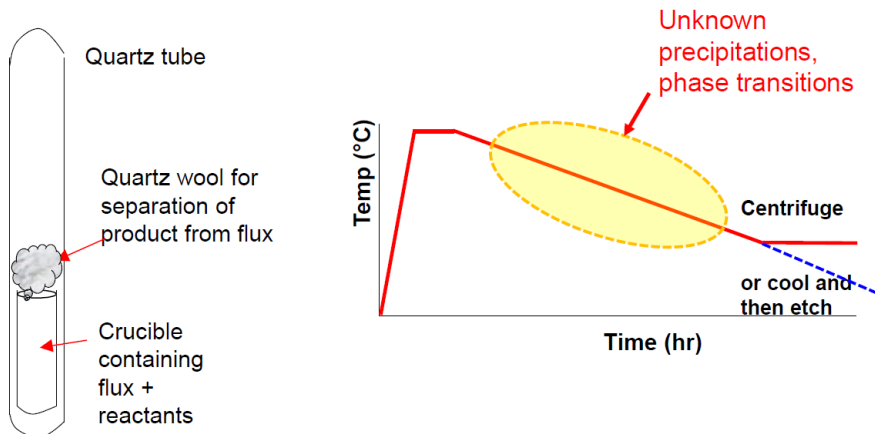


Metal Flux Synthesis

Combine reactants, add excess amount of suitable flux metal

Heat above mp of flux, slowly cool

Centrifuge while flux still molten



Photochemistry Café “Growth of Metal Silicides from Metal Flux Reactions”

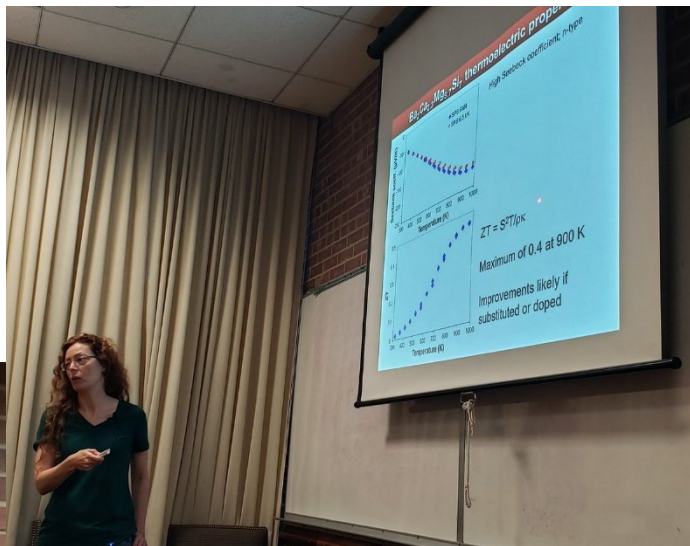
<http://www.chem.fsu.edu/reu-links/>

Prof. Susan Latturner

July 12, 2024, 3:30-4:30 p.m.

DLC 123, Tallahassee, Florida





Photochemistry Café

“Growth of Metal Silicides from Metal Flux Reactions”

<http://www.chem.fsu.edu/reu-links/>

Prof. Susan Latturner

July 12, 2024, 3:30-4:30 p.m.



REU Weekly Seminar

July 12, 2024 - DLC 123, 4:30 p.m. with Dr. Ed Hilinski

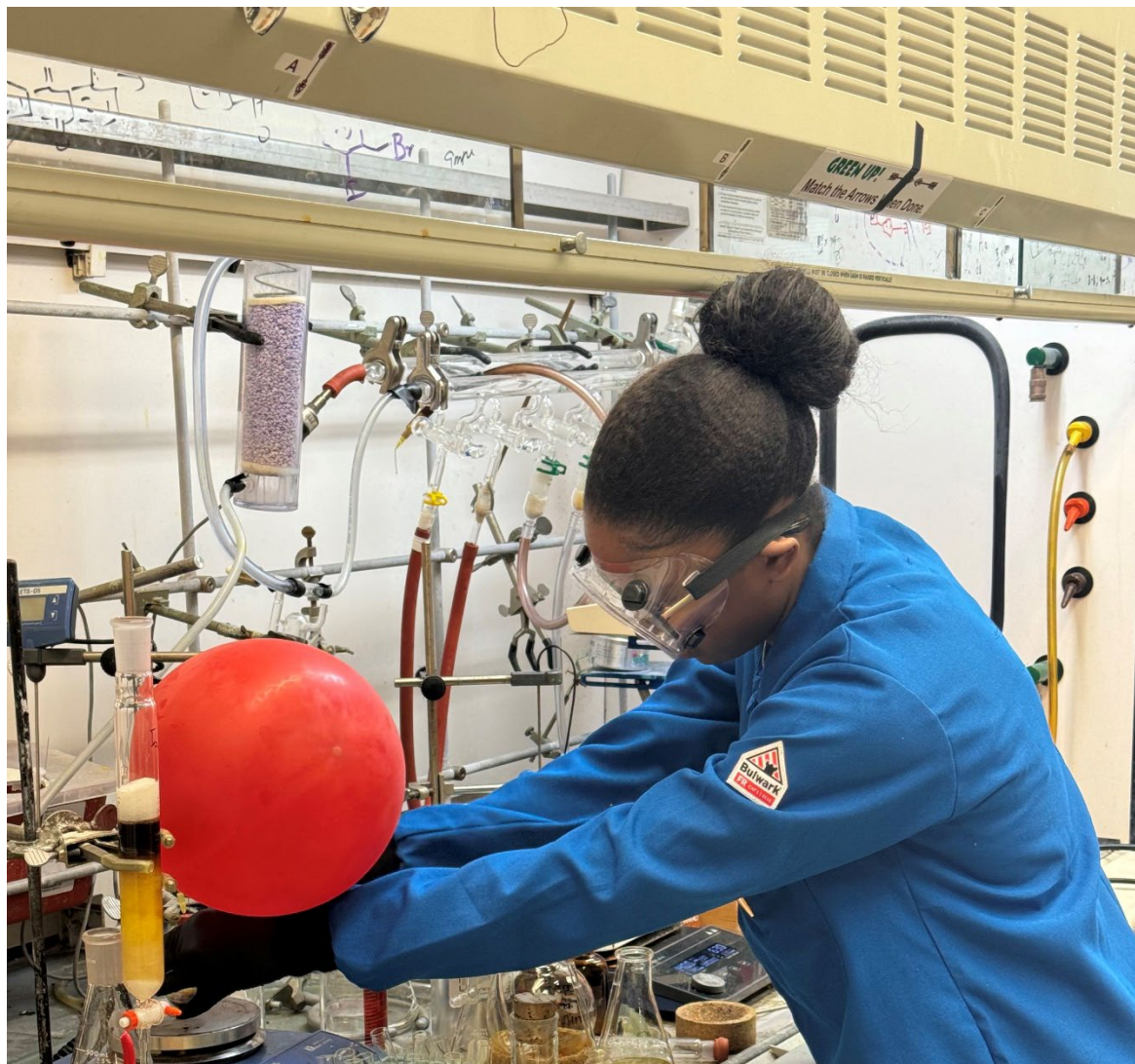
Discussion about activities of the preceding week and research



Cooling Down Under the Oaks

July 13, 2024 - Black Dog Café, Tallahassee, Florida with Dr. Ed Hilinski



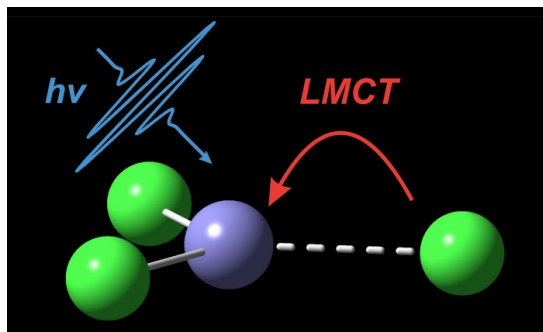


Controlling the atmosphere for a successful outcome

July 13, 2024



Airionna Fordham, working in Prof. Igor Alabugin's research group, is setting up an air-sensitive organic reaction for her studies on syntheses and characterizations of organic diradicals.



Photochemistry Café

“Research in the Kudisch Laboratory: Introduction to Photochemical and Photophysical Dynamics and Kinetics”

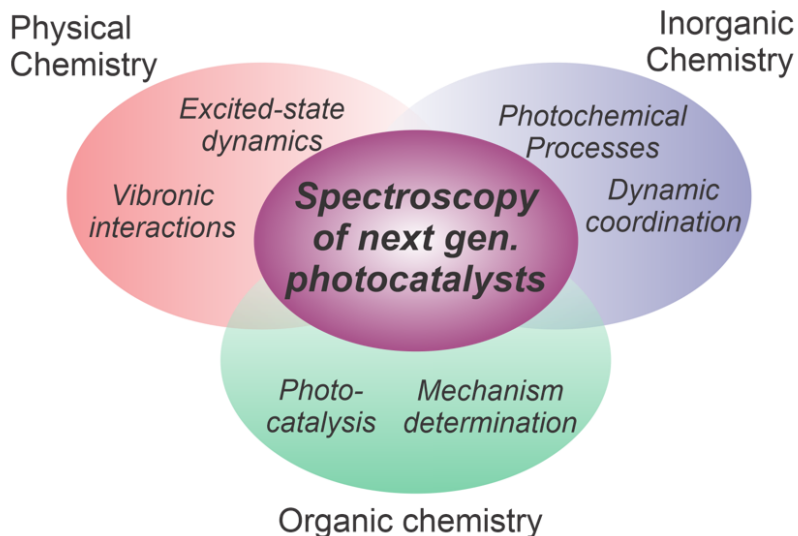
<http://www.chem.fsu.edu/reu-links/>

Prof. Bryan Kudisch

July 16, 2023, 9:00-10:00 a.m.
DLC 123, Tallahassee, Florida



At the intersection of physical, organic, and inorganic chemistry



Photochemistry Café

“Research in the Kudisch Laboratory: Introduction to Photochemical and Photophysical Dynamics and Kinetics”

<http://www.chem.fsu.edu/reu-links/>

Prof. Bryan Kudisch

July 16, 2023, 9:00-10:00 a.m., DLC 123, Tallahassee, Florida



Student Research Presentation

“Investigation of BiCl_5^{2-} as a Photocatalyst”

Elizabeth Holyat – SUNY Binghamton University

Rachel Weiss Clark & Prof. Bryan Kudisch - Florida State University

July 19, 2024 - DLC 123, Tallahassee, Florida



Student Research Presentation

“Increasing $\text{Fe}(\text{bpy})_3^{2+}$ Excited-State Lifetime Through Surface Coordination”

Luke Jodoin – University of Arkansas-Fort Smith

Ethan Lambert & Prof. Kenneth Hanson - Florida State University

July 19, 2024 - DLC 123, Tallahassee, Florida



Student Research Presentation

“Vibronic Coupling to Hybrid Light-Matter States”

James Leone – Hendrix College

Justin Phillips & Prof. A. Eugene DePrince - Florida State University

July 19, 2024 - DLC 123, Tallahassee, Florida



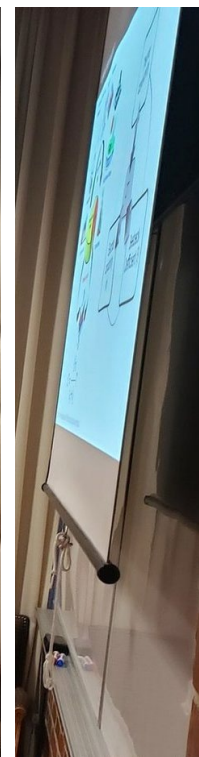
Student Research Presentation

“Synthesis and Characterization of Ba/Ca Mg Silicide Zintl Phase Crystals Grown from Mg Flux”

Taylor Walker – Misericordia University

Amir Zarei & Prof. Susan Lattuner - Florida State University

July 19, 2024 - DLC 123, Tallahassee, Florida





REU Weekly Seminar

July 19, 2024 - DLC 123, 4:30 p.m. with Dr. Ed Hilinski

Discussion about activities of the preceding week and research



Saturday Morning on the Deck

July 20, 2024 - Black Dog Café, Tallahassee, Florida with Dr. Ed Hilinski

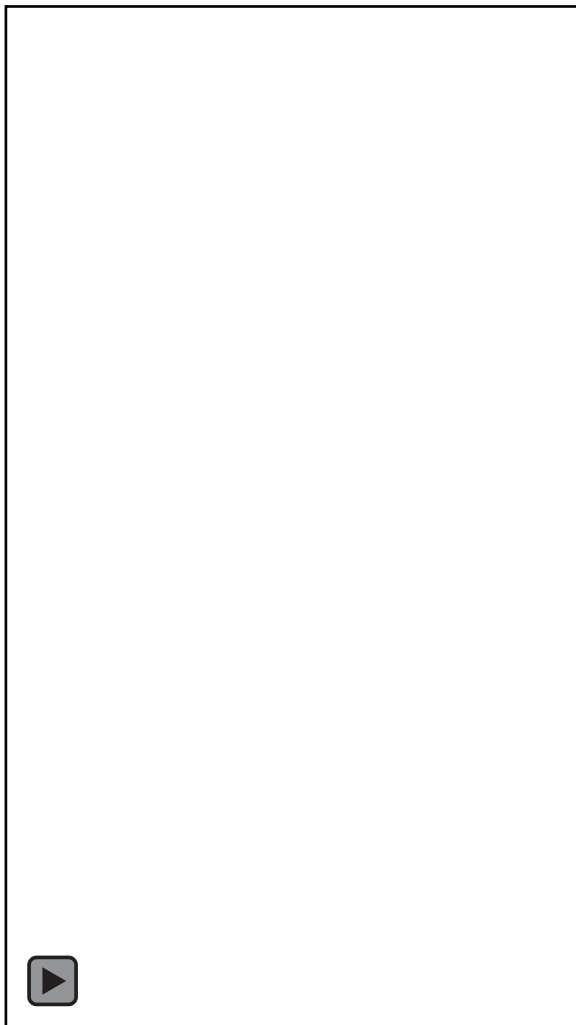


Happy Birthday, Brody!

July 21 (on 22), 2024 – DLC 123, Tallahassee, Florida

New York-Style and Chocolate Cheesecakes from
Publix Bakery, Lake Ella Plaza

<https://www.publix.com/products-services/bakery/>



Click on the image above
to play the video.





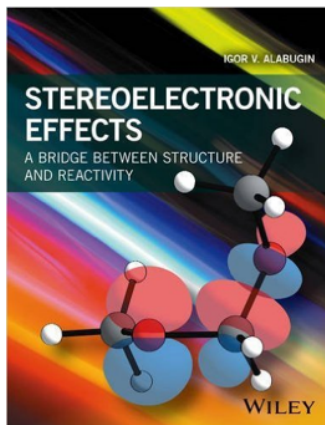
The main questions
of chemistry:

How to **make** a bond?

How to **break** a bond?

GDCh

Books



Photochemistry Café
“How to Become Famous
(with Organic Chemistry)”

<http://www.chem.fsu.edu/reu-links/>

Prof. Igor Alabugin

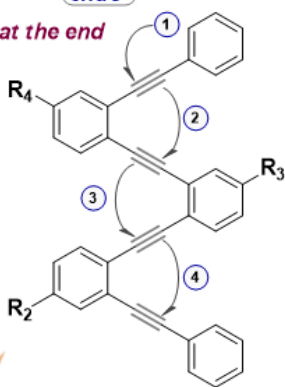
July 23, 2024, 9:00-10:00 a.m.
DLC 123, Tallahassee, Florida



Alternative Folding Patterns:

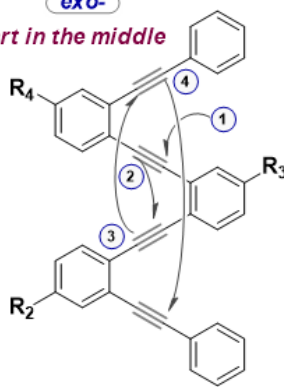
endo-

Start at the end



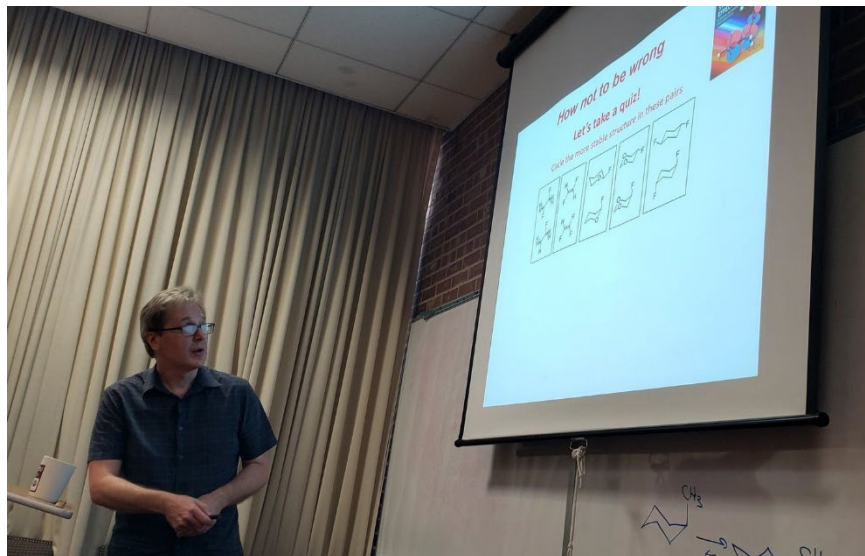
exo-

Start in the middle



$$2 + ? = 4$$





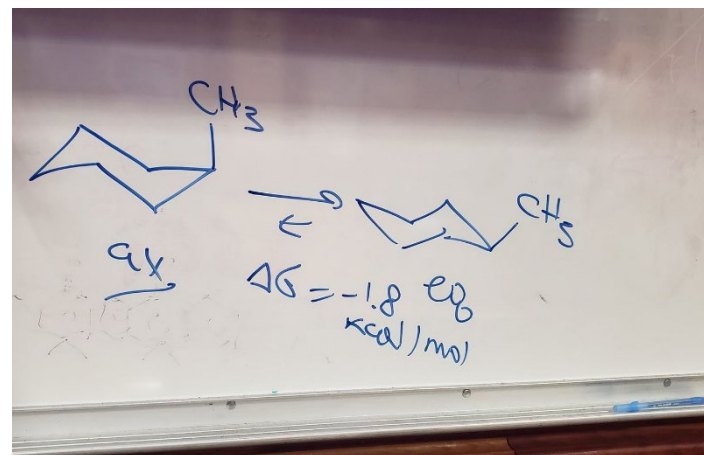
Photochemistry Café “How to Become Famous (with Organic Chemistry)”

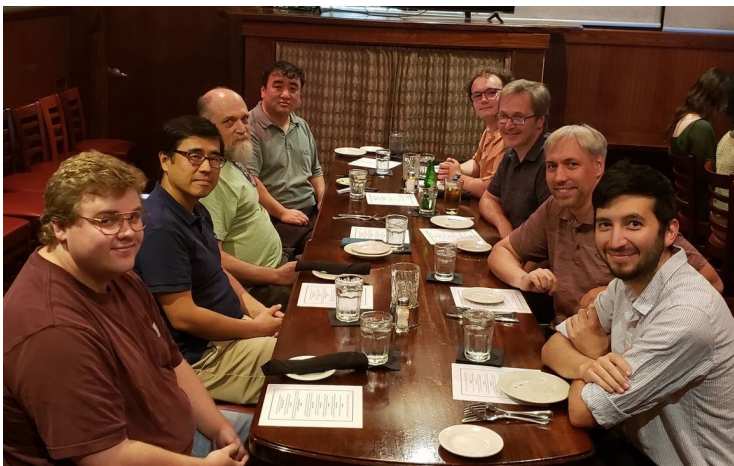
<http://www.chem.fsu.edu/reu-links/>

Prof. Igor Alabugin

July 23, 2024, 9:00-10:00 a.m.

DLC 123, Tallahassee, Florida





Dinner at *Georgio's*

<http://georgiostallahassee.com/>

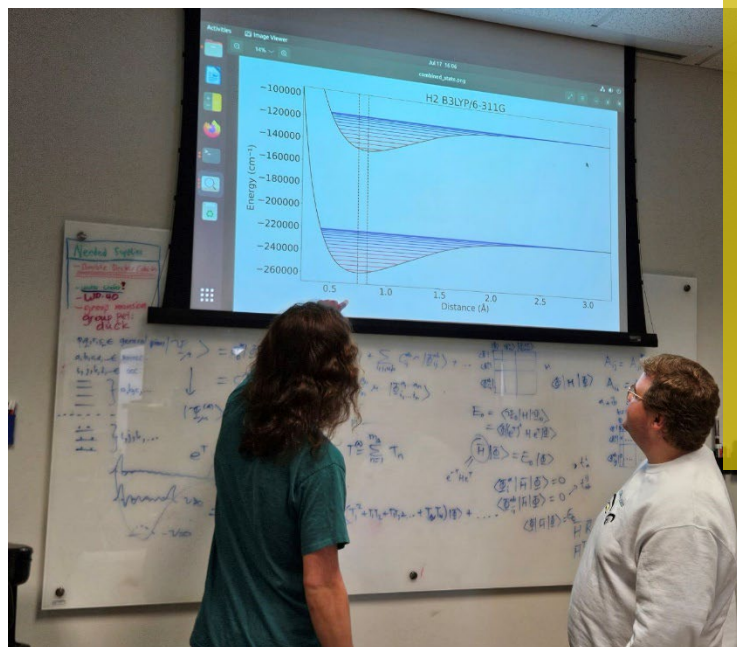
with

**REU Student Participants,
 In-Lab Mentors &
 Faculty Advisors**
July 23, 2024, 6:00 p.m.
Tallahassee, Florida

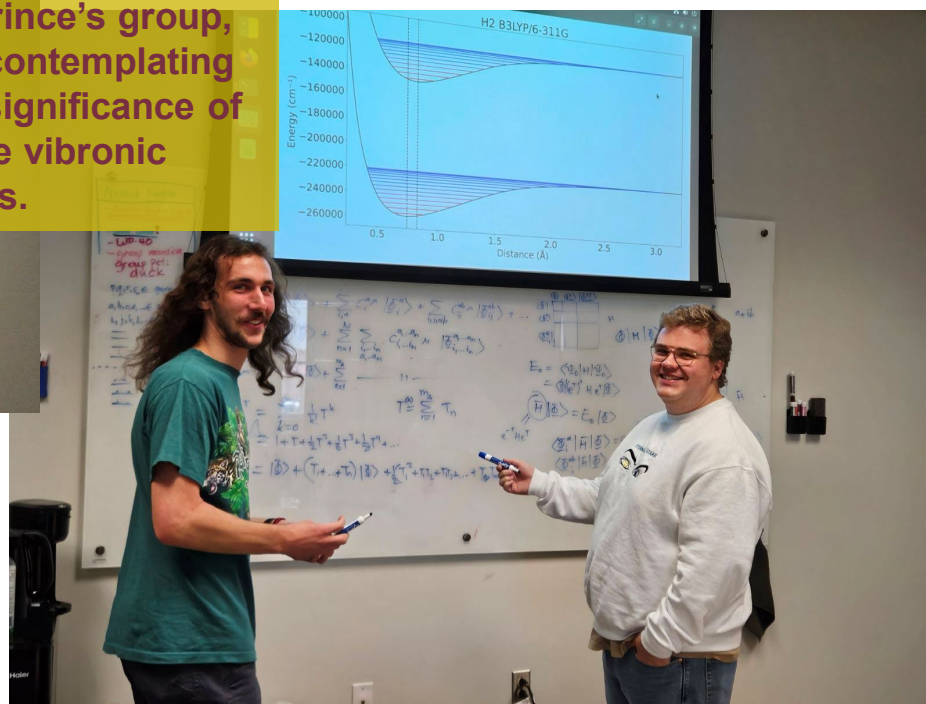


Scrutinizing computational data!

July 24, 2024



James Leone and in-lab mentor Justin Phillips, working in Prof. Eugene DePrince's group, are contemplating the significance of these vibronic levels.



Student Research Presentation

“Mapping of Magnetic Ordering in Zr Kagome Solid Solutions”

Eduarda Stein Christ – Texas Lutheran University

Victoria Li & Prof. Michael Shatruk - Florida State University

July 25, 2024 - DLC 123, Tallahassee, Florida



Student Research Presentation

“Photodimerization of 9-Chloro-10-deuterioanthracene”

Brody Farace – Lafayette College

Sulthana Fehroza P.P., Fernando Melo & Prof. Jack Saltiel - Florida State University

July 25, 2024 - DLC 123, Tallahassee, Florida



Student Research Presentation



“Efficient X-ray Scintillators Based on Solution Processed Zero-Dimensional Organic Manganese Bromide Hybrid Films”

Cianna Chung – Ursinus College

Tarannuma Ferdous Manny, Sahel Moslemi & Prof. Biwu Ma - Florida State University

July 25, 2024 - DLC 123, Tallahassee, Florida



Student Research Presentation

“Light-Induced Switching in Iron(III) Complexes with Tridentate Schiff-Base Ligands”



Tsion Lemi – University of Maryland, Baltimore County

Divya Kumar, Dibya Mondal & Prof. Michael Shatruk - Florida State University

July 25, 2024 - DLC 123, Tallahassee, Florida



Student Research Presentation – Introductory Overview

“Synthesis and Characterization of Organic Diradicals”

Airionna Fordham – Valdosta State University

Michael Commodore, Lona Dutta & Prof. Igor Alabugin - Florida State University

July 26, 2024 - DLC 123, Tallahassee, Florida



Student Research Presentation – Introductory Overview ***“Photochemical Conversion of Triazole Derivatives”***

Kaylee Head – Samford University

Lucy Jenkins & Prof. Lei Zhu - Florida State University

July 26, 2024 - DLC 123, Tallahassee, Florida



Student Research Presentation – Introductory Overview

“Comparative Coordination Chemistry of Tridentate Pyridyl-Thioether Ligands”

Mariia Grebenkina – Ithaca College

Dibya Mondal, Miguel Gakiya-Teruya & Prof. Michael Shatruk - Florida State University

July 26, 2024 - DLC 123, Tallahassee, Florida



Student Research Presentation – Introductory Overview

“Investigating Carrier Properties in n-Type Plasmonic Semiconducting Metal-Oxide Nanocrystals (PSCNs)”

Corbin Frisvold – Kutztown University



Raul Ortega, Andrew Cantrell & Prof. Geoffrey Strouse - Florida State University
 July 26, 2024 - DLC 123, Tallahassee, Florida



REU Weekly Seminar

July 26, 2024 - DLC 123, 4:30 p.m. with Dr. Ed Hilinski

Discussion about activities of the preceding week and research



Getting the Sample and the Laser System Ready

July 26, 2024



Elizabeth Holyat, working in Prof. Bryan Kudisch's laboratory with in-lab mentor Rachel Weiss, are preparing for a laser spectroscopic study.



What May be Our Penultimate Saturday Morning Gathering for Coffee, Conversation & Camaraderie



July 27, 2024 - Black Dog Café, Tallahassee, Florida
with Drs. Jack Saltiel, Wei Yang & Ed Hilinski



One More Photo

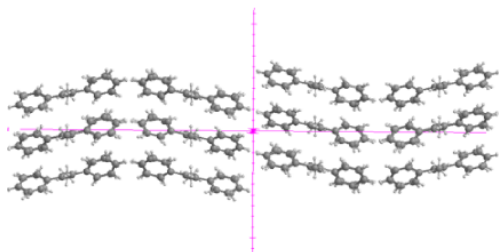
July 27, 2024 - Black Dog Café, Tallahassee, Florida
with Drs. Jack Saltiel, Wei Yang & Ed Hilinski



Back to Ragans Hall 3 (C) Courtesy of the Physics Van

July 27, 2024 - Ragans Hall 3 (C), 923 Learning Way, Tallahassee, Florida
 with driver Dr. Ed Hilinski





The α -Methylstilbene Isomers –
Relationship of Structure to Photophysics
and Photochemistry

Sumesh B. Krishnan, Ronald J. Clark, Xinsong
Lin, Olga Dmitrenko, Edwin F. Hilinski, Leah R.
Kuhn, Igor V. Alabugin and Jack Saltiel

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

Molecules **2023**, *28*, 4086, doi: [10.3390/molecules28104086](https://doi.org/10.3390/molecules28104086)

Photochemistry Café “Photochemistry, Photophysics, and Reactive Intermediates”

<http://www.chem.fsu.edu/reu-links/>

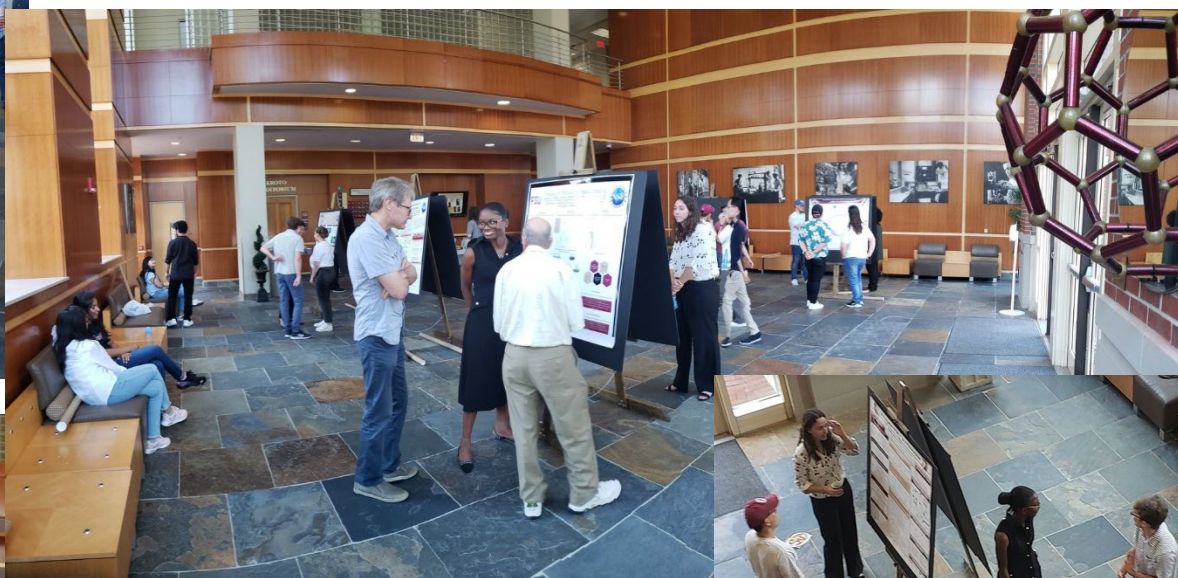
Prof. Ed Hilinski

July 30, 2024, 9:00-10:00 a.m.
DLC 123, Tallahassee, Florida



Student Poster Session

August 1, 2024 in CSL Lobby



A Group Photo

August 1, 2024 in CSL Lobby



The Last REU Weekly Seminar for Summer 2024

August 2, 2024 - DLC 123 and DLC 5th Floor Conference room
3:30-5:00 p.m. with Drs. Ed Hilinski & Bridget DePrince
 Exit interviews and discussions



A Gathering for Coffee, Conversation & Camaraderie

August 3, 2024 - Black Dog Café, Tallahassee, Florida
 with Drs. Wei Yang & Ed Hilinski



A Brunch Before Departing

August 3, 2024 – The Edison Restaurant, Tallahassee, Florida
 with Drs. Bryan Kudisch & Ed Hilinski



Hurricane Debby Delays Tsion's Departure

August 3-4, 2024 – Savour Restaurant and Charlie Park Restaurant, Tallahassee, Florida
with Dr. Ed Hilinski



... the REU Students are Gone

August 10, 2024 – Black Dog Café, Tallahassee, Florida

