



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

(updated August 3, 2023)



Ed Hilinski and Bridget DePrince, Directors

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

Department of Chemistry and Biochemistry

Florida State University

Tallahassee, Florida 32306-4390





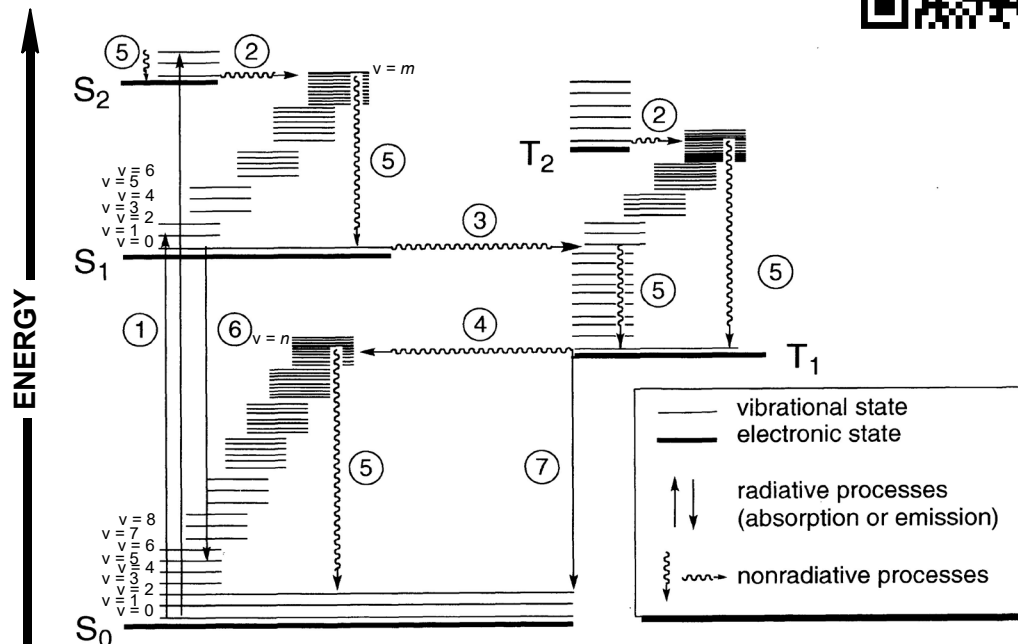
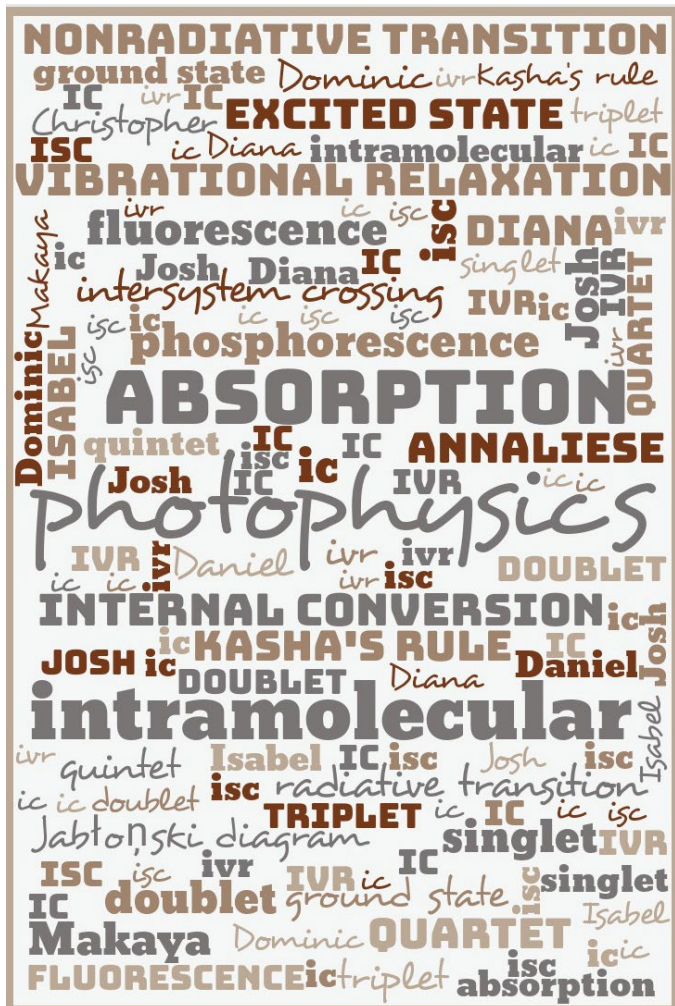
NSF-REU: Sunshine Institute for the Interaction of Light with Matter



Summer 2023 - May 30 to Aug 4
Ed Hilinski and Bridget DePrince, Directors

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

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





A Chronology

First Day - May 30, 2023

Welcome!

REU Participant	Home Institution	In-Lab Mentor	Faculty Advisor
Joshua Birke	Southeast Missouri State U.	Colette Sullivan & Rachel Weiss Clark	Lea Nienhaus
Christopher Cornejo	Elmhurst University	Brandon Nusser	Lei Zhu
Annaliese Franklin	Bridgewater College	Tunde Shonde & Oluwadara Olasupo	Biwu Ma
Daniel Larsen	Ithaca College	Zana Zana Singleton	Justin Kennemur
Diana K. Nazario Torres	Pontifical Catholic U., Puerto Rico	Shubham Bisht & Dibya Mondal	Michael Shatruk
Makaya Robinson	Saint Mary's College	Nikolas Dos Santos & Antony Sekar Kulandai Raj	Igor Alabugin
Isabel Sedwick	Loyola University Maryland	Sumesh Babu Krishnan	Jack Saltiel
Dominic Willadsen	Concordia U. Wisconsin	Erica Knorr	Kenneth Hanson



First Week Agenda

Tuesday, May 30, 2023

- | | |
|------------------|--|
| 8:00-8:30 a.m. | Walk to DLC from McCollum Hall – Dr. Bridget DePrince |
| 8:30-9:20 a.m. | Breakfast / Mingling – DLC 123 |
| | Introduction to the Department – DLC 123 |
| | Dept. Chair Geoff Strouse & Dr. Ed Hilinski |
| 9:20-10:00 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 – Kearney Osceola Grille |
| | REU Participants, Drs. Jack Saltiel,
Bridget DePrince & Ed Hilinski |
| 1:30-2:30 p.m. | Safety Training – DLC 123 |
| | Ben Arline, Environ. Health & Safety |
| 2:30-4:00 p.m. | Departmental Paperwork & FSU ID – DLC 123 & FSU Card Center |
| | Dr. Ed Hilinski |



First Week Agenda *(continued)*

Wednesday, May 31, 2023

-3:30 p.m.

Work in the Research Labs

3:30-4:30 p.m.

Departmental Ice Cream Social - CSL Lobby

Thursday, June 1, 2023

Work in the Research Labs

Friday, June 2, 2023

-3:30 p.m.

Work in the Research Labs

3:30-5:00 p.m.

REU Weekly Seminar – DLC 123 – 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

Saturday, June 3, 2023

12:00 p.m.

River Boat Ride, Swimming, and Dining – Wakulla Springs, FL
Dr. Ed Hilinski



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Department of Chemistry and Biochemistry, Florida State University



Weeks 2 - 10

	Date	Activity	Location, time
Week 2	T June 6	Photochemistry Café - Dr. Biwu Ma - w/breakfast	DLC 123, 9:00 a.m.
	R June 8	Tour of the Maglab at 10:00 a.m.	Tallahassee, FL
	F June 9	Photochemistry Café - Dr. Jack Saltiel REU Seminar - Ed Hilinski - discussion of research presentations	DLC 123, 3:30 p.m.
	Sa June 10	Coffee & Conversations - Dr. Ed Hilinski	11:00 a.m.
Week 3	T June 13	Photochemistry Café - Dr. Kenneth Hanson - w/breakfast - Graduate School Demystified	DLC 123, 9:00 a.m.
	F June 16	REU Seminar (discussion of student research themes)	DLC 123, 3:30 p.m.
Week 4	T June 20	Photochemistry Café - Dr. Igor Alabugin - w/breakfast	DLC 123, 9:00 a.m.
	R June 22	Tour of Nammo Perry Inc (depart at 7:30 am for tour at 9 am)	Perry, FL
	F June 23	REU Seminar (3-min student presentations: research themes)	DLC 123 3:30 p.m.
Week 5	T June 27	Photochemistry Café - Dr. Lea Nienhaus - w/breakfast	DLC 123 9:00 a.m.
	F June 30	REU Seminar (student presentations: research themes)	DLC 123 3:30 p.m.
	Sa July 1	Coffee & Conversations - Dr. Ed Hilinski	10:00 a.m.
Week 6	T July 4	Independence Day picnic	DePrince Residence
	F July 7	Photochemistry Café - Dr. Justin Kennemur REU Seminar - Dr. Ed Hilinski - weekly review and update	DLC 123, 3:30 p.m. DLC 123 3:30 p.m.
		First Friday Festivities	6:30 p.m.
Week 7	T July 11	Photochemistry Café - Dr. Mike Shatruck - w/breakfast	DLC 123 9:00 a.m.
	R July 13	Tyndall Air Force Base (depart 7:40 am EDT for a 10:00 am CDT tour)	Tyndall, FL
	F July 14	REU Seminar - Dr. Ed Hilinski - weekly review and update	DLC 123 3:30 p.m.



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Weeks 2 - 10 (continued)

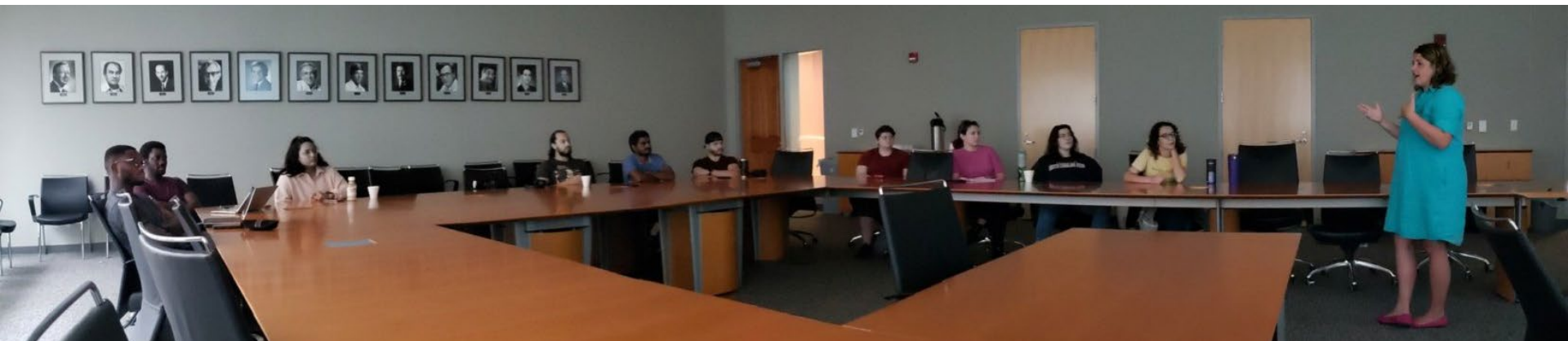
	Date	Activity	Location, time
Week 8	T July 18	Photochemistry Café - Dr. Kenneth Hanson - w/breakfast	DLC 123 9:00 a.m.
	F July 21	REU seminar (student 15-min research presentations) 1. Daniel Larsen 2. Annaliese Franklin	DLC 123, 3:30 p.m.
Week 9	M July 24	Dinner with REU Students, In-Lab Mentors & Faculty	Kool Beanz, 6:00 p.m.
	T July 25	Photochemistry Café - Dr. Lei Zhu - w/breakfast	DLC 123, 9:00 a.m.
	R July 27	REU seminar (student 15-min research presentations) 3. Christopher Cornejo 4. Dominic Willadsen 5. Makaya Robinson	DLC 123, 3:30 p.m.
	F July 28	REU seminar (student 15-min research presentations) 6. Isabel Sedwick 7. Diana Nazario Torres 8. Joshua Birke	DLC 123, 3:30 p.m.
	Sa July 29	Coffee & Conversations - Dr. Ed Hilinski	12:00 p.m.
Week 10	T Aug 1	Photochemistry Café - Dr. Ed Hilinski - w/breakfast	DLC 123, 9:00 a.m.
	R Aug 3	Poster Session (student research presentations)	CSL lobby, 3:00 p.m..
	F Aug 4	Exit interviews and surveys	DLC 5 th Floor Conf. Rm.
	F Aug 4	REU seminar First Friday Festivities	DLC 123, 3:30 p.m. 6:30 p.m.

SaSu Aug 5-6 Coffee & Conversations, Meals & Student departures



REU In-Lab Mentors Meeting

**May 24, 2023 - Chemical Sciences Laboratory (CSL) Room 1005
with Drs. Bridget DePrince and Ed Hilinski**



left to right: Oluwadara Olasupo; Tunde Shonde; Zana Zana Singleton
Nikolas Dos Santos; Sumesh Babu Krishnan; Brandon Nusser;
Erica Knorr; Rachel Weiss Clark; Colette Sullivan; Sarah Bennett;
Bridget DePrince



The REU participants have some morning beverages

May 29, 2023 - Black Dog Café, Tallahassee, Florida with Dr. Ed. Hilinski



clockwise from 8 o'clock: Isabel Sedwick; Diana K. Nazario Torres; Annaliese Franklin; Makaya Robinson; Dominic Willadsen; Daniel Larsen; Josh Birke; Christopher Cornejo



The REU participants have some lunch

May 29, 2023 - Midtown Caboose, Tallahassee, Florida with Dr. Ed Hilinski



left to right: Dominic Willadsen; Christopher Cornejo; Daniel Larsen;
Josh Birke; Makaya Robinson; Isabel Sedwick;
Diana K. Nazario Torres; Annaliese Franklin



... and some dinner

May 29, 2023 - Mayuri Indian Restaurant, Tallahassee, Florida with Dr. Ed Hilinski



left to right: Annaliese Franklin; Isabel Sedwick; Dominic Willadsen; Josh Birke;
Daniel Larsen; Christopher Cornejo; Makaya Robinson; Diana K. Nazario Torres



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Lunch – Kearney Osceola Grille at the Dunlap Champions Club

<https://fsuchampionsclub.com/>

May 30, 2023, 12:00 p.m.

225 Champions Way, Building B, Tallahassee, Florida





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Ice Cream Social

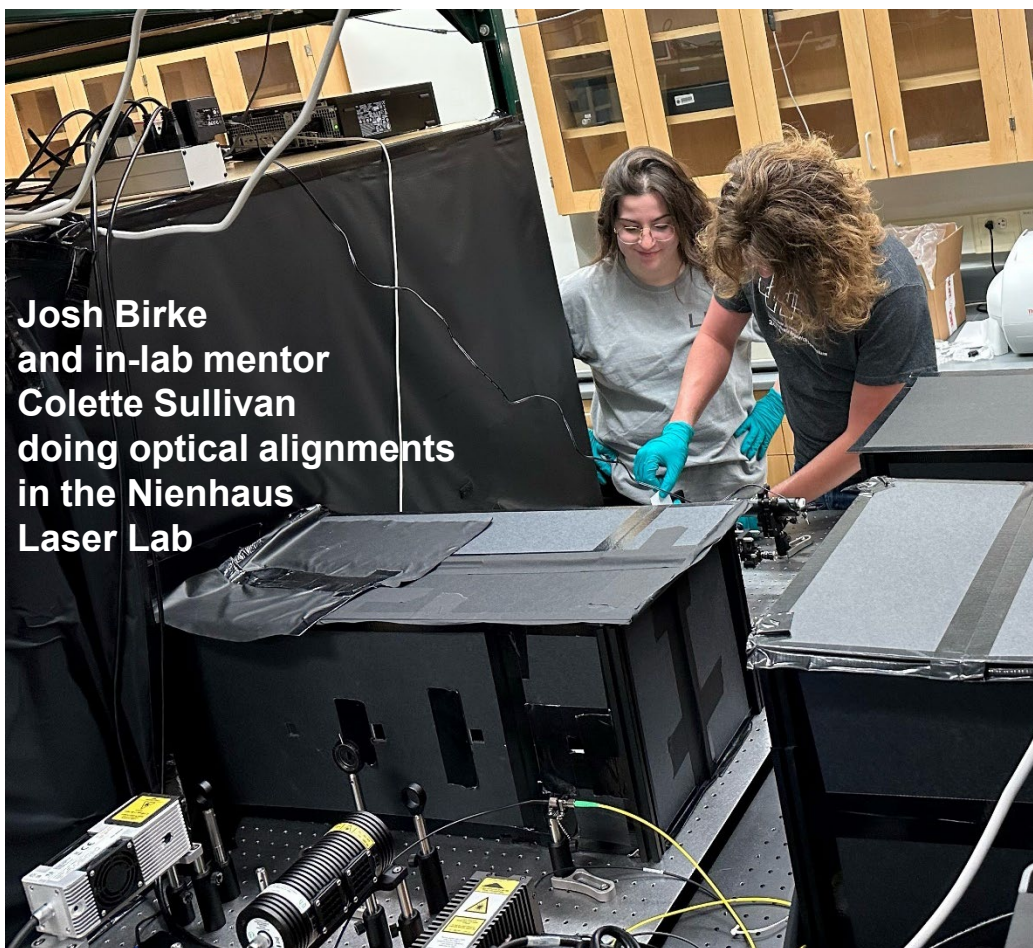
May 31, 2023 - CSL Lobby



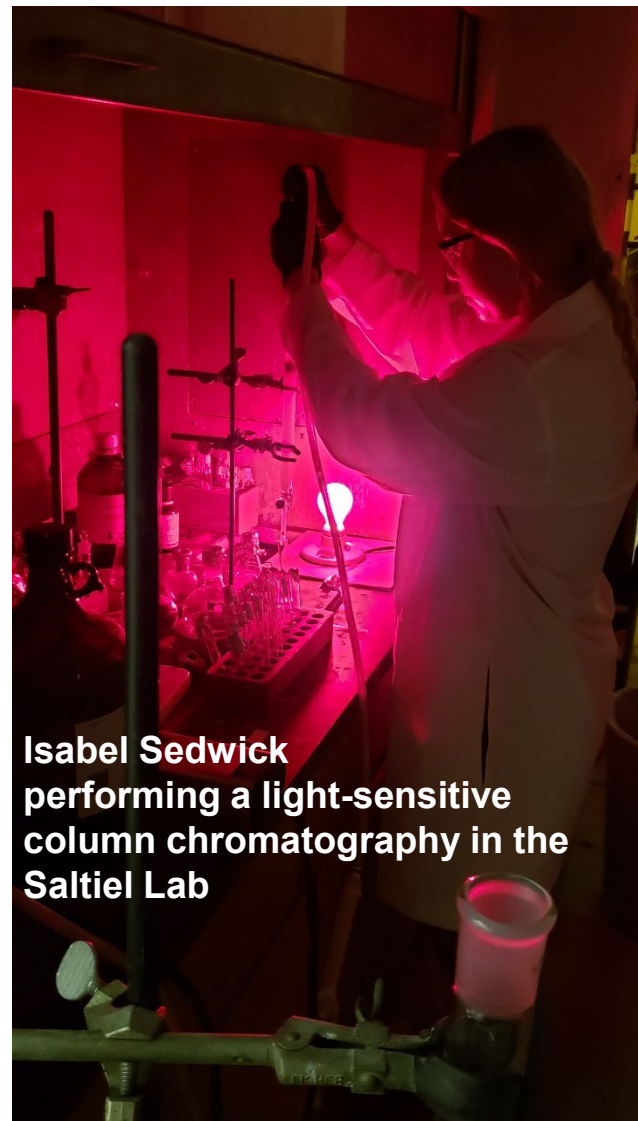


Experiments Are Underway

June 1, 2023



Josh Birke and in-lab mentor Colette Sullivan doing optical alignments in the Nienhaus Laser Lab



Isabel Sedwick performing a light-sensitive column chromatography in the Saltiel Lab



REU Weekly Seminar

June 2, 2023 - 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



**Clockwise from
8 to 4 o'clock**

Josh Birke
Daniel Larsen
Annaliese Franklin
Diana K. Nazario Torres
Makaya Robinson
Isabel Sedwick
Dominic Willadsen
Chris Cornejo



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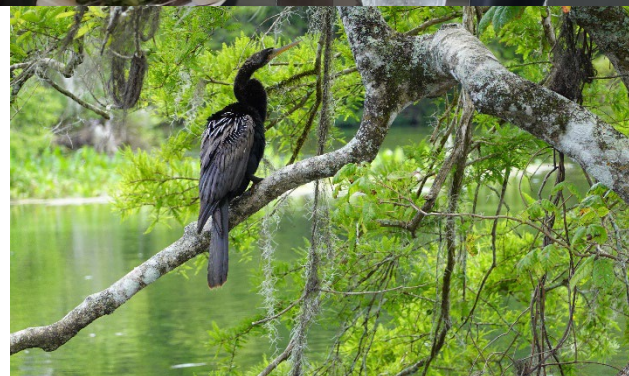


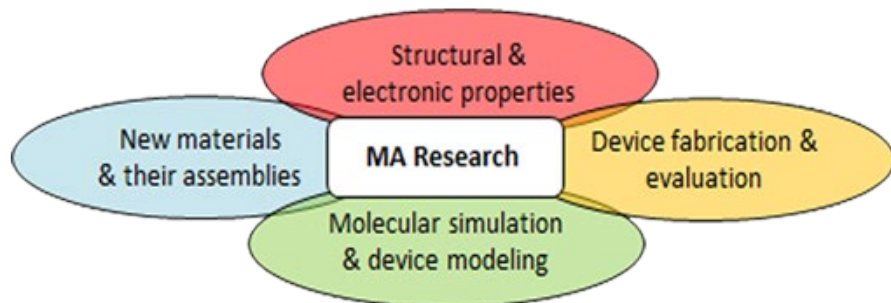
Trip to Wakulla Springs

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

June 3, 2023

Wakulla, Florida
with Ed Hilinski





Photochemistry Café

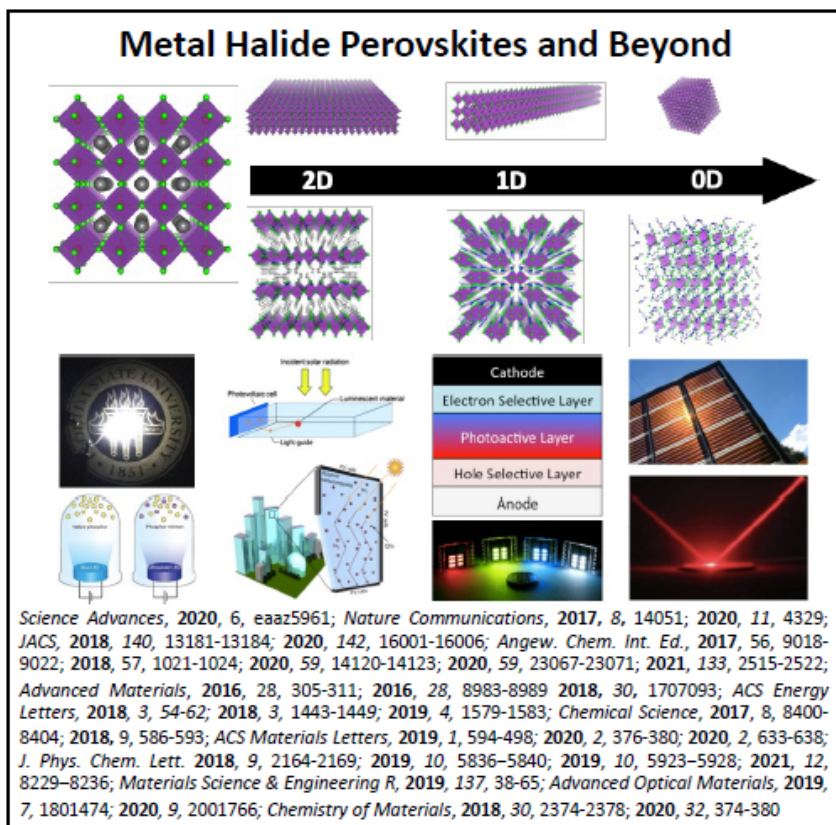
“Low Dimensional Metal Halide Perovskites and Hybrids: From Synthetic Control to Device Integration”

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

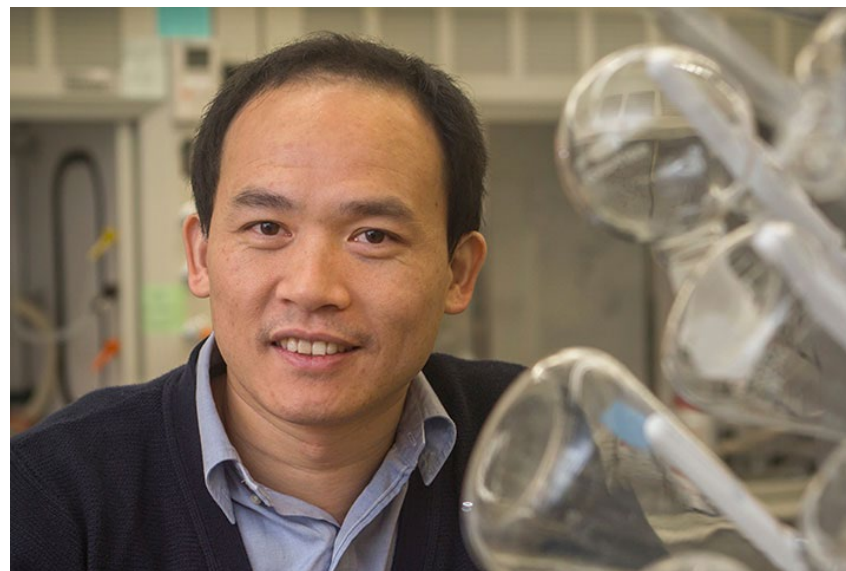
Prof. Biwu Ma

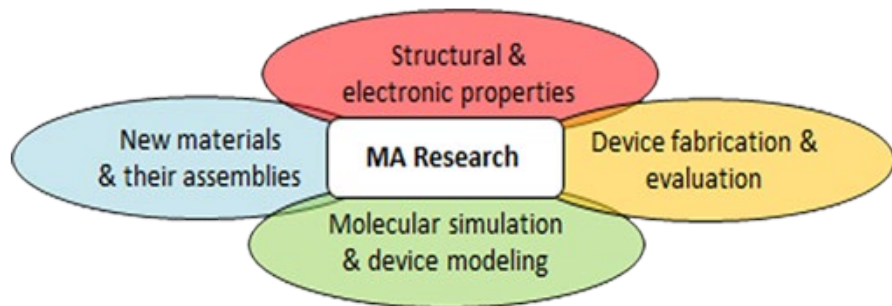
June 6, 2023, 9:00-10:00 a.m.
 DLC 123, Tallahassee, Florida

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





[Click here to watch the video.](#)

Photochemistry Café

“Low Dimensional Metal Halide Perovskites and Hybrids: From Synthetic Control to Device Integration”

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

Prof. Biwu Ma

June 6, 2023, 9:00-10:00 a.m.
DLC 123, Tallahassee, Florida





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Department of Chemistry and Biochemistry, Florida State University



Tour of the National High Magnetic Field Laboratory

nationalmaglab.org/

June 8, 2023, 10:00-11:00 a.m. - Innovation Park, Tallahassee, Florida
Depart from 1st Floor DLC Lobby at 9:30 a.m.





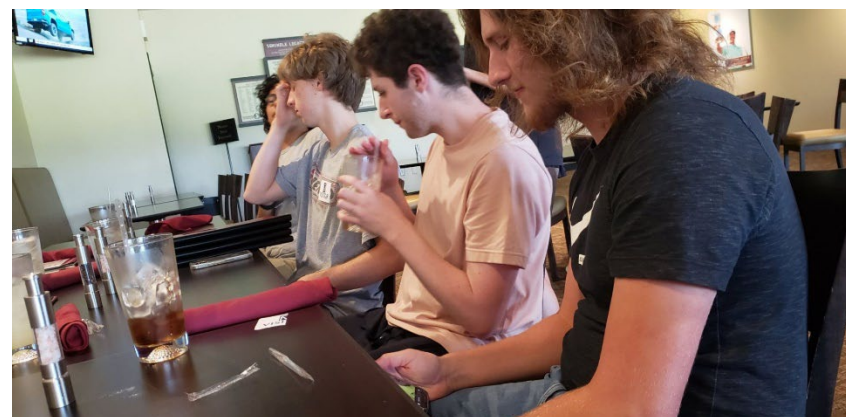
NSF-REU: Sunshine Institute for the Interaction of Light with Matter
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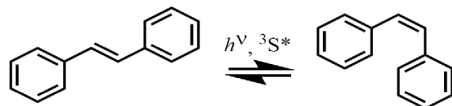
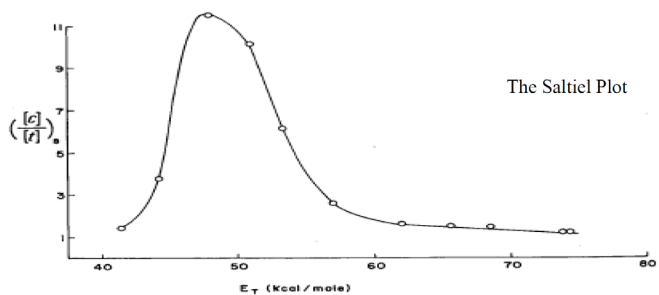
Lunch – Renegade Grille at Seminole Legacy Golf Club

<https://www.seminolelegacygolfclub.com/>

June 8, 2023, 11:30 a.m. - 2550 Pottsdamer Street, Tallahassee, Florida



Triplet Sensitized Stilbene Photoisomerization



Hammond, G. S.; Saitiel, J. *J. Am. Soc. Chem.* **1962-1964.**

Photochemistry Café “Elementary Photophysical Transitions and Photochemical Reactions”

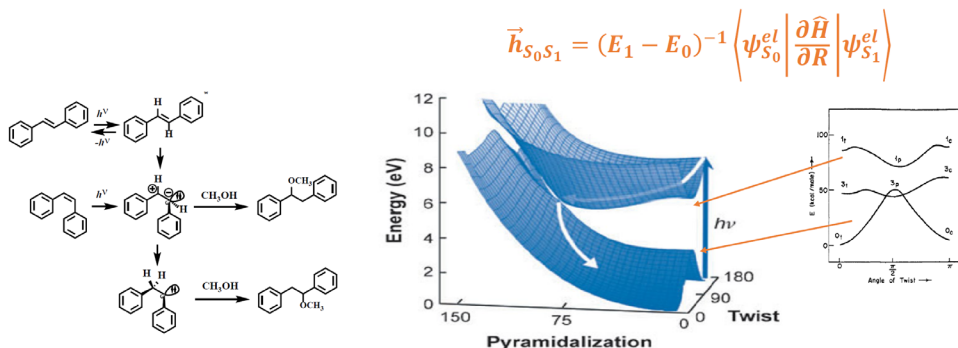
<http://www.chem.fsu.edu/reu-links/>

Prof. Jack Saitiel

June 9, 2023, 3:30-4:30 p.m.

DLC 123, Tallahassee, Florida

Multidimensional Isomerization – Conical Intersections – Trapping Twisted Intermediates



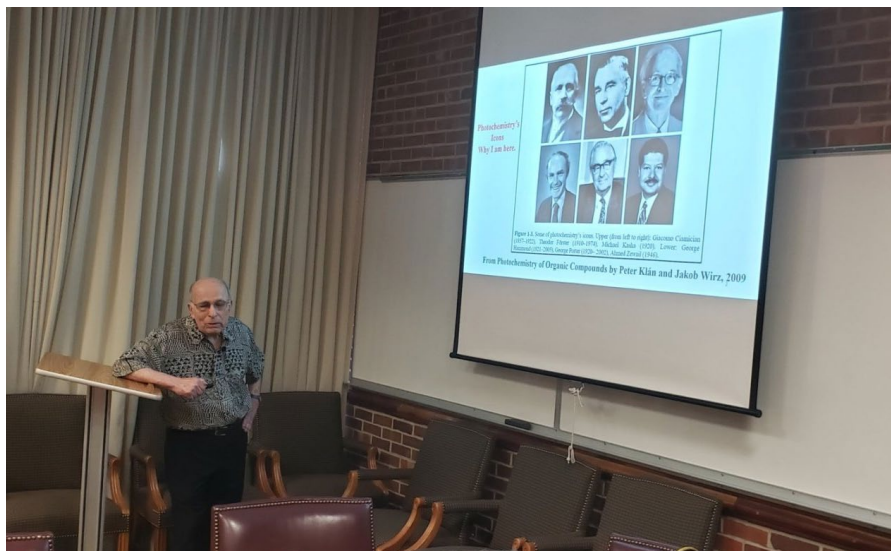
Saitiel, J.; Gupta, S. Photochemistry of the Stilbenes in Methanol. Trapping the Common Phantom Singlet State. *J. Phys. Chem. A* **2018**, *122*, 6089-6099.

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





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Photochemistry Café
“Elementary Photophysical Transitions and Photochemical Reactions”

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

Prof. Jack Saltiel

June 9, 2023, 3:30-4:30 p.m.

DLC 123, Tallahassee, Florida





REU Weekly Seminar

June 9, 2023 - DLC 123, 4:30 p.m. with Dr. Ed Hilinski

Survey about the first two weeks,
Discussion about activities of the preceding week and research
research resources - <https://guides.lib.fsu.edu/c.php?g=352310&p=2380486>
tutorials, learning beyond lab - <http://www.chem.fsu.edu/reu-links/>
SciFinder Scholar – first time users need to register - <https://guides.lib.fsu.edu/c.php?g=352310&p=2380486>
NMR training, ChemDraw and Chem3D, other software





The REU participants have some morning beverages

June 10, 2023 - Black Dog Café, Tallahassee, Florida with Dr. Ed. Hilinski





Photochemistry Café “Graduate School Demystified”

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

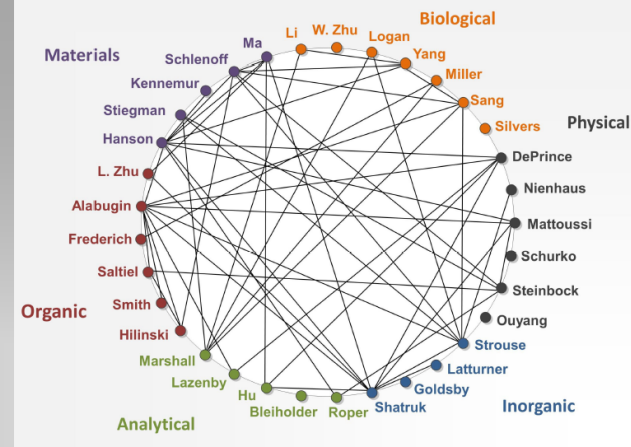
Prof. Kenneth Hanson

June 13, 2023, 9:00-10:00 a.m.
 DLC 123, Tallahassee, Florida



Where to Apply?

- Department Size
- Research Strengths
- Collegiality
- Social/Networking
- Success rates
- Graduate Student Union
- Collaborative vs. Competitive



Ph.D at FSU: Timeline

4th-6th Year Thesis and Defense (average 5.2 years)

Thesis/Dissertation:

A compilation of your graduate research
 Highlights a unique contribution to science
 Typically, 100-300 pages



Defense:

Open, 50 min presentation
 10 min. for ? from audience
 30-60 min. ? from the committee





Photochemistry Café **“Graduate School Demystified”**

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

Prof. Kenneth Hanson

June 13, 2023, 9:00-10:00 a.m.

DLC 123, Tallahassee, Florida





REU Weekly Seminar

June 16, 2023 - DLC 123, 3:30 p.m. with Dr. Ed Hilinski

Discussion about activities of the preceding week and research

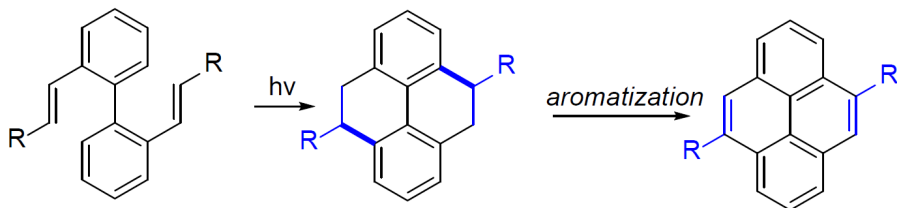
Discussion about comments given on the June 7 survey

Brief board talks about research:

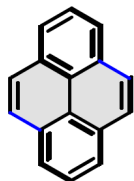
Christopher Cornejo; Daniel Larsen; Isabel Sedwick; Makaya Robinson



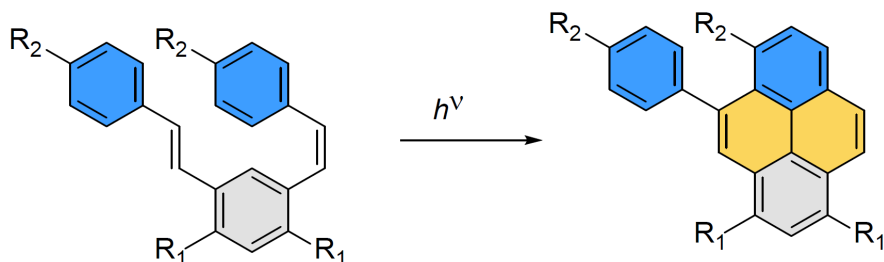
Biphenyl photocyclization



Laarhoven et al., J. Chem. Soc., Perkin Trans. 1972, 2074



Short *de novo* synthesis



Photochemistry Café “De Novo Photochemical Synthesis of Non-Symmetric Pyrenes”

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

Prof. Igor Alabugin

June 20, 2023, 9:00-10:00 a.m.
DLC 123, Tallahassee, Florida



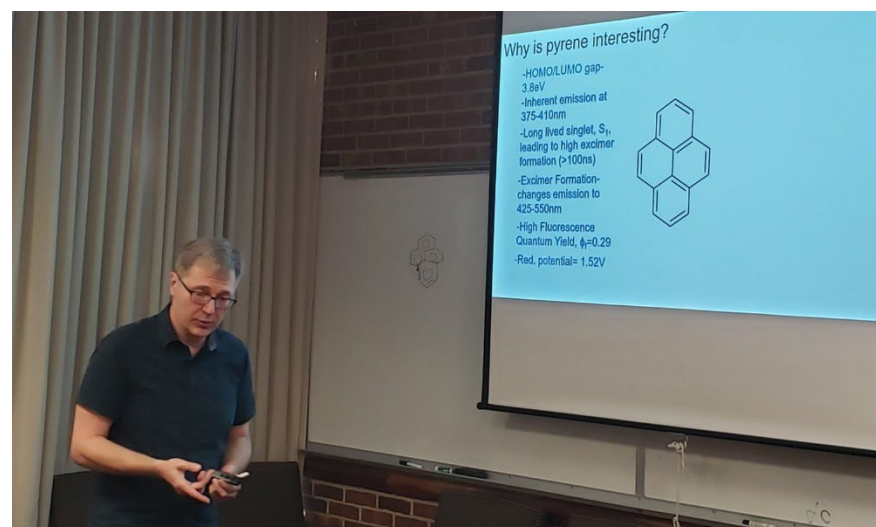


Photochemistry Café “De Novo Photochemical Synthesis of Non-Symmetric Pyrenes”

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

Prof. Igor Alabugin

June 20, 2023, 9:00-10:00 a.m.
DLC 123, Tallahassee, Florida





Visit to Nammo Perry Inc

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

June 22, 2023 - Perry, Florida

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



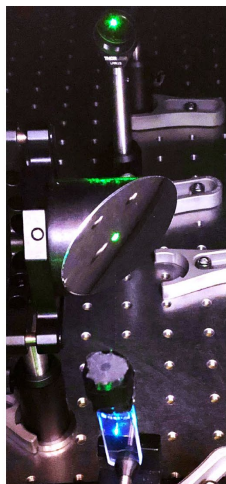


REU Weekly Seminar

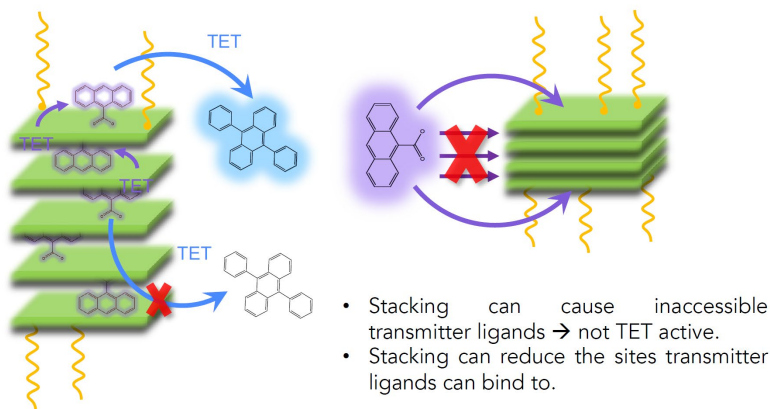
“3-Minute Student Presentations: Research Themes”

moderated by Ed Hilinski
June 23, 2023 - DLC 123, 3:30-5:00 p.m.





Nanoplatelet Sensitizers



VanOrman, Z. A.; Bieber, A. S.; Wieghold, S.; Nienhaus, L. *Chem. Mater.* 2020, 32, 4734–4742.

Photochemistry Café “Research in the Nienhaus Lab”

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

Prof. Lea Nienhaus

June 27, 2023, 9:00-10:00 a.m.
 DLC 123, Tallahassee, Florida

Near-Infrared-to-Visible Upconversion

Converting infrared (low energy) light to visible (high energy) light via sensitized triplet-triplet annihilation.

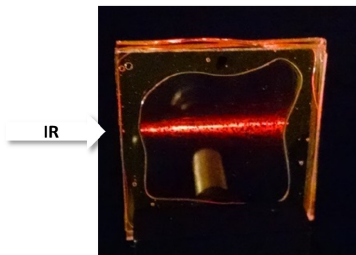
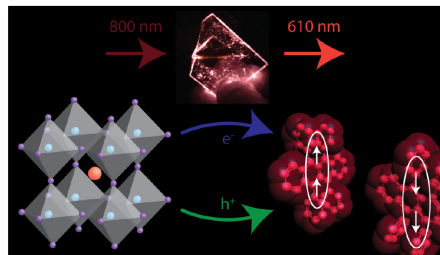


Photo: Dan Congreve

QD-based upconversion
 Limited by poor exciton diffusion
 Current benchmark: <1% absorption



Nienhaus, L., et al. *ACS Energy Lett.* 2019

Perovskite-based upconversion
 Current benchmark: up to 60% absorption





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Photochemistry Café “Research in the Nienhaus Lab”

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

Prof. Lea Nienhaus

June 27, 2023, 9:00-10:00 a.m.
DLC 123, Tallahassee, Florida





REU Weekly Seminar

June 30, 2023 - DLC 123, 3:30 p.m. with Dr. Ed Hilinski

Discussion about activities of the preceding week and research





The REU participants and beverages and some food

July 1, 2023 - The Power Plant Café, Cascades Park, Tallahassee, Florida with Dr. Ed Hilinski



<https://www.edisontally.com/cafe>





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

Department of Chemistry and Biochemistry, Florida State University



Independence Day Picnic

July 4, 2023
The DePrince Residence





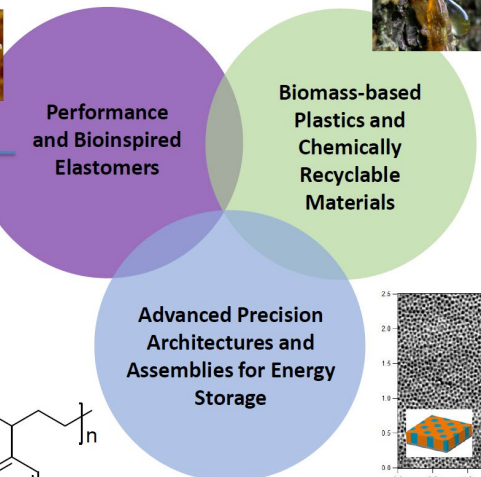
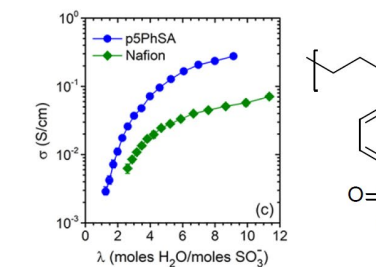
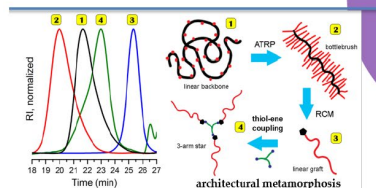
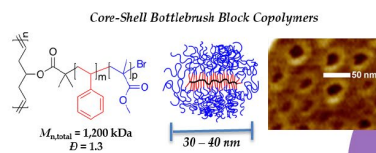
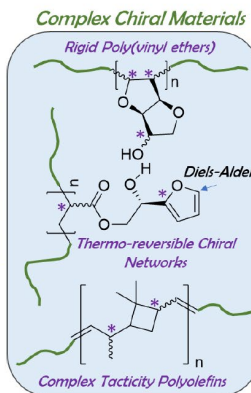
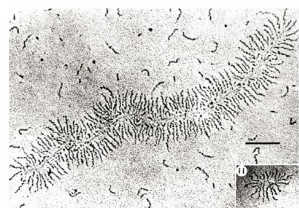
Annaliese Franklin working with air-sensitive materials in the research group of Prof. Biwu Ma

REU Students in the Lab

Summer 2023

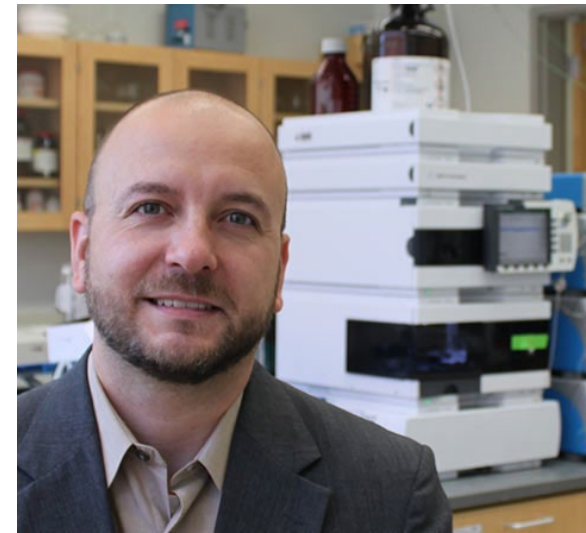
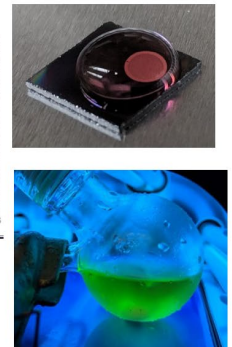


Isabel Sedwick viewing femtosecond-resolved absorption data as part of her research in the Saltiel group



FSU REU Photochemistry Café
 July 7, 2023

Photochemistry Café
“Research in the Kennemur Lab”
<http://www.chem.fsu.edu/reu-links/>
Prof. Justin Kennemur
 July 7, 2023, 3:30-4:30 p.m.
 DLC 123, Tallahassee, Florida





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

Department of Chemistry and Biochemistry, Florida State University



Photochemistry Café “Research in the Kennemur Lab”

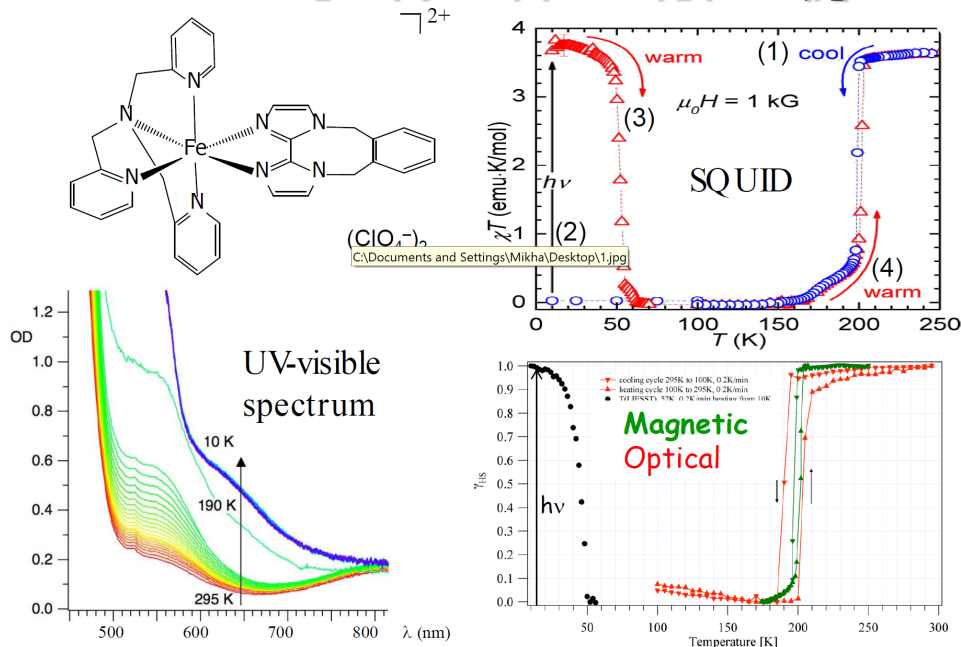
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Prof. Justin Kennemur

July 7, 2023, 3:30-4:30 p.m.
DLC 123, Tallahassee, Florida



Light-Induced **E**xcited **S**pin-**S**tate Trapping
 LIESST in $[\text{Fe}(\text{tpma})(\text{x bim})](\text{ClO}_4)_2$



Phan, H.; Chakraborty, P.; Calm, Y.; Chen, M.; Kovnir, K.; Keniley, L. K.; Hoyt, J. M.; Knowles, E. S.; Besnard, C.; Meisel, M.; Hauser, A.; Achim, C.; Shatruk, M. *Chem. Eur. J.* 2012, 18, 15805

Photochemistry Café
 “Bistability in Molecular Materials:
 From Spin-State Switching to
 Controlling Molecular Spin Qubits”

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

Prof. Michael Shatruk

July 11, 2023, 9:00-10:00 a.m.

DLC 123, Tallahassee, Florida





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Photochemistry Café
***“Bistability in Molecular Materials:
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Trip to Tyndall Air Force Base

www.tyndall.af.mil

July 13, 2023

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





... and Then to Mexico Beach, Florida

July 13, 2023



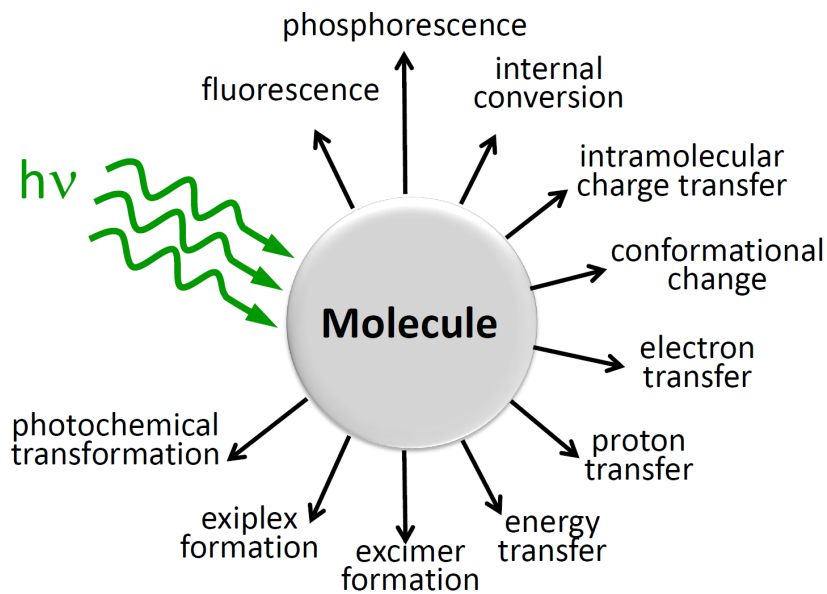


REU Weekly Seminar

July 14, 2023 - DLC 123, 3:30 p.m. with Dr. Ed Hilinski

Discussion about activities of the preceding week and research
and a survey





Photochemistry Café

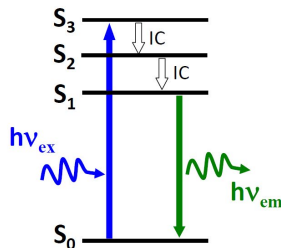
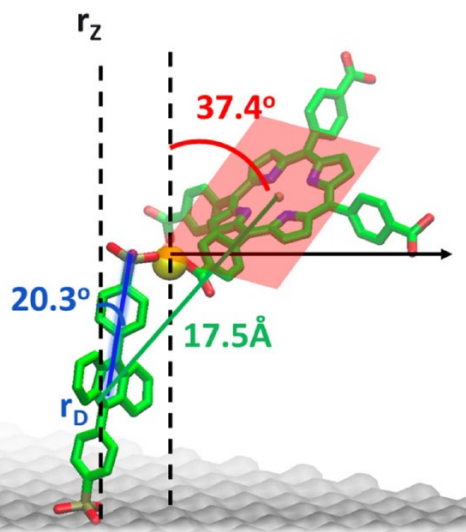
“Understanding and Controlling Molecular Excited State Processes Using Metal Oxide Surfaces”

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

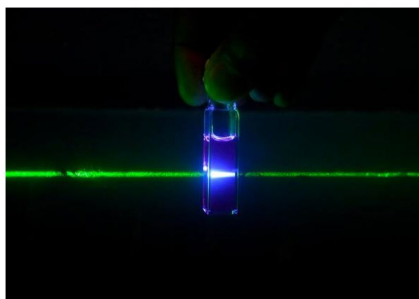
Prof. Kenneth Hanson

July 18, 2023, 9:00-10:00 a.m.

DLC 123, Tallahassee, Florida



$h\nu \rightarrow h\nu$



$h\nu \rightarrow h\nu$





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

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

Prof. Kenneth Hanson

July 18, 2023, 9:00-10:00 a.m.

DLC 123, Tallahassee, Florida





Student Research Presentation

“Scrubbing Terminal Olefin Contaminants to Optimize ROMP of Cyclopentene Derivatives”

Daniel W. Larsen - Ithaca College

Nadia Z. Singleton & Prof. Justin Kennemur - Florida State University

July 21, 2023 - DLC 123, Tallahassee, Florida





Student Research Presentation

“Low Dimensional Eco-Friendly Organic Manganese Halide Hybrid for X-ray Scintillation”

Annaliese Franklin - Bridgewater College

Tunde B. Shonde, Oluwadara J. Olasupo & Prof. Biwu Ma - Florida State University

July 21, 2023 - DLC 123, Tallahassee, Florida



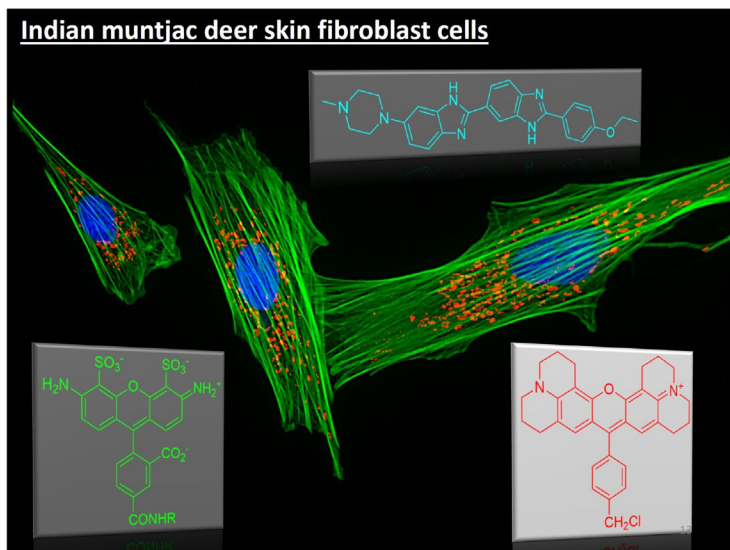


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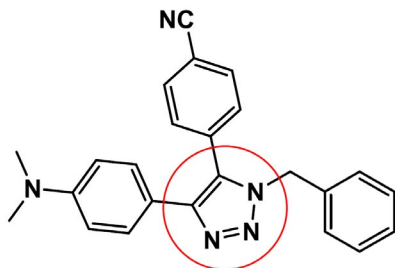


**Dinner at
Kool Beanz Café**
<http://www.koolbeanz-cafe.com/>
with
REU Participants,
In-Lab Mentors &
Faculty Advisors
July 25, 2023 - 6:00 p.m.
Tallahassee, Florida





A Fluorescent Triazole



Photochemistry Café
“Fluorescent Organic Molecules”

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

Prof. Lei Zhu

July 25, 2023, 9:00-10:00 a.m.
DLC 123, Tallahassee, Florida





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Department of Chemistry and Biochemistry, Florida State University



Photochemistry Café
“Fluorescent Organic Molecules”

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

Prof. Lei Zhu

July 25, 2023, 9:00-10:00 a.m.
DLC 123, Tallahassee, Florida





Student Research Presentation

“Synthesis of Lamellarins Through Photochemical Reactions”

Christopher Cornejo – Elmhurst University

Brandon Nusser & Prof. Lei Zhu - Florida State University

July 27, 2023 - DLC 123, Tallahassee, Florida





Student Research Presentation

“Influencing Excited State Properties of PDI Using ALD”

Dominic J. Willadsen – Concordia University, Wisconsin

Erica Knorr & Prof. Kenneth Hanson - Florida State University

July 27, 2023 - DLC 123, Tallahassee, Florida





Student Research Presentation

“A Novel Strategy for the Synthesis of Non-Symmetrical Pyrenes”

Makaya Robinson – St. Mary’s College

Nikolas Dos Santos & Prof. Igor Alabugin - Florida State University

July 28, 2023 - DLC 123, Tallahassee, Florida





Student Research Presentation

“Photochemistry of 1,4-Diphenyl-1,3-Butadiene (DPB)”

Isabel Sedwick – Loyola University Maryland

Sumesh Krishnan & Prof. Jack Saltiel - Florida State University

July 28, 2023 - DLC 123, Tallahassee, Florida





Student Research Presentation
***“Tetranuclear Clusters for Application in
Quantum Information Science”***

Diana Nazario Torres – Pontifical Catholic Univ., Puerto Rico
Shubham Bisht, Dibya Mondal & Prof. Michael Shatruk - Florida State University
July 28, 2023 - DLC 123, Tallahassee, Florida





Student Research Presentation

“Organic Semiconductor Annihilators for Triplet-Triplet Annihilation Upconversion”

Josh Birke – Southeast Missouri State University

Colette Sullivan, Rachel Weiss & Prof. Lea Nienhaus - Florida State University

July 28, 2023 - DLC 123, Tallahassee, Florida





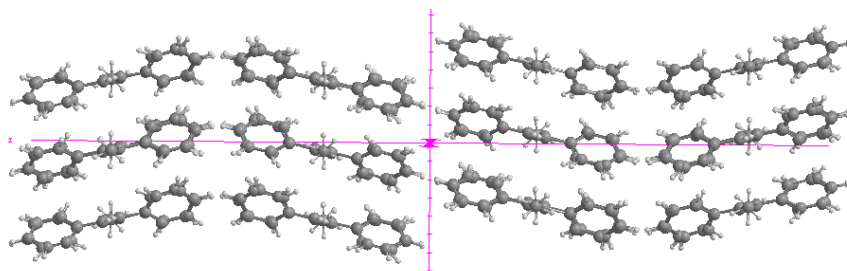
The REU participants have some morning beverages

July 29, 2023 - Black Dog Café, Tallahassee, Florida with Dr. Ed. Hilinski





Dirac's Mystery Instrument



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

Photochemistry Café “A State Energy Diagram, Photophysical Processes, and Photochemistry”

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

Prof. Ed Hilinski

August 1, 2023, 9:00-10:00 a.m.

DLC 123, Tallahassee, Florida





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

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Student Poster Session

August 3, 2023 in CSL Lobby

