Murray State University
ORCA Travel Support Grant Proposal Document - 2022-23

Fill in the information requested, save the file, and upload to digitalcommons.murraystate.edu/orcagrants

A.) Project title & information

Titles:

"Water solubility structure activity relationship of chalcones for aqueous applications"
and
"Azadipyrromethene copolymers: A different approach"

Format: Poster (2)

Abstracts:

Chalcones are a group of synthetic and naturally occurring small molecules containing two aromatic rings separated by an α,β-unsaturated carbonyl moiety. Chalcones are a versatile motif for organic synthesis, noted for their ability to act as Michael acceptors. They are a starting place for drug development, photodynamic therapy, and for the creation of organic materials. An issue relevant to all these fields is water solubility. Therefore, this study presents a small library of hydroxymethyl chalcones appended with a variety of solubilizing groups, and the effect of those groups on water solubility of the resulting chalcones. This series of novel chalcones represents a set of new building blocks which may be useful on the road to making more specially tailored, aqueous soluble compounds for a variety of applications.

Conjugated polymers (CPs) made up of highly aromatic monomers are excellent light absorbers. This light absorbance is the foundation for photovoltaics used in solar energy. Phenyl C60 butyric acid methyl ester (PCBM) is one of the best electron acceptors in organic photovoltaics (OPV), but lacks the high light absorbance of alternative acceptors. Azadipyrromethenes (ADPs) are one such alternative. ADPs boast excellent light absorbance, and high electron affinity, along with tunable electronic properties. ADP's have shown promise in OPV as small molecule homoleptic complexes but haven't had as much success in CPs. Here, a different strategy is used to create CPs with ADP electron acceptors using a reversible condensation polymerization which can avoid the pitfalls of palladium catalyzed cross-coupling reactions typically employed to form CPs. Incorporation of ADPs first into polymer analogs helps confirm the suitability of this reaction, then polymerization and optimization can occur. Overall, the ability to use ADPs in photovoltaics would be more cost effective and the resulting devices would have a greater overlap with the entirety of the solar spectrum.

B.) Name(s) of students traveling: (If more than one student has been accepted to present, and travel support grant money is requested for each, only one application is necessary.)

Kaelyn Hathaway
Grace Yocum

C.) Conference information

Conference name (full, no abbreviations): American Chemical Society National Meeting
Dates: March 26th-30th
Sponsoring body: The American Chemical Society
Conference website**:** **https://www.acs.org/meetings/acs-meetings/spring-2023.html**

D.) Total amount requested from ORCA (max. $800)

Total amount requested: 800 per student (2)
Other potential or secured funding sources (if any): N/A
Any expected out-of-pocket costs (if any): Meals, parking

E.) Estimated costs of expenditure to be paid with this award:

Airfare: N/A
Mileage: $0.44/mile, 304 mile one-way trip x 2 = $267.52
Lodging: ~$130 per night x 4 nights x 2 students = $1,040
Meals ($7 breakfast, $8 lunch, and $15 dinner): $44 per day x 3 days x 2 students = $264
Conference/Gathering registration: $199 per student (~$400)
Other: Poster printing: $60 x 2 posters = $120
Parking: ~10$ per day = ~$50
Total: 2,091.52 (1045.76 each student)

The amount for lodging is an early estimate based on google results for hotels nearby the convention center. Ideally when booking, we will find the most optimal hotel based on cost and proximity to the venue.

F.) Faculty mentor information

Name: Grace Eder
Department: Chemistry
Email: geder@murraystate.edu

G.) Description of faculty mentor's involvement in the project:

Guided laboratory work and interpretation of data, assisted with poster formatting.

H.) Interdepartmental reimbursement info

MSU department name: Chemistry
MSU departmental contact: Diane Thiede

I.) Acceptance notice

ACS Spring 2023 - Acceptance Notice [3822141] Inbox ×

ACS Spring 2023 <onbehalfof@abstractcentral.com> Fri, Dec 23, 2022, 5:46 PM
to khathaway1, me

Dear Ms. Kaelyn Hathaway, Dr. Grace Eder,

Your presentation has been accepted for the technical program of the ACS Spring 2023, March 26-30, 2023.

PAPER ID: 3822141
PAPER TITLE: "Azadipyrromethene copolymers: A different approach"

DIVISION: POLY
SESSION TYPE: Poster - In-person

If your presentation preference has changed (in-person or virtual), please contact abstracts@acs.org.

Symposia, presentation dates, times, and locations will be provided the week of January 9.

Grace Yocum 12:53 PM (7 hours ago)
to me

---------- Forwarded message ---------
From: **ACS Spring 2023** <onbehalfof@abstractcentral.com>
Date: Fri, Dec 23, 2022, 5:53 PM
Subject: ACS Spring 2023 - Acceptance Notice [3826040]
To: <gyocum@murraystate.edu>

Dear Grace Yocum,

Your presentation has been accepted for the technical program of the ACS Spring 2023, March 26-30, 2023.

PAPER ID: 3826040
PAPER TITLE: "Water solubility structure activity relationship of chalcones for aqueous applications"

DIVISION: ORGN
SESSION TYPE: Poster - In-person

If your presentation preference has changed (in-person or virtual), please contact abstracts@acs.org.

Symposia, presentation dates, times, and locations will be provided the week of January 9.

J.) Local Presentation - X your preferences for presenting your work to a Murray State audience:

[ ] Fall Scholars Week (November 14-18, 2022)
[ ] Publication in *Steeplechase*
[ ] Posters-at-the-Capitol (March 2, 2023)
[X] Spring Scholars Week (April 10-14, 2023)
[ ] Recorded interview in *Steeplechase*
[ ] Something else. Describe: