

# SOFIYA HLYNCHUK – HLYNSOFI@UMICH.EDU

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## EDUCATION

University of Michigan, Ann Arbor MI

**Ph.D. Chemistry**

GPA 3.40/4.00

2014- April 2019

Rochester Institute of Technology

**B.S Chemistry**

GPA 3.91/4.00

2010-2014

## RESEARCH

### Graduate Research, University of Michigan

Research Advisor: Professor Stephen Maldonado

- Employed organic synthetic strategies such as hydroboration-oxidation reactions on silicon (111) surface to introduce hydroxyl groups to alter wetting properties while improving chemical passivation
- Enhanced adhesion between a silicon substrate and a photoresist template in alkaline conditions by introduction of terminal alkene groups on a silicon surface
- Investigated dye sensitization of p-type gallium phosphide photocathodes to elucidate processes occurring at the electrode interface
- Managed and maintained ultra-high vacuum systems (trained users, performed diagnostic tests and troubleshooted system components)

### Undergraduate Research, Rochester Institute of Technology

Research Advisor: Professor Jeremy Cody

- Prepared orthogonally substituted phenothiazinium dyes to act as tags for the biologically relevant molecule, vitamin D<sub>3</sub>

## PUBLICATIONS

- **Hlynchuk, S.**; MacInnes, M. M.; and Maldonado, S. "Sensitization of p-GaP by Physiosorbed Triarylmethane Dyes". *J. Phys. Chem. C*, 2018, 122 (35), 20073–20082
- MacInnes, M. M.; **Hlynchuk, S.**; Acharya, S.; Lehnert, N.; and Maldonado, S. "Reduction of Graphene Oxide Thin Films by Cobaltocene and Decamethylcobaltocene" *ACS Appl. Mater. Interfaces*, 2018, 10 (2), 2004-2015
- Brown, E. S.; **Hlynchuk, S.**; and Maldonado, S. "Chemically Modified Si (111) Surfaces Simultaneously Demonstrating Hydrophilicity, Resistance Against Oxidation, and Low Trap State Densities" *Surf. Sci.*, 2016, 645, 49-55
- Walling, K.; Wilbert, S. A.; Catlin, D. M.; Monaghan, C. E.; **Hlynchuk, S.**; Meehl, P. G.; Resch, L. N.; Carrera, J. V.; Bowles, S. M.; and Connelly, S. J. "UV-Stressed Daphnia Pulex Increase Fitness through Uptake of Vitamin D<sub>3</sub>". *PLOS ONE*, 2015, 10 (7), e0131847
- Larrabee, C. S.; Clark, M. D.; **Hlynchuk, S.**; Tatum, A. J.; and Cody, A. J. "A Convenient One-pot Synthesis of Ethylene Blue". *Tetrahedron Letters*, 2012, 53, 4896-489

## PRESENTATION HIGHLIGHTS

- **Electrochemical Society Meeting, Seattle WA** May 2018  
Hlynchuk S. and Maldonado S., "Sensitization of p-GaP photocathodes." (oral)
- **Materials Chemical Society Meeting, Phoenix AZ** April 2018

Hlynchuk S. and Maldonado S., “The prospects for p-type gallium phosphide photocathodes sensitized for solar energy conversion and storage”. (poster)

- **231<sup>st</sup> Electrochemical Society Meeting, New Orleans LA** May 2017  
Hlynchuk S. and Maldonado S., “Functionalization of gallium phosphide surface with an organic monolayer for advanced photoelectrochemistry.” (poster)

## HONORS AND AWARDS

- University of Michigan Karle Symposium Dow Travel Award 2016
- National Science Foundation Graduate Student Fellowship (**GRFP-NSF**) 2015
- Undergraduate Senior Achievement Award in Chemistry (sponsored by American Institute of Chemists, 1 per graduating class) 2014

## LEADERSHIP

- **Karle Symposium Organization Committee at University of Michigan** 2018  
Selected judges for event, evaluated and established judging criteria based on feedback
- **Ann Arbor Hands- On Museum** Summer 2016  
Lead an activity focusing on air dynamics and gravity at Maker Fair in Detroit
- **Lab Safety Officer** 2016-Present  
Conducted safety training for new lab members, organized lab clean-ups, prepared lab spaces for bi-annual safety inspections
- **Association of Women in Science** 2016-Present  
Provided and received mentorship within a network of women in different stages in their research career, discussed issues or experiences relating to gender bias in STEM
- **Executive board member of FEMMES at University of Michigan** 2016-Present  
Recruited volunteers for outreach events (>250 participants), set up volunteer training sessions, logistics duties, acted as an activities facilitator at after school and library events

## TECHINICAL SKILLS

- Applying organic homogeneous reactions on surfaces to introduce organic groups such as hydroxyl/amines/alkenes
- Experience with silicon surface chemistry
- Surface characterizations: infrared spectroscopy, static contact angle goniometry, X-ray photoelectron spectroscopy and Auger electron spectroscopy,
- Electrochemical techniques, spectral quantum yield measurements, microwave photoconductivity analysis

## TEACHING EXPERIENCES

### Graduate Student Instructor

- Facilitated discussions on general chemistry topics in a group of 30 students (4x/week) 2014 -2015
- Developed relevant coursework material and quizzes testing key concepts

## REFERENCES

- Prof. Stephen Maldonado, Professor of Chemistry at U of M (smald@umich.edu)
- Prof. Adam Matzger, Professor of Chemistry at U of M (matzger@umich.edu)
- Prof. Jeremy Cody, Professor of Chemistry at RIT (jacsch@rit.edu)