

94th Annual Meeting of the Pennsylvania Academy of Science

March 23-25, 2018

at Indiana University of Pennsylvania



Program Booklet

Welcome to Indiana University of Pennsylvania

Founded in 1875, IUP is a vibrant, comprehensive, research-based, teaching-focused, student-centered learning community located in Indiana, Pennsylvania. IUP combines the academic opportunities of a large university with the highly personalized and intimate learning-centered environment of a small college.



Almost 13,000 undergraduate and graduate students are enrolled in our accredited and nationally recognized programs, enjoying traditional and nontraditional classroom experiences, engaging in research and service activities with their faculty mentors, becoming lifelong learners, preparing for rewarding careers and productive lives, and developing leadership skills for effective citizenship.

Welcome Message from Dr. Ed Levri President, Pennsylvania Academy of Science

It is my pleasure to welcome you to the 94th annual meeting of the Pennsylvania Academy of Science. In this year's meeting we are hosting a symposium on Alternative Energy in Pennsylvania featuring some of the most knowledgeable names in the field. The symposium will be capped by Dr. Richard Alley who is giving our keynote address on Saturday evening. Like last year, we will also have a panel for students considering careers in STEM fields during lunch that same day. We are also very excited about the breadth of oral and poster presentations. I encourage participants to increase their involvement in the society by joining the PAS Board of Directors for the Business meeting. We are always looking for more members to take leadership roles in the society. Special thanks to the faculty and staff at IUP for their roles in organizing the meeting this year.



Since my time as President of the Society is coming to an end I would like to say thank you to all of the board members and officers of the Society who do most of the work in continuing the mission of PAS. It has been an honor to serve in this role.

I encourage you to attend as many sessions as you can, meet new colleagues, and learn something new. Good luck to all of the students participating in the Anne Sychala Competition. Enjoy the meeting and plan to attend next year's event at Cedar Crest College, in Allentown, PA.

Visit the PAS website for Conference information

Pennsci.org

2018 Keynote Address

Learning from the "Pennsylvania Desert": Historical insights to our energy future

Dr. Richard Alley

Dr. Richard Alley (PhD 1987, Geology, Wisconsin) is Evan Pugh University Professor of Geosciences at Penn State. He studies the great ice sheets to help predict future changes in climate and sea level, and has conducted three field seasons in Antarctica, eight in Greenland, and three in Alaska. He has been honored for research (including election to the US National Academy of Sciences and Foreign Membership in the Royal Society), teaching, and service. Dr. Alley participated in the UN



Photo by Geoff Haines-Stiles, for *Earth: The Operators' Manual*

Intergovernmental Panel on Climate Change (co-recipient of the 2007 Nobel Peace

Prize), and has provided requested advice to numerous government officials in multiple administrations including a US Vice President, the President's Science Advisor in multiple administrations, and committees and individual members of the US Senate and House of Representatives. He has authored or coauthored over 290 refereed scientific papers. He was presenter for the PBS TV miniseries on climate and energy *Earth: The Operators' Manual*, and author of the book. His popular account of climate change and ice cores, *The Two-Mile Time Machine*, was Phi Beta Kappa's science book of the year. Dr. Alley is happily married with two grown daughters, two stay-at-home cats, a bicycle, and a pair of soccer cleats.

Saturday March 24, 2018 following the dinner beginning at 6:00PM in the Kovalchick Arena

Student Lunch Panel Saturday March 24 12:15-1:15PM PNC 10/11

Why did you become a science major? What do you want to do when you graduate? As a science major, there is a world of opportunities waiting for you. But, do you know what is out there? We have a great line-up of panelists who will help you to explore a wide-range of occupations. We invite you to participate in the panel discussions, meet our panelists, and ask questions about your future careers.

A free boxed lunch will be provided to students that attend the panel.

Students wishing to attend the panel must have signed up during online meeting registration.

Participants at the 94th Annual Meeting of the PAS

School/Organization	Number of Presentations
Indiana University of Pennsylvania	32
Cedar Crest College	16
Cabrini University	12
Mercyhurst University	12
Susquehanna University	12
King's College	10
Lycoming College	9
Misericordia University	8
East Stroudsburg University	6
Messiah College	6
York College of Pennsylvania	6
Albright College	5
Gannon University	4
Harrisburg University of Science and Technology	4
Penn State University-Altoona	4
Saint Vincent College	4
Wilson College	4
Marywood University	3
Penn State University-York	3
Delaware Valley University	2
Moravian College	2
Lafayette College	1
University of Pittsburgh	1
University of Scranton	1

Presentations sponsored by 24 Pennsylvania colleges and universities.

Wireless Access Information

Wireless SSID Name: HawkNet

Password: Welcome2IUP (case-sensitive)

Follow the Pennsylvania Academy of Science on Twitter

[@PennAcadSci](https://twitter.com/PennAcadSci)



Live tweet the conference #PAS2018

94th Annual Meeting of the Pennsylvania Academy of Science

All events held at the [Kovalchick Convention and Athletic Complex](#) located on the Indiana University of Pennsylvania campus

SCHEDULE OF ACTIVITIES AT A GLANCE

Friday, March 23

5:00-7:00 PM	PAS Board Meeting	PNC Room 7
6:00-7:00 PM	PAS Board Dinner	PNC Room 6
6:30-7:30 PM	Meeting Check-In	Lobby
7:00-9:00 PM	Reception	Lobby

Saturday, March 24

7:30-10:30 AM	Meeting Check-In	Lobby
8:45-9:00 AM	Introduction and Welcome	Toretti Auditorium
9:15-10:15 AM	Oral Presentations I Chemistry and Physics	PNC Room 6/7
9:10-12:00 AM	Alternative Energy Symposium Session I: <i>Energy Transitions and Solar Energy</i>	PNC Room 10
10:00-11:00 AM	Coffee Break	Lobby
10:00-12:00 PM	Poster Session I: Terrestrial Ecology and Microbiology (Poster set-up 8:00-10:00 AM)	Lobby
10:30-11:45 PM	Oral Presentations II: Models of Human Disease/Biotechnology	PNC Room 6
10:30-12:00 PM	Oral Presentations III: Neuroscience and Neuroanatomy	PNC Room 7
12:15-1:15 PM	PAS Business Meeting Lunch* (All members welcome)	PNC Room 11/12
12:15-1:15 PM	Student Lunch Panel	PNC Room 6/7
1:30-3:00 PM	Oral Presentations IV: Terrestrial Ecology I/Environmental Science	PNC Room 6/7
1:30-3:00 PM	Alternative Energy Symposium Session II: <i>Biological sources of Renewable Energy</i>	PNC Room 10
1:30-3:30 PM	Poster Session II: Genes, Cells, Development, and Disease (Poster set-up 12:00-1:30 PM)	Lobby
2:00-3:00PM	Coffee Break	Lobby
3:15-5:00 PM	Oral Presentations V: Cancer Biology	PNC Room 6/7
3:30-5:00 PM	Alternative Energy Symposium Session III: <i>Wind Energy and Sustainable living</i>	PNC Room 10
6:00-6:45 PM	Cocktails	Arena
7:00-9:00 PM	Dinner and Keynote Address: Dr. Richard Alley Ph.D <i>Learning from the "Pennsylvania Desert": Historical insights to our energy future</i>	Arena

* Business Meeting Election slate found at the end of the program book.

Sunday, March 25

7:30–8:30 AM	Meeting Check-In	Lobby
8:00–9:00 AM	PAS Board Meeting	Executive Board Room
9:00–10:00 AM	Coffee Break	Lobby
9:30–11:30 AM	Oral Presentations VI Microbiology VII Terrestrial Ecology II	PNC Room 6/7 Toretti Auditorium
9:45–11:45 AM	Poster Session III: Aquatic Ecology/ Chemical, Environmental, Forensic, and Physical Sciences (Poster set-up 8:00–9:45 AM)	Lobby
11:45–12:30 PM	Lunch	PNC10/11/12
12:30–1:00 PM	Awards Ceremony for Spsychala Awards and PAS Undergraduate Research Grants	Toretti Auditorium

ALL Abstracts are available in the Abstract Booklet located at <https://pennsci.org/pas-schedule2018/>



**94th Annual Meeting of the Pennsylvania Academy of Science
Indiana University of Pennsylvania
March 23-25, 2018**

ALTERNATIVE ENERGY SYMPOSIUM

Saturday, March 24

SYMPOSIUM SESSION I: Energy Transitions and Solar Energy

Saturday March 24 9:10AM-12:00PM Location: **PNC 10**

- 9:10-9:15 *Introduction and Welcome* **Ed Levri** PSU-Altoona
- 9:15-9:45 *Leaping the Gap: Tracing Energy Transitions in World History.* **Brian Black** PSU-Altoona
- 9:45-10:15 *The Solar Ecology Framework: Pathways for Discovery and Well-Being from Light.* **Jeffery Brownson** Pennsylvania State University
- 10:15-10:45 *Concentrating sunlight without tracking the Sun.* **Chris Giebink** Pennsylvania State University
- 10:45-11:00 Coffee Break
- 11:00-11:30 *Multi-Exciton Generation Mechanisms: Multiplying the Benefits of Solar Power.* **John Asbury** Pennsylvania State University
- 11:30-12:00 *Solar Energy and Market Suppression: How solar benefits everyone.* **Richard Flarend** PSU-Altoona

SYMPOSIUM SESSION II: Biological sources of Renewable Energy

Saturday March 24 1:30-3:00PM Location: **PNC 10**

- 1:30-2:00 *Sustainable energy through biomass conversion using liquid phase catalysis.* **Lindsey Welch** Cedar Crest College
- 2:00-2:30 *Biochar, the Key to Expanded Biomass Energy Markets.* **Ed Johnstonbaugh**, Pennsylvania State Cooperative Extension
- 2:30-3:00 *Microbial Electrochemical Technologies: Possibilities and Practical Matters.* **Rachel Wagner**, Saint Francis University

SYMPOSIUM SESSION III: Wind Energy and Sustainable living

Saturday March 24 3:30-5:00PM Location: **PNC 10**

- 3:30-4:00 *Status of Wind in Pennsylvania: Overview & Policy.* **Allison Rohrs** Saint Francis University
- 4:00-4:30 *Status of Wind in Pennsylvania Part II: Environmental Impacts.* **Michael Barton**, Association of Consulting Foresters
- 4:30-5:00 *Reaching sustainability goals through efficiency and off-grid living.* **Michael Sell**, Saint Francis University

SYMPOSIUM SPEAKER BIOGRAPHIES

Brian C. Black is Distinguished Environmental Studies and History at Penn State Altoona, where he also currently serves as Head of the Division of Arts and Humanities. He is the author or editor of several books, including the award-winning *Petrolia: The Landscape of America's First Oil Boom* (Johns Hopkins, 2003) and *Crude Reality: Petroleum in World History* (Rowman & Littlefield, 2014). He edits the “Energy and Society” book series for the West Virginia University Press.

Jeffery Brownson researches evolving interdisciplinary themes of photovoltaics, community solar, energy economics, and sustainability. His contributions include the study of solar energy impacts in water, ecosystems services, food systems, and social systems via the “solar ecology” framework. He joined Penn State in 2007 and served as the Faculty Director of the Natural Fusion team at Penn State for the Solar Decathlon competition held in 2009. Jeffrey also helped to create the online graduate program in Renewable Energy & Sustainability Systems (https://www.ress.psu.edu/solar_energy) enabling a new wave of solar project development professionals to emerge over the last four years.

Chris Giebink is the Charles K. Etner Assistant Professor of Electrical Engineering at Penn State University. He received his Ph.D. in electrical engineering from Princeton University and holds undergraduate degrees in both Physics and Engineering Science from Trinity University (TX). His research interests focus broadly on optoelectronic and photonic devices, including applied research on solar photovoltaics, semiconductor lasers, and light emitting diodes. He holds 8 patents and is a recipient of the DARPA YFA, AFOSR YIP, and NSF CAREER awards.

John Asbury is an associate professor in the Chemistry Department at the Pennsylvania State University. He came to Penn State in 2005 after doing his post-doctoral work at Stanford University and his PhD at Emory University. His group uses a variety of ultrafast vibrational and electronic spectroscopies that inform ongoing efforts to understand and control the electronic properties of emerging photovoltaic materials based on colloidal quantum dots, organo-halide perovskites, and organic semiconductors.

Richard Flarend is an Associate Professor of Physics at Penn State Altoona. He teaches courses on Physics and Energy and the Environment, and has a research focus on renewable energy and energy policy. Dr. Flarend advises students in the Penn State Enactus E² group (Enactus Energy) who do energy audits of local businesses and promote solar energy development. Dr. Flarend also owns a solar installation business.

Lindsey Welch is an assistant professor of chemistry at Cedar Crest College in Allentown, PA. She earned a B.S. in chemistry with a minor in biology from Lycoming College, and a Ph.D. in chemistry from Lehigh University. She joined the faculty at Cedar Crest in 2011, and she serves as the inorganic chemist. Outside of the College, she is very active in the American Chemical Society (ACS). She has served in the past as secretary and treasurer of the Lehigh Valley local section. At the national level, she is the secretary of the Environmental Chemistry technical division and she is the newly-elected member-at-large on the executive board of the Catalysis Science and Technology technical division. Dr. Welch’s research focuses around catalysis and renewable energy production, and she is the recipient of the ACS Petroleum Research Fund Undergraduate New Investigator Award (2016).

Edward Johnstonbaugh came to work with Penn State Extension 10 years ago after spending 25 years in the electric utility industry. His interest in renewables focuses on leveling the playing field between fossil fuels and renewable, carbon neutral fuels that will become the fuels of the future. He has been the director of the PA Wood Energy Team since its inception. He also leads Penn State Extensions Renewable Energy for Municipal Authorities Project. With a strong belief in the value of renewable energy credits as a means to fair competition between renewable energy sources and fossil fuels. Ed founded and is the COO of Future Times Energy, a renewable energy credit aggregation cooperative.

Rachel Wagner is an associate professor of environmental engineering at Saint Francis University in Loretto, PA. She received her Ph.D. in environmental engineering from Penn State in 2012, and her B.S. in biology and M.S. in biological systems engineering from Virginia Tech. Dr. Wagner's research interests are in waste management solutions. Her primary research is in bioelectrochemical systems, including microbial fuel cells, which convert waste organic matter to electricity through the metabolic process of microorganisms. She enjoys teaching and mentoring through research and outreach.

Allison Rohrs serves as director of the Institute for Energy. Her graduate research largely focused on issues she witnessed as a wind turbine field technician. Allison previously worked for the U.S. Fish and Wildlife Service as well as working in Grand Teton National Park. Her experience in the natural resources field led to a passion to preserve the planet and ultimately a career in renewable energy. Allison holds a Master's degree in Energy and Mineral Engineering from Penn State

Michael Barton is a forester with his own Forestry Consulting Business in Cambria County, Pennsylvania. He earned a Bachelor of Science Degree in Forestry from Penn State University in 1983. Michael has consulted on the environmental aspects of Wind Energy working on 9 different wind projects across the state. In 2008 - 2010 Michael worked as the Western Regional Manager for Shoener Environmental where he was in charge of the Two-Year Post-Mortality Studies for Birds and Bats on 5 wind farms. He regularly volunteers his time and has hosted more than 300 wind farm tours for school groups, college classes and the professional, state and governmental organizations. He regularly speaks on wind energy development and impacts.

Michael Sell serves as Project Coordinator at the Saint Francis University Institute for Energy where he works to create a more energy literate society through the Institute's outreach activities and research projects. Sell holds a Bachelor of Arts and a Master of Business Administration, both from Saint Francis University.

GENERAL PROGRAM SESSIONS

Program Chair: Dr. André P. Walther

Saturday, March 24 MORNING SESSIONS

ORAL SESSION I: Chemistry and Physics

Saturday March 24 9:15-10:15 AM Location: PNC 6/7

Session Chair: Dr. Julie Belanger

- 9:15-9:30 1. *Characterization of unexpected meta-stable dispersions inspired by the Greek drink, Ouzo.* **Belanger, Julie***, **Joseph Cirilo**, and **Thomas Reidy** King's College.
- 9:30-9:45 2. *A custom fluorescence lifetime spectroscopy system developed with a novel digital circuit.* **Eplett, Sarah***, and **Ryan Colyer** Cabrini University.
- 9:45-10:00 3. *Assessing raw and treated natural zeolite ability to remove methyl green and toluidine blue dyes from aqueous solutions.* **Endres, Kodi***, and **Sanda Maicaneanu** Indiana University of Pennsylvania.
- 10:00-10:15 4. *Computational analysis of intermolecular Diels–Alder reactions of α -amido acrylates with N-Cbz-1,2-dihydropyridine and cyclopentadiene.* **Heil, Elysia***, and **Nicholas Sizemore*** University of Scranton.

POSTER SESSION I: Terrestrial Ecology & Microbiology

Saturday April 1 10:00-12:00 AM Location: Lobby

Session Chair: Dr. Narveen Jandu

5. *Identifying the effectiveness of plant extracts for treating biofilms of *E. coli* and *M. xanthus*.* **Burton, Micah***, **Akeisha Belgrave**, and **Rachel Fogle** Harrisburg University of Science and Technology.
6. *Relating bacterial cell wall synthesis to bacterial antibiotic susceptibility in rod-shaped cells.* **Muller, Rebecca***, and **Akeisha Belgrave** Harrisburg University of Science and Technology.
7. *Discover and annotation of novel bacteriophages: lilboat and inspire2.* **Romani, Isabella***, **Jenna Bucca**, **Bailey Babarsky**, **Andrew Conboy**, and **Melinda Harrison** Cabrini University.
8. *Discover and annotation of a novel bacteriophage copper.* **Spadafora, Sonia***, **Bailey Babarsky**, **Isabella Romani**, and **Melinda Harrison** Cabrini University.
9. *Biofilm formation in *Mycobacterium smegmatis* is regulated by biofilm formation.* **Krasik, Polina**, **Colleen Rattan***, **LenaRose DeLorenzo**, and **Jennifer Hayden** Cedar Crest College.
10. *Influenza-like illness and vaccination rates amongst college students based on housing style.* **Jandu, Narveen**, and **Cheyenne Annarumo*** Gannon University.
11. *Antibiotic resistance in *Enterobacter aerogenes*.* **Jandu, Narveen**, and **Matthew Dilts*** Gannon University.
12. *Resistance to lavender oil (*Lavandula angustifolia*) in *Serratia marcescens*.* **Morales, Millina***, and **Stephanie Justice-Bitner** King's College.

13. *Using the Kirby Bauer method to examine bacterial resistance to tea tree essential oil.* **Phillips, Taylor***, and **Stephanie Justice-Bitner** King's College.
14. *Optimization and analysis of the Nile Red efflux pump assay across bacteria species.* **Hane, Kimberly***, **Julianna Marotta***, and **K. Joy Karnas** Cedar Crest College.
15. *Killing Klebsiella pneumoniae, a fight against antibacterial drug resistance.* **Barnhart, Ryan***, **Deanne Cuda***, and **Sudipta Majumdar** Indiana University of Pennsylvania.
16. *Chryseobacterium JAH sp. nov., isolated from a freshwater creek.* **Atondo, Jamie***, and **Jeff Newman** Lycoming College.
17. *The identification of a novel species and novel genus in the family Bacillaceae.* **Carson, Emily***, and **Dr. Jeffrey Newman** Lycoming College.
18. *Isolating a species of bacteria capable of degrading an unusual carbon source.* **Frantz, Devin***, and **Jeffrey Newman** Lycoming College.
19. *Reinstatement of the genus Epilithonimonas within Flavobacteriaceae and isolation of Epilithonimonas diehlii sp. nov., from a freshwater creek.* **Jacobs, Kyle***, **Jessica Hoffman***, and **Jeffrey Newman*** Lycoming College.
20. *Sphingobacteriaceae related to Pedobacter agri isolated from a freshwater creek.* **King, Carli***, **Emily Carson**, and **Jeffrey Newman** Lycoming College.
21. *Role of Phytophthora sojae Pectate Lyase Enzymes in Glycine max infection.* **Grams, Nick***, and **Manuel Ospina-Giraldo** Lafayette College.
22. *Elevated soil temperatures from a Pennsylvania coal mine fire are associated with the increased presence of antibiotic resistance, antibiotic producing, and quorum sensing genes.* **Grill, Brooke***, and **Tammy Tobin** Susquehanna University.
23. *Development of a High Resolution Melt (HRM) analysis tool to genetically fingerprint beer yeasts.* **Barr, Stephanie***, and **Andre Walther** Cedar Crest College.
24. *withdrawn*
25. *Examining genotoxicity of consumer products using a novel eukaryotic differential assay.* **Hanumaihgari, Priyanka***, and **André Walther** Cedar Crest College.
26. *Optimization of liquid media and carbohydrate sources for biodiesel fatty acid production in mutant strains of the oleaginous yeast Cryptococcus neoformans.* **Selinsky, Constance***, **Alexandra Morgan***, and **Andre Walther** Cedar Crest College.
27. *Microbes shape pollinator preference.* **Shaible, Tierney***, **Avery Russell**, and **Tia-Lynn Ashman** University of Pittsburgh.
28. *Interannual variation in diet composition of American kestrel (Falco sparverius) chicks.* **Abreu, Leslie***, **Jean-Francois Therrien**, and **Allison Cornell** Cedar Crest College.
29. *Diet composition and variation; possible correlations to American kestrel (Falco sparverius) reproductive output.* **Culichia, Fernanda***, **Alexis Zigarelli**, **Jean-Francois Therrien**, and **Allison Cornell** Cedar Crest College.
30. *Diet of American kestrels and its application as an alternative pest control system.* **Melo, Mercy***, **Jean-Francois Therrien**, and **Allison Cornell** Cedar Crest College.
31. *Red-backed salamanders (Plethodon cinereus) as indicators for recovery of habitats along closed roads in Spring Valley County Park, York, PA.* **Howell, Gregory***, and **Bridgette Hagerty** York College of Pennsylvania.

32. *The effect of Tree of Heaven (Ailanthus altissima) on the growth and soil fungal community of Black Locust (Robinia pseudoacacia).* **Sakyi, Edmund***, and **Karl Kleiner** York College of Pennsylvania.
33. *Investigation of an Emerging Outbreak: Fluorescent Tagging of Cotton Leaf Curl Gezira Virus.* **Lokken, Britta***, **Kadeem M. Colburn**, and **Meg M. Laakso** Eastern University.
34. *Coat protein samples from tomato yellow leaf curl virus and cotton leaf curl Gezira virus can be used to produce virus-specific antibodies for immune-labeling experiments.* **Thiensen, Matthew***, and **Meg Laakso** Eastern University.
35. *Prairie Warbler (Setophaga discolor) abundance and associated vegetation characteristics in managed forests of Pennsylvania and New Jersey.* **Can, Marilyn***, **Jeffery Larkin**, **Cameron Fiss**, and **Darin McNeil** Indiana University of Pennsylvania.
36. *Dynamic habitat associations of Bombus in early-successional forests of northern Pennsylvania.* **Moser, Erin***, **Darin McNeil**, and **Jeff Larkin** Indiana University of Pennsylvania.
37. *The effect of floral height on pollinator visitation in Mountain Laurel (Kalmia latifolia).* **Smithbauer, Michelle***, **Maureen Levri**, and **Edward Levri** Penn State University-Altoona.
38. *The importance of multiple methodologies to survey tropical bat communities.* **Campbell, Karen**, and **Stephen Mech*** Albright College.
39. *Activity budget and mating behaviors in zoologically housed siamang gibbons (Symphalangus syndactylus).* **Munir, Gina***, **Rebecca Bailey***, **Summer Arrigo-Nelson**, and **Paul Nealen** Indiana University of Pennsylvania.
40. *Burrowing and escape responses among riparian and non-riparian populations of wolf spiders.* **Barbarich, Tara***, **Hailey Shannon**, **Cutter McMinn**, and **Matthew Persons** Susquehanna University.
41. *Variation in total mercury content of spiders from coal-impacted areas in Central Pennsylvania.* **McMinn, Cutter***, **Hailey Shannon**, **Derek Wilson**, **Tara Barbarich**, **Brian Mangan**, and **Matthew Persons** Susquehanna University.
42. *The effect of single and multiple predator cues on survival, foraging and antipredator responses of the wolf spider, Pardosa milvina.* **Shannon, Hailey***, **Brynn Hailey**, **Tristan Campbell**, and **Matthew Persons** Susquehanna University.
43. *Black bear (Ursus americanus) home range and habitat selection in Alligator National Wildlife Refuge.* **Wagner, Morgan**, and **Christine Proctor** Harrisburg University of Science and Technology.
44. *Mitochondrial phylogeny of highland frogs (Anura: Ranidae: Rana maculata) from Nuclear Central America.* **Ross, Ayla***, and **Josiah Townsend** Indiana University of Pennsylvania.
45. *Survival and Growth of Castanea dentata Planted at the Flight 93 National Memorial.* **Brady, Caleb***, **Shannon Johns**, **Aaron Wolfe**, **Michael Tyree**, **Jeffrey Larkin**, **Scott Eggerud**, and **Michael French** Indiana University of Pennsylvania.
46. *Allegheny woodrat (Neotoma magister) food preference: A comparison of American chestnut hybrids and native oak nuts.* **Buell, Chelsea***, **Morgan Eytcheson**, **Joseph Duchamp**, **Gregory Turner**, **Jeffrey Larkin**, and **Michael Tyree** Indiana University of Pennsylvania.
47. *Determining the paleogeographical origin of the Allosaurus Fragalis from within the Cleveland Lloyd Dinosaur Quarry (Price, Utah) using biogenic apatite $\delta^{18}O$ values.* **Lees, Nicole***, and **Jonathan Warnock** Indiana University of Pennsylvania.
48. *Comparison of Multiple Techniques in Quantifying Impacts of Elevated zinc Concentrations on Growth and Reproduction of Lemna minor.* **Zaneski, Rebecca***, and **Cosima Wiese** Misericordia University.

49. *Influence of Plot Location on Common Garden Outcome for Measurement of Leaf Herbivory.* **Showers, Jeannie, Margaret Blaetz, Christopher Pagan, and Ellen Yerger** Indiana University of Pennsylvania.

ORAL SESSION II: Models of Human Disease/Biotechnology

Saturday March 24 10:30-11:45 AM Location: PNC Room 6

Session Chair: **Dr. Amy Parente**

- 10:30-10:45 **50.** *Regulatory effects of ellagic acid on bone-forming osteoblast and bone-resorbing osteoclast cells.* **Budzilowicz, Amanda*, Bianca Santos, and Joyce Belcher** Cabrini University.
- 10:45-11:00 **51.** *Effect of hyperglycemia on circadian rhythms in erythrocyte peroxiredoxins.* **Mabe, Lauren*, Aubrey Ernest*, and Megan Knoch*** Indiana University of Pennsylvania.
- 11:00-11:15 **52.** *Cryopreservation of human erythrocytes for laboratory culture of Plasmodium falciparum.* **Stambaugh, Samuel*, Nicole Clemente, and Lawrence Mylin** Messiah College.
- 11:15-11:30 **53.** *Krüppel-like transcription factor 3's effect on the insulin pathway using klf3::tph1 double mutants in the model organism Caenorhabditis elegans.* **Kraycer, Paul*** Marywood University.
- 11:30-11:45 **54.** *6XHis-Taq DNA polymerase-TEV-green fluorescent protein fusion protein overexpression and purification.* **Callerame, Deanna*** Mercyhurst University.

ORAL SESSION III: Neuroscience and Neuroanatomy

Saturday March 24 10:30-11:45 AM Location: PNC Room 7

Session Chair: **Dr. Daniel Widzowski**

- 10:30-10:45 **55.** *Dose response effects of forskolin on immortalized Schwann cell growth.* **Williams, Ashley*, and Angela Asirvatham** Misericordia University.
- 10:45-11:00 **56.** *Operant conditioning increases the number of surviving cells in the ventral dentate gyrus of the adult rat.* **Huggins, Charity*, Kyle Retterstoff, and Daniel Curlik II** York College of Pennsylvania.
- 11:00-11:15 **57.** *Glutamate exposure causes transposition of phosphatidylserine to the outer plasma membrane in SH-SY5Y cells.* **Perez, Alexis*, Stephanie Justice-Bitner, and Barbara Fenner** King's College.
- 11:15-11:30 **58.** *Validation of a neurobehavioral assay for testing 5-HT_{2A} activity of novel compounds: dose-effect characterization of mirtazapine.* **Kalimon, Olivia*, Widzowski, Daniel** Indiana University of Pennsylvania.
- 11:30-11:45 **59.** *Cervical spine movement during American football equipment removal: supine versus torso tilt, spine board versus turf.* **Jacobson, Bradley, Kevin Cooney, Devin Kelly, Drake Burgess*, Michael Cendoma, and Dustin Bruening** Mercyhurst University.

Saturday, March 24 AFTERNOON SESSIONS

ORAL SESSION IV: Terrestrial Ecology I/Environmental Science

Saturday March 24 1:15-2:45 PM Location: PNC Room 6/7

Session Chair: **Dr. Ellen Yerger**

- 1:15-1:30 **60.** *Evaluation of Microstegium vimineum success under varying timber management techniques.* **Minnig, Patrick***, and **David Osgood** Albright College.
- 1:30-1:45 **61.** *Effects of Periodic Drought on Delayed Seed Germination in Neotropical Costus Species.* **Kunkel, David***, and **Grace Chen** Misericordia University.
- 1:45-2:00 **62.** *Variation in insect herbivory in common garden plots in different ecosystems.* **Blaetz, Margaret***, **Jeannie Showers**, **Christopher Pagan**, and **Ellen Yerger** Indiana University of Pennsylvania.
- 2:00-2:15 **63.** *Does caffeine cause cannibalism? A test in Tenebrio molitor.* **Curry, Adam** Penn State University Wilkes-Barre.
- 2:15-2:30 **64.** *The Northern Waterthrush: analyzing the distribution and abundance of a secretive songbird in Pennsylvania.* **Clarke, Justin***, and **Terry Master** East Stroudsburg University.
- 2:30-2:45 **65.** *Creation of a wireless sensor network to gather real-time temperature, pH, and conductivity data from remote locations.* **Parente, Amy***, **Miguel Garcia-Rubio**, and **Michael Healy** Mercyhurst University.

POSTER SESSION II: Genes, Cells, Development, and Disease

Saturday March 24 1:30-3:30 PM Location: Lobby

Session Chair: **Dr. Sudipta Majumdar**

- 66.** *Modulatory effects of prolactin on osteoblasts and chondrocytes in vitro.* **Cabrera Vicens, Brenda***, **Kelly Perri**, and **Joyce Belcher** Cabrini University.
- 67.** *Tissue-restricted knockdown of the proteasomal component Prosalpha-3T may lead to reduced skeletal and cardiac muscle function in Drosophila melanogaster.* **Haigh, Sydnie***, and **Anna Blice-Baum** Cabrini University.
- 68.** *UBC84D knockdown may lead to decreased cardiac and skeletal muscle performance in Drosophila melanogaster.* **Joyce, Erin ***, and **Anna Blice-Baum** Cabrini University.
- 69.** *Reproductive success and ovarian gene expression in Drosophila melanogaster maintained in a simulated high altitude (low-pressure) environment.* **Rhyder, Nikell***, **Eric Martine***, **Helana Supsic**, **Jonah Winakor**, and **David Richard** Susquehanna University.
- 70.** *Determining the effect of the R1 peptide on lhx1a dimerization.* **Aljagthmi, Wafaa***, and **Cuong Diep** Indiana University of Pennsylvania.
- 71.** *Identifying tbx20 as a Pattern Regulator During Planarian Regeneration.* **Mukherjee, Sujata***, and **Robert Major** Indiana University of Pennsylvania.
- 72.** *PCR-Based Cloning of Genes from the Freshwater Planarian, Schmidtea mediterranea.* **Wasser, Adam***, **Peter Stapleford***, and **Robert Major** Indiana University of Pennsylvania.

73. *Ingestion of diadzein leads to an increase in ERR-dependent larval lethality in Drosophila melanogaster*. **Gehman, Courtney***, **Theresa Shafto**, **William Holl**, and **Erin Ventresca** Albright College.
74. *Quantification of diadzein binding to the estrogen-related receptor in Drosophila melanogaster*. **Shafto, Theresa***, **Courtney Gehman**, **William Holl**, and **Erin Ventresca** Albright College.
75. *Automated analysis of spontaneous behavior in Drosophila melanogaster*. **McLaughlin, Sean***, and **David Andrew** Lycoming College.
76. *Genetic analysis of spontaneous grooming behavior in the fruit fly Drosophila melanogaster*. **Hannum, Courtney ***, **Zachary High***, and **David Andrew** Lycoming College.
77. *Mapping putative amplicons onto larval salivary gland polytene chromosomes of Sciara coprophila using fluorescence in situ hybridization*. **LeMarble, Rachel***, and **Michael Foulk*** Mercyhurst University.
78. *FISHing for amplicons: mapping hypothetical amplified loci to the giant polytene chromosomes of Sciara coprophila by fluorescent in situ hybridization*. **Phung, Lan-Nhi***, and **Michael Foulk** Mercyhurst University.
79. *Amplification of Oncorhynchus nerka COI gene from PIT tag trocars as a potential new field analysis technique*. **Stoneberg, Kelsey ***, and **Kimberly Johnston** Delaware Valley University.
80. *Beta-2-adrenergic receptor expression changes in stressed mice*. **Mong, Hannah***, **Yuval Silberman**, and **Jessica Petko** Pennsylvania State University- York.
81. *Identification of Replication Protein A Phosphorylation dependent protein-protein interactions in Saccharomyces cerevisiae using the Yeast Two-Hybrid Assay*. **Groves, Sarah Jane***, **Chelsea Mahoney**, and **Andre Walther** Cedar Crest College.
82. *Single Nucleotide Polymorphisms (SNP's) associated with dyslexia may influence college major choice in the King's College community*. **Jones, Claire***, **Christine Rittenhouse**, and **Ann Yezerksi** King's College.
83. *withdrawn*
84. *Characterization of Double-stranded (ds) RNA from the plant pathogenic fungus Rhizoctonia solani*. **Alnajjar, Roaa***, **Seema Bharathan**, and **Narayanaswamy Bharathan** Indiana University of Pennsylvania.
85. *Characterization and Protein Profiling of Viral Infected and Non-infected Rhizoctonia solani isolates*. **Byne, Ahana***, **Seema Bharathan**, and **Narayanswamy Bharathan** Indiana University of Pennsylvania.
86. *cDNA synthesis and cloning of tomato mosaic viral RNA (ToMV) using one-step nested RT-PCR*. **Gray, Jacob***, **Mohammed Ali***, **Mary Chey**, and **Narayanaswamy Bharathan** Indiana University of Pennsylvania.
87. *Analysis of cloned viral Double-Stranded (ds) RNA from selected isolates of Rhizoctonia solani belonging to Anastomosis Group (AG)-4*. **Khoj, Maisa***, **Seema Bharathan**, and **Narayanaswamy Bharathan** Indiana University of Pennsylvania.
88. *Analysis of mycoviral dsRNA in Rhizoctonia solani isolates 303, 357, 386 using CRISPR*. **Michalides, Brandon***, **Seema Bharathan**, and **N Bharathan** Indiana University of Pennsylvania.
89. *Construction and characterization of an open body fluorescence microscopy system for fluorescence lifetime imaging*. **Ayer, Danielle***, and **Ryan Colyer** Cabrini University.
90. *The disruption of the phototransduction process in the planarian Schmidtea mediterranea and its effect on phototaxis*. **AlMuhanna, Mohammed***, and **Robert Hinrichsen** Indiana University of Pennsylvania.

91. *Cloning of Alanine Racemase from two different pathogenic bacteria Enterococcus faecium and Neisseria gonorrhoeae.* **Bond, Derrick***, **Drew Hannon***, and **Sudipta Majumdar** Indiana University of Pennsylvania.
92. *Application of Bacterial Adenylate Cyclase Two Hybrid (BACTH) system for studying alanine racemase dimerization in vivo.* **Cook, Ryan***, **Arie Van Wieren***, and **Sudipta Majumdar** Indiana University of Pennsylvania.
94. *Exploring the dimorphic nature of C. albicans through atomic force microscopy.* **Ash, Michelle***, and **Jeffrey Stephens** Misericordia University.
93. *Characterization of interacting proteins for an alternative splice variant of the Wnt secretion molecule, Wntless.* **Thileepan, Mathura***, **Trevor Tranchina**, **Robert Levenson**, and **Jessica Petko** Penn State University.
95. *Effects of the antihistamine fexofenadine on body weight, body fat, blood glucose, and serum and liver triglycerides in mice.* **Yingst, Amber***, **Mara Menk**, **Josh Shaffer**, **Elizabeth Smith**, and **Dr. Daniel Widzowski** Indiana University of Pennsylvania.
96. *Postural performance, neurocognition, and self-reported concussion: a prospective longitudinal study of incoming Division II collegiate freshmen football players.* **Chetlin, Robert**, **Shannon Farbacher***, **Callie Paddock***, **Ryan Riemedio**, and **Bradley Jacobson** Mercyhurst University.
97. *Detection of novel cannabinoid receptor 1 (CB1R) interacting proteins.* **Almony, Sarah***, and **Stephanie Justice-Bitner** King's College.
98. *Role of the PI-3 kinase pathway in Purkinje cell dendrite development.* **Samuel, Dressler***, **Rosa Rodriguez**, and **Mary Morrison** Lycoming College.
99. *The Role of Ent Proteins in Nitrogen-Regulated Growth of Saccharomyces cerevisiae.* **Haile, Olivia***, **Allyson Owens**, and **Quyen Aoh** Gannon University.
100. *Role of SCAMP3 in CXCR4 Trafficking.* **Inserra, Kasie***, **Priscilla Thomas**, and **Quyen Aoh** Gannon University.
101. *Role of SCAMP3 in β -Amyloid Production and Secretion.* **Santarelli, Jeremy***, **Dan Cooney**, and **Quyen Aoh** Gannon University.
102. *Using CRISPR-Cas9 to create a yeast strain for genetic screens.* **Mikeasky, Noriko***, and **Cuong Diep** Indiana University of Pennsylvania.
103. *Yeast 2-hybrid screening for novel interactors of Shrm3, a protein involved in neural tube morphogenesis.* **Tranchina, Trevor***, **Mathura Thileepan**, and **Jessica Petko** Penn State York.
104. *Characterizing Protein Interactions and Conformation Changes of the S. cerevisiae Srs2 Helicase C-terminal Domain.* **Clark, Kyle ***, and **Jana Villemain** Indiana University of Pennsylvania.
105. *Examining the role of phosphorylation on RPA genetic interactions with DNA repair genes KU70 and RAD52.* **Hill, Brianna***, and **Andre Walther** Cedar Crest College.
106. *Determining the Role of RPA Phosphorylation in Checkpoint Adaptation in the yeast Saccharomyces cerevisiae.* **Macagnone, Anna***, **Nadia Namous**, and **Andre Walther** Cedar Crest College.
107. *Examining the role of Replication Protein A phosphorylation's genetic interactions with other checkpoint genes in regulating the cellular response to chemotherapeutic drugs in Saccharomyces cerevisiae.* **Namous, Fadia***, and **Andre Walther** Cedar Crest College.
108. *Examining the Role of RPA phosphorylation in the Telomere Synthesis pathway in Saccharomyces cerevisiae.* **Namous, Nadia***, and **Andre Walther** Cedar Crest College.

ORAL SESSION V: Cancer Biology

Saturday March 24 3:15-5:00 PM Location: **PNC Room 6/7**

Session Chair: **Dr. Sheryl Fuller-Espie**

- 3:15-3:30 **109.** *In vitro anticancer effects of protein extracts from Eisenia hortensis: A flow cytometry study investigating inhibitory actions on a colon cancer cell line.* **Stern, Sydney***, and **Sheryl Fuller-Espie** Cabrini University.
- 3:30-3:45 **110.** *Optimization of RNA Isolation from Frozen Human Pancreatic Cancer Tissue.* **Jones, Rebekah***, and **John Harms** Messiah College.
- 3:45-4:00 **111.** *Implicating gastrin signaling in K-ras-mediated tumorigenesis.* **Nevin, Andrew***, and **John Harms** Messiah College.
- 4:00-4:15 **112.** *In vivo effects of proglumide treatment on pancreatic tumor growth and fibrosis.* **Darok, Matthew***, and **John Harms** Messiah College.
- 4:15-4:30 **113.** *Characterization of T cell responses to a synthetic peptide representing a potential target for the immunotherapy of pancreatic cancer.* **Goldbach, Krysta***, **John Harms**, and **Lawrence Mylin** Messiah College.
- 4:30-4:45 **114.** *Does a robust CD8+ killer T cell response alter the type(s) of cytokines secreted by CD4+ helper T cells responding to the same tumor antigen?* **Isaga, Emily***, **Arielle Raugh**, and **Lawrence Mylin** Messiah College.
- 4:45-5:00 **115.** *Is phosphorylation a requirement for Src recruitment to the Cx43 C-terminus?* **Troutman, Kayla***, and **Anastasia Thévenin** Moravian College.

Sunday, March 25 MORNING SESSIONS

ORAL SESSION VI: Microbiology

Sunday March 25 9:30-11:15 AM Location: **PNC Room 6/7**

Session Chair: **Dr. Nicole Chinnici**

- 9:30-9:45 **116.** *Investigation of possible points of contamination by Lactobacillus and Pediococcus in a microbrewery.* **Lehman, Kirstin***, **M. Dana Harriger**, and **Bradley Stiles** Wilson College.
- 9:45-10:00 **117.** *Analysis of AcrAB-TolC Efflux Pump overexpression in triclosan resistant Enterobacter spp. via quantitative PCR and expression cloning in Escherichia coli.* **Marotta, Julianna***, and **K. Joy Karnas** Cedar Crest College.
- 10:00-10:15 **118.** *Detection of antimicrobial activity of protein extracts from Eisenia hortensis using disk diffusion methods.* **Townsend, Olivia***, **Sheryl Fuller-Espie**, and **Sydney Stern** Cabrini University.
- 10:15-10:30 **119.** *The effect of the dietary antioxidant Seleno-L-Methionine (SeMet) on Burkholderia thailandensis infected macrophages.* **Pomopsello, Michelle***, and **Kara Mosovsky** Moravian College.
- 10:30-10:45 **120.** *The effects of probiotics on canine weight and fecal fat content.* **Riffard, Deborah***, **Deborah Austin**, and **M. Dana Harriger** Wilson College.

10:45-11:00 **122.** *Prevalence of Babesia odocoilei infections in Pennsylvania elk.* **Steber, Clay***, **Allison Peeney**, and **Nicole Chinnici** East Stroudsburg University.

ORAL SESSION VII: Terrestrial Ecology II

Sunday March 25 9:30-11:15 AM Location: **Toretti Auditorium**

Session Chair: **Dr. Howard Whidden**

- 9:30-9:45 **123.** *Inferences on tyrannosaurid social behavior based on enigmatic maxillary depressions and distribution of neurovascular foramina.* **Deak, Michael***, and **Scott McKenzie** Mercyhurst University.
- 9:45-10:00 **124.** *Microhabitat selection by gestating timber rattlesnakes (Crotalus horridus) in northeastern Pennsylvania.* **Harris, Sebastian***, and **Thomas LaDuke** East Stroudsburg University.
- 10:00-10:15 **125.** *Species delimitation of Smilisca baudinii.* **Soto, Samantha***, and **Josiah Townsend** Indiana University of Pennsylvania.
- 10:15-10:30 **126.** *Effects of ectoparasites on survivorship and reproduction of Peromyscus leucopus.* **Dea, Stephanie***, and **Stephen Mech** Albright College.
- 10:30-10:45 **127.** *Documenting the distribution of eastern small-footed bats (Myotis leibii) in the Delaware Water Gap National Recreation Area.* **Schell, Joseph***, and **Howard Whidden** East Stroudsburg University.
- 10:45-11:00 **128.** *Habitat preferences and species distribution models for bats in the Delaware Water Gap National Recreation Area.* **Burns, Jessica***, **Emily Rollinson**, and **Howard Whidden** East Stroudsburg University.
- 11:00-11:15 **129.** *Validating fecal DNA technologies for ungulate conservation.* **Daniel, Karis***, **M. Dana Harriger**, and **Budhan Pukazhenth** Wilson College.

POSTER SESSION III: Aquatic Ecology/ Chemical, Environmental, Forensic, and Physical Sciences

Sunday March 25 9:45-11:45 AM Location: **Lobby**

Session Chair: **Dr. Avijita Jain**

- 130.** *Measuring aquatic ecosystem health using acetylcholine esterase (AChE) activity in freshwater amphipods.* **Kalesnik, Arek***, and **Emily Basile** Cabrini University.
- 131.** *Using the biomarker glutathione S-transferase (GST) in arthropods to measure aquatic ecosystem health.* **Ratliff, Maria***, and **Emily Basile** Cabrini University.
- 132.** *A regional perspective on lake cyanobacteria blooms in the PA-NY Lake Erie region during summer 2017.* **Campbell, J. Michael**, **John Otto Campbell**, **Angelea Belfiore***, and **Harry Rick Diz** Mercyhurst University.
- 133.** *Toxic cyanobacteria blooms and associated relationship to rotifer population dynamics in Lake Erie's Presque Isle Bay.* **Campbell, John*** Mercyhurst University.

134. *Exploring the possibility of transplanting net spinning caddisflies (Trichoptera) to a recently restored urban stream in Erie PA.* **Helms, Anne, and John Campbell*** Mercyhurst University.
135. *Correlation between toxic releases and low-income neighborhoods.* **Reisinger, Katherine*, and Thomas Cook** Mercyhurst University.
136. *Mayfly (Insecta: Ephemeroptera) fauna of the upper Meadows Pond, Dallas, PA.* **Corpus, Larry*** Misericordia University.
137. *Survey of Macroinvertebrates in Container Habitats and Phytotelmata from Select Northeastern Pennsylvania Sites.* **McCorkel, Olivia*, Jody Teel, and Larry Corpus** Misericordia University.
138. *A Survey of Container-Breeding Mosquitoes (Insecta: Culicidae) from Selected Northeastern Pennsylvania Sites.* **Teel, Jody*, and Larry Corpus** Misericordia University.
139. *Comparison of five similar headwater streams in central Pennsylvania during the summer of 2015-2017.* **Carr, Krista*, Daniel Morris, Dylan Kutz, Grace O'Malley, Michael Bilger, and Jack Holt** Susquehanna University.
140. *Benthic macroinvertebrate response to variation in fall discharge of the upper main stem of the Susquehanna River.* **Ernesti, Altan*, Marta Mendez, John Miller, Daniel Morris, Jack Holt, and Michael Bilger** Susquehanna University.
141. *A multi-year study of diatom communities in the upper main stem of the Susquehanna River summer 2017.* **Ivesque, Joshua*, Margaret Garity, Elise Wetzel, and Jack Holt** Susquehanna University.
142. *Habitat type and the interaction between the invasive New Zealand mud snail and native gastropods in Polecat Creek, Wyoming.* **Berkheimer, Colin*, Tessa Woods*, Krista Silvis, Rachel Mills, and Edward Levri** Penn State University-Altoona.
143. *The effect of habitat type on the growth and reproduction of the invasive New Zealand snail.* **Mills, Rachel*, Krista Silvis*, Colin Berkheimer, Tessa Woods, and Edward Levri** Penn State University-Altoona.
144. *Effects of native and invasive crayfish chemical stimuli on larval salamander growth.* **Fischer, Katie*, Tanya Matlaga, and David Matlaga** Susquehanna University.
145. *A survey of caddisfly larvae (Order Trichoptera) in two northeastern Pennsylvania streams.* **DiPippa, Cassandra*, and Barbara McCraith** Misericordia University.
146. *Ecological recovery from acid mine drainage in passive remediation ponds in western Pennsylvania.* **Slappo, Jessica*, Kelsey Twining, Gregory Mount, David Janetski, and Michael Tyree** Indiana University of Pennsylvania.
147. *The impact of human recreation on the behavior and physiology of aquatic basking turtles at Lake Marburg (Hanover, PA).* **Einsig, April*, and Jessica Nolan** York College of Pennsylvania.
148. *The impacts of fishing practices on aquatic basking turtles within Lake Marburg.* **Semenkow, Melissa*, and Jessica Nolan** York College of Pennsylvania.
149. *Coral bleaching in response to higher average regional ocean surface temperatures.* **Kornblum, Emily *, and Christine Proctor** Harrisburg University of Science and Technology.
150. *Analyzing stream sediments for organic matter content and carbon:nitrogen ratios as an indicator of stream health in central Pennsylvania watersheds.* **Vlavianos, Stephen *, and Daniel Ressler** Susquehanna University.
151. *Water mite parasitism of the Asian tiger and Asian bush mosquitos: vectors of West Nile virus and potentially Zika virus.* **Manges, Anna*, and Tom Simmons** Indiana University of Pennsylvania.
152. *Hidden nutrient pollution: overlooked phosphate mitigation in a stream affected by abandoned mine drainage.* **Mauro, Colleen*, Casey Markle*, Daniel Straka, and Peter Smyntek** Saint Vincent College.

153. *The Relationship of Water Quality and Season for Privately-Owned Water in Southwestern Pennsylvania.* **Adams, Haley***, and **Cynthia Walter** Saint Vincent College.
154. *Natural and social science methods to investigate sources of enteric pathogens in rural Guatemala.* **Farrie, Haley*** Saint Vincent College.
155. *Students document fecal contamination in underserved rural areas: Results from Solola', Guatemala and Pennsylvania, USA.* **Walter, Cynthia***, **Elaine Bennett**, **Haley Farrie**, **Haley Adams**, **Melissa Anderson**, **Brandon Snyder**, and **Lindsay Richardson** Saint Vincent College.
156. *The effect of a Western Antarctic Ice Sheet collapse on nutrient recycling rates during marine isotope stage 31: Initial findings.* **Parker, Shane***, and **Jonathan Warnock** Indiana University of Pennsylvania.
157. *Pre-restoration survey of Wolf Creek, an agricultural impaired stream in Lycoming County, PA.* **Lamport, Samuel***, and **Mel Zimmerman** Lycoming College.
158. *Subcellular localization of MNN4 tagged with green fluorescent protein in Saccharomyces cerevisiae.* **Marshall, Landry***, and **David Singleton*** York College of Pennsylvania.
159. *Comparison of factors that affect the ethanol concentration in blood during putrefaction.* **Haase, Amanda***, **Deborah Austin**, **Kathryn Sarachan**, and **Brad Engle** Wilson College.
160. *Optimization of lipid production through sonication and extrusion.* **Arnold, Victor***, and **Julie Belanger** King's College.
161. *The effect of "Ouzo-like" colloids containing N-phenyl-1-naphthylamine on the survivability of SHSY-5Y Cells in vitro.* **Cirilo, Joseph***, and **Julie Belanger** King's College.
162. *Characterization of thermal transitions of dipalmitoylphosphatidylcholine lipids in the presence of small molecules with differential scanning calorimetry.* **Waizenegger, Zoe***, **Nicolas Thomas***, and **Julie Belanger** King's College.
163. *Use of physical and chemical forensic analysis procedures to characterize fibers found at crime scenes.* **Dosch, Brittany***, and **Deanne Dulik Garver** Marywood University.
164. *Characterization of Ellagitannins and Anthocyanins in Red Raspberry and Blueberry Leaf Extracts using LC/MS.* **Goodson, Sara***, and **Deanne Garver** Marywood University.
165. *Tuning The Photoinduced Ligand Exchange and DNA Interaction Properties of a Series of Ru(II) Monometallic and Ru(II)Pt(II) Bimetallic Complexes.* **Estes, Kiera***, **Alexis Hagelgans**, **Ty Sampsell**, and **Avijita Jain** Indiana University of Pennsylvania.
166. *Inhibition of DNA amplification by photoactive Ru(II) and Ru(II)Pt(II) based polypyridyl complexes using PCR studies.* **Jain, Avijita**, **Ty Stewart***, and **Denali Davis*** Indiana University of Pennsylvania.
167. *Synthesis, Characterization, Redox, and Spectroscopic Studies of a Tris(Heteroleptic) Ru(II) complex.* **Marold, Joseph***, and **Avijita Jain** Indiana University of Pennsylvania.
168. *Electrochemical analysis of natural antioxidants in different types of tea.* **Allen, Aleique***, and **Clint Jones** Mercyhurst University.
169. *Analysis of anthocyanins in fruits.* **Rachii, Diana***, **Elizabeth Skendzic**, and **Edward Sambriski** Delaware Valley University.
170. *The effects of buffers on biogas production in anaerobic digesters.* **Farrell, Andrew***, **Keith Gehman**, and **Derek Straub** Susquehanna University.
171. *Biogas production as a function of feedstock in a lab-scale anaerobic digester.* **Gehman, Keith***, **Andrew Farrell**, and **Derek Straub** Susquehanna University.
172. *Modeling the Multiple Melting Peaks of Poly(ϵ -caprolactone) Thermoreversible gels.* **Hearne, William***, and **Isaac VonRue** King's College.

173. *The effect of chain length on kinetics and thermodynamics in the esterification of model compounds present in biooil.* **Childs, Amanda B.***, and **Lindsey A. Welch** Cedar Crest College.
174. *Hydrogenation of α -methyl-trans-cinnamaldehyde using metal chloride additives.* **Replogle, Kirsten***, and **Lindsey A. Welch** Cedar Crest College.
175. Analyzing different methods of physical agitation for the lipid extraction of *Cryptococcus neoformans* **McGee, Shannon ***, **Constance Selinsky**, **Alexandra Morgan**, **Dr. Amy Reese**, **Dr. Lindsey Welch**, **Dr. Andre Walther** Cedar Crest College.

List of Restaurants Near IUP Campus

Restaurant and Bar

Al Patti's Bar and Grill
552 Philadelphia Street
(724) 349-5717

**Spaghetti Benders
Pasta Shop**
563 Philadelphia Street
(724) 357-8822

Benjamin's
458 Philadelphia Street
(724) 465-4446

Bruno's
1108 Philadelphia Street
(724) 465-8493

**Coney Island
Restaurant**
642 Philadelphia Street
(724) 465-8082

Crouse's Cafe
660 Philadelphia Street
(724) 471-2983

Culpepper's
653 Philadelphia Street
(724) 349-5486

**Ruby Tuesday
Restaurant**
1414 Indian Springs
Road
(724) 465-7853

**Steel City Samiches
Bar & Grille**
15 N. 7th St.
(724) 801-8402

Firehouse Brewing Co.
553 Philadelphia St.
(724) 463-7264

**C H Fields Craft
Kitchen**
714 Pratt Dr.
(724) 349-2222

Levity Brewing
1380 Wayne Ave.
(724) 427-5665

Brunzies
470 Phila. St.
(724) 349-2770

Family Restaurants

Eat 'N Park
2301 Route 286 S
(724) 465-2301

**Hoss's Steak & Sea
House**
1198 Wayne Avenue
(724) 349-5750

Nap's Cucina Mia
1033 Philadelphia Street
(724) 465-5396

**Perkins Family
Restaurant**
1775 Route 286 S
(724) 463-0400

**Roseann's Everyday
Gourmet**
2035 Route 286 S
(724) 349-7727

Romeo's Pizza
1112 Oakland Ave.
(724) 349-7663

Valley Dairy
Route 286 S (Regency
Mall)
(724) 349-6052

**Pizza & Sandwiches
Bob's Pizza**
459 N Fourth Street
(724) 465-4339

Domino's Pizza
1176 Grant Street
(724) 349-7310

Fox's Pizza
580 Philadelphia Street
(724) 463- 8500

Jimmy John's
795 Philadelphia Street
(724) 349-1524

Mitchell Bro. Bar-B-Q
734 Philadelphia Street
(724) 349-3198

**Josephine's Pizzeria &
Enoteca**
1037 Philadelphia St.
(724) 471-2988

**Ninth Street Deli
Market**
901 Philadelphia Street
(724) 465-5221

Papa John's Pizza
1530 Oakland Avenue
(724) 349-0909

Pennsylvania Barbeque
2045 South Sixth Street
(724) 349-7191

Pita Pit
740 Philadelphia Street
(724) 463-7482

Pizza Hut/KFC
320 S. Seventh Street
(724) 463-1111

Subs 'n Suds
470 Philadelphia Street
(724) 349-2770

**Subway Sandwiches &
Salads**
574 Philadelphia Street
(724) 465-7827 or
(724) 465-9979

Tom's Pizza Palace
11 S 7th St
(724) 463-7494

**Venice Café and
Pizzeria**
504 S 13th Street
(724)- 349-0100

Ethnic

China King
731 Philadelphia Street
(724) 349-0803

Fortune Buffet
475 Ben Franklin Road S
(724) 463- 0688

Kim Moon Restaurant
718 Philadelphia Street
(724) 349-6336

King Buffet
2091 Route 286 S
(724) 349-8535

**Peking Chinese
Restaurant**
496 S 13th Street
(724) 349-7700

Tres Amigos Mexican
1540 Oakland Avenue
(724) 349-1040

Teerak Thai Restaurant
1830 Oakland Ave.
(724) 471-2176
[Fast Foods](#)

**Arby's Roast Beef
Restaurant**
1259 Oakland Avenue
(724) 349-8555

Burger King
170 Route 286 S
(724) 463-0610

Chipotle
626 Philadelphia Street
(724) 463- 1388

Dairy Queen
1781 Oakland Avenue
(724) 349-6760

**Donut Connection
(Primarily Breakfast
Foods)**
895 Wayne Ave.
(724) 471-2985

**A & W All American
Food**
Long John Silver's
1655 Route 286 S
(724) 463-3100

McDonalds
940 Wayne Avenue
(724) 349-4020 or

1540 Route 286 S
(724) 465- 8570

Taco Bell
105 Oakland Avenue
(724) 349-8226

**Wendy's Old
Fashioned Hamburgers**
Route 286 S
(724) 463-0024

PAS Business Meeting Business
Saturday March 24 12:15-1:00 PM
PNC 12

Nominated Slate for 2018 Election:

The slate for our annual elections is given below and will also be discussed at the annual Business Meeting. After nominations are taken from the floor, there will be a vote of the membership to approve the slate of officers. Officers up for election are in bold. We are still accepting nominations for offices up for election.

President-Elect: **Matthew Wallace** (2018-2020, President 2020-2022, Past- President 2022-2024)

President: Amy Parente (2018-2020, Past- President 2020-2022 (2016-2018, Past-President 2018-2020)

Past-President: Ed Levri (2018-2020)

PJAS Director: Fay Nelson (elected by PJAS)

Treasurer: Chris Brey (2017-2018, Treasurer 2018-2020)

Treasurer-Elect: **Jennifer White** (2018-2020; Treasurer 2022-2022)

Committee Director: Greg Czarnecki (2017-2019)

Finance and Investments Chair: J. Michael Campbell (appointed)

Education Chair: David Singleton (appointed)

Annual Meeting Chair: André Walther (appointed) Program Chair: André Walther (appointed)

Affiliate Chair: Greg Czarnecki (appointed)

Spychala Awards Chair: Darl Swartz (appointed)

Corresponding Secretary: Sheryl Fuller-Espie (2017-2019)

Recording Secretary: **Tammy Tintjer** (2018-2020)

Editor in Chief: Carl Pratt (2017-2019)

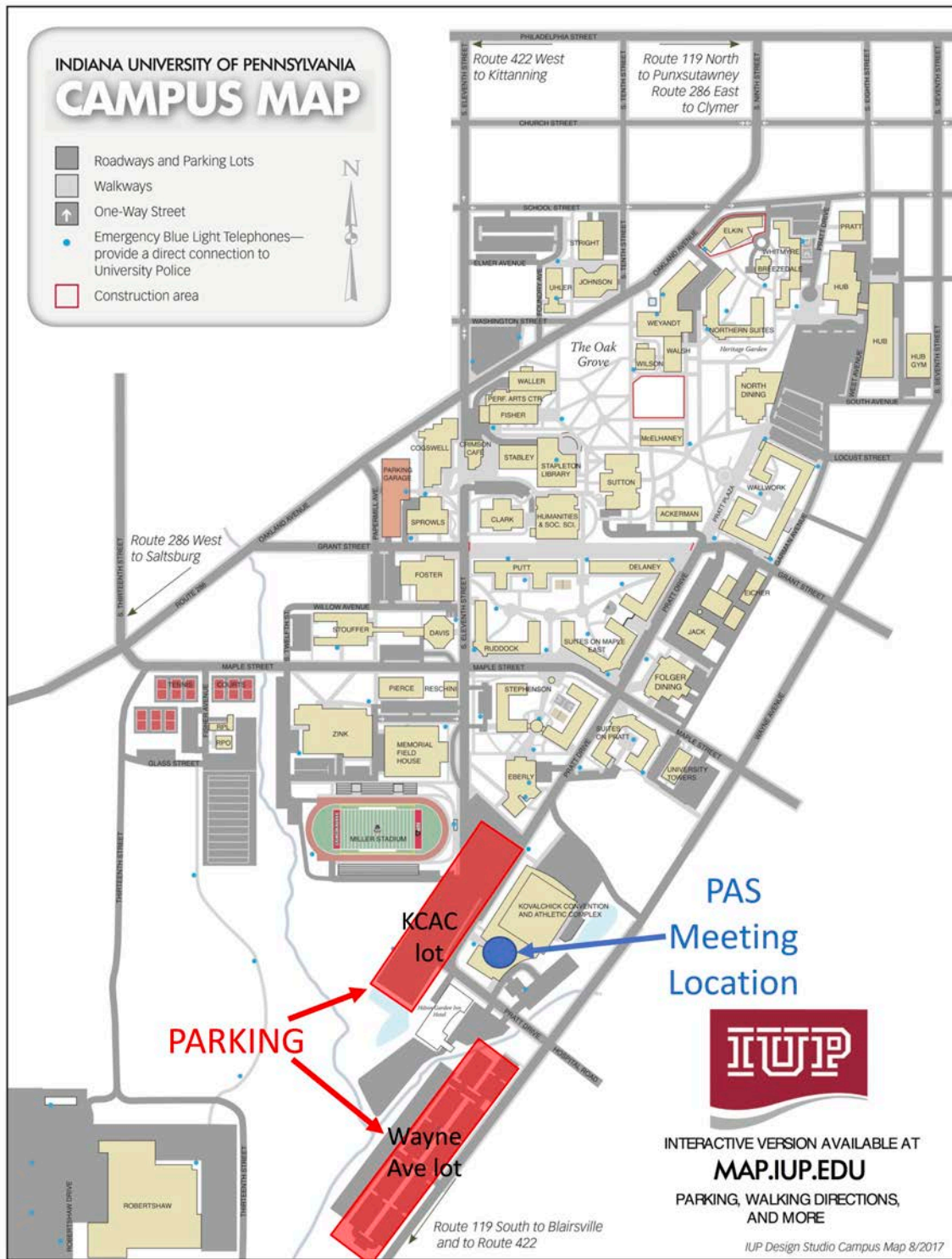
Book Editor: Sandy Whidden (appointed)

Journal Editor: Carl Pratt (appointed)

Webmaster and Archivist: André Walther (2017-2019)

AAAS/NAAS Representative: **K. Joy Karnas** (2018-2020)

Directors at Large: Greg George (2017-2019), **Stephen Mech** (2018- 2020), **Ryan Colyer** (2018-2020), Greg Czarnecki (2017-2019)



Join us next year for
the 95th Annual Meeting of the
Pennsylvania Academy of Sciences at



**CEDAR CREST
COLLEGE**