Chemistry
Faculty Publications
2011-2020

2011

Publications

- **Grannas, A. M.** Chemical processes in snow and ice, *Encyclopedia of Snow, Ice and Glaciers*, (Springer), invited contribution. Singh, V. P.; Singh, P. ; Haritashya, UK (Eds), 1300 p. ISBN: 978-90-481-2641-5, **2011.**

- **Grannas, A. M.** Chemical composition of snow, ice and glaciers, *Encyclopedia of Snow, Ice and Glaciers* (Springer), invited contribution. Singh, V. P.; Singh, P.; Haritashya, U. K. (Eds), 1300 p. ISBN: 978-90-481-2641-5, **2011**.

- **Rowland, G. A.**; Bausch, A. R.**; Grannas, A. M.** Photochemical processing of aldrin and dieldrin in frozen aqueous solutions under Arctic field conditions, *Environmental Pollution*, **2011**, *159*, 1076-1084.

- **Rowland, G. A.**; **Grannas, A. M.** A solid phase chemical actinometer film for measurement of solar UV penetration into snowpack, *Cold Regions Science and Technology*, **2011**, *66*, 75-83.

- **Shah, T. D.; Hickey, M. C.; Capasso, K. E.**; **Palenchar, J. B.** The Characterization of an unusual trypanosome beta-hydroxybutyrate dehydrogenase. *Molecular and Biochemical Parasitology*, **2011**, *179*, 100-106.

Presentations

- **Grannas, A. M.**; **Pierce, B.**; **Bobby, R.** "Natural Organic Matter as an Important Photosensitizer in Ice," American Chemical Society, National Meeting. August, 2011.
- R. Sleighter, J. Marsh, V. Boschi, **A. Grannas**, P. Hatcher. American Society for Mass Spectrometry, National Meeting. Denver, CO. "Molecular characterization of dissolved organic matter from Greenland ice cores by Fourier Transform Ion Cyclotron Resonance Mass Spectrometry (FTICR-MS)." June 2011 (Poster)

2012

Publications

- Whitecavage Solnoki, K.; Sing, A. S.; Sofa, C. J.; Miller, R.; Ogorzalek, P.; Penek, H. V.; Palenchar, J. B. *Tb*ENF49 is an Essential *Tb*TFIIB-Interacting Trypanosome-Specific Factor, *Molecular and Biochemical Parasitology*, 2012, *181*, 94-101.

- Westlake, B. C.; Paul, J. J.; Bettis, S. E.; Hampton, S. D.; Mehl, B. P.; Meyer, T. J.;* Papanikolas, J. M.* *Journal of Physical Chemistry B,* **2012**, *116*, 14886-14891.
- Fuentes, M. J.; Bognanno, R. J.; Dougherty, W. G.; Boyko, W. J.; Kassel, W. S.; Dudley, T. J.; Paul, J. J.* *Dalton Transactions,* **2012**, *41,* 12514-12523.
- Douglas, T.; Domine, F.; Barret, M.; Anastasio, C.; Beine, H.; Bottenhem, J.; Grannas A. M.; Houdier, S.; Netcheva, S.; Rowland, G.; Staebler, R.; Steffen A. Frost flowers growing in the Arctic Ocean-Atmosphere-Sea ice-Snow interface, part 1: Chemical Composition. *Journal of Geophysical Research - Atmospheres*, 2012, *117*, D00R09, doi:10.1029/2011JD016460.
- Grannas, A. M.; Cory, R. M.; Miller, P. L.; Chin, Y. P.; McKnight, D. M. Role of dissolved organic matter in Arctic surface waters in the photolysis of hexachlorobenzene and lindane. *Journal of Geophysical Research - Biogeosciences*, 2012, *117*, G01003, doi:10.1029/2010JG001518.
- Scholl, C.; Licisyn, T.; Cummings, C.; Hughes, K.; Johnson, D.; Boyko, W.; **Giuliano, R.** M. Synthesis of Cyclopropyl Glycosides and Their Use as Novel Glycosyl Donors. *Carbohydrate Research*, **2012**, *356*, 288-294.
- Palenchar, P.M.; Palenchar, J.B. The evolution of metabolic enzymes in Plasmodium and trypanosomatids as compared to Saccharomyces and Schizosaccharomyces. *Mol Biochem Parasitol*. 2012, *1*, 13-9.
- Liu, W.; Das, A.; Morales, R.; Banday, M.; Aris, V.; Lukac, D.M.; Soteropoulos, P.; Wah, D.A.; Palenchar, J.; Bellofatto V. Chromatin immunoprecipitation and microarray analysis reveal that TFIIB occupies the SL RNA gene promoter region in Trypanosoma brucei chromosomes. *Mol Biochem Parasitol*. 2012, *2*, 139-142.

Presentations:

American Geophysical Union, National Meeting. "Microbial and long-range terrestrial contributions of organic matter to Antarctica." R. Antony, A. Grannas, A. Priest, R. Sleighter, T. Meloth, P. Hatcher. December 2012 (Poster)

American Geophysical Union, National Meeting. "Photochemistry of Tetrabromobisphenol A in Frozen and Liquid Aqueous Solutions." J. Reich, A. Grannas, E. Dolak. December 2012 (Poster). Jeremy Reich (sophomore) received an AGU "Outstanding Student Paper" Award for his presentation.

American Geophysical Union, National Meeting, San Francisco, CA. "Photochemical Degradation of Persistent Organic Pollutants: A Study of Ice Photochemistry Mediated by Dissolved Organic Matter". R. Bobby, L. Pagano, A. Grannas. December 2012 (Poster)

American Geophysical Union, National Meeting, San Francisco, CA. "Production of Reactive Oxygen Species from Dissolved Organic Matter Photolysis in Ice." A. Fede, A. Grannas. December 2012 (Poster)

American Geophysical Union, National Meeting, San Francisco, CA. "Investigation of Organic Compound Reactivity in Liquid and Frozen Aqueous Systems Using Relative Rate Experiments." L. Kurek, A. Grannas. December 2012 (Poster)

American Geophysical Union, National Meeting, San Francisco, CA. "Methane and its Stable Isotope Signature Across Pennsylvania: Assessing the Potential Impacts of Natural Gas Development and Agriculture." F. Ramos-Garcés, J. Fuentes, A. Grannas, D. Martins. December 2012 (Poster)

American Geophysical Union, National Meeting, San Francisco, CA. “Characterization of VOCs Across Pennsylvania: Assessing Emissions from Rural, Forested, Agricultural and Natural Gas Drilling-Impacted Areas.” A. Grannas, J. Fuentes, F. Ramos-Garcés, D. Wang, D. Martins. December 2012 (Poster)

American Society for Mass Spectrometry, National Meeting, Vancouver, BC. "Enhanced sensitivity and molecular-level characterization of dissolved organic matter in ice cores by nano-electrospray ionization ultrahigh resolution mass spectrometry." R. Sleighter, V. Boschi, A. Grannas, P. Hatcher. May 2012 (Poster)

2013

Publications

- Grannas, A. M.; Marsh, J.; Boschi, V. L.; Sleighter, R. L.; Hatcher, P.G. Characterization of Dissolved Organic Matter from a Greenland Ice Core by Nanospray Ionization Fourier Transform Ion Cyclotron Resonance Mass Spectrometry. *Journal of Glaciology,* 2013, in press.
- Grannas, A. M.; Bogdal, C.; Hageman, K. J.; Halsall, C.; Harner, T.; Hung, H.; Kallenborn, R.; Klan, P.; Klanova, J.; Macdonald, R. W.; Meyer, T.; Wania, F. The Role of the Global Cryosphere in the Fate of Organic Contaminants. *Atmospheric Chemistry and Physics*, 2013, *13*, 1-35.
- Wolbers, R.; Norbutus, A.; Lagalante, A. F. "Cleaning of Acrylic Emulsion Paints: Preliminary Extractive Studies with Two Commercial Paint Systems,” New Insights into the Cleaning of Paintings: Proceedings from the Cleaning 2010 International Conference, Universidad Politécnica de Valencia and Museum Conservation Institute, Eds. Marion F. Mecklenburg, A. Elena Charola, and Robert J. Koestler, Smithsonian Contributions to Museum Conservation, no. 3, 2013.
- Cannon, K.; Mascavage, L.; Tierney, J.; Kistler, K.; Yennawar, H.; **Lagalante, A. F.**; Sonnett, P. An Experimental and Theoretical Conformational Study of a Series of Substituted 3-cyclohexyl-2-phenyl-1,3-thiazolidin-4-ones. *International Journal of Chemistry*, 2013, *3*, 1-11.
- Silverberg, L. R.; Bear, E. R.; Foose, K. N.; Kirkland, K. A.; McElvaney, R. R.; Cannon, K.; Tierney, J.; Lascio, S.; Mesfin, K.; Mitchell, D.; Sharkey, S.; So, L.; Treichel, J.; Waxman, M.; Lagalante, A. F. Predicting the 13C chemical shifts for a series of substituted-2-(4-chlorophenyl)-3-phenyl-1,3-thiazolidin-4-ones. *International Journal of Chemistry*, 2013, *4*.
- Kraut, D.A. Slippery substrates impair ATP-dependent protease function by slowing unfolding. Journal of Biological Chemistry. doi: 10.1074/jbc.M113.512533.
- **Tessema, T.D.**; **Gassler, F.**; Shu, Y.; Jones, S.; Selinsky, B.S. Structure-activity relationships in aminosterol antibiotics: the effect of stereochemistry at the 7-OH group. *Bioorg Med Chem Lett*. 2013, *11*, 3377-81

Presentations:

American Geophysical Union, National Meeting, San Francisco, CA. "Impacts of natural gas mining on regional methane levels in Pennsylvania." A. Lembeck-Edens, J. Fuentes, D. Martins, A. Grannas. December 2013 (Poster)

American Geophysical Union, National Meeting, San Francisco, CA. “Photochemical degradation of a brominated flame retardant (tetrabromobisphenol A) in ice under field and laboratory conditions.” G. Waligroski, A. Grannas. December 2013 (Poster)

American Geophysical Union, National Meeting, San Francisco, CA. "Characterization of organic material in ice core samples from North America, Greenland, and Antarctica using ultrahigh resolution Fourier transform ion cyclotron resonance mass spectrometry." V. Catanzano, A. Grannas, R. Sleighter, P. Hatcher. December 2013 (Poster)

2014

Publications

1. Grannas, AM; Pagano, L; Pierce, B; Bobby, R; Fede, A. Role of Dissolved Organic Matter in Ice Photochemistry. *Environmental Science and Technology*, **2014**, 48(18), 10725-10733.**Antony, R**;
2. Antony, R; Grannas, AM; Willoughby, AS; Sleighter, RL; Thamban, M; Hatcher, PG. Origin and sources of Dissolved Organic Matter in Snow on the East Antarctic Ice Sheet, *Environmental Science and Technology*, **2014**, 48(11), 6151-6159.
3. C.E. Dillon, A.F. Lagalante and R.C. Wolbers "Aqueous cleaning of acrylic emulsion paint films. The effect of solution pH, conductivity and ionic strength on film swelling and surfactant removal" *Studies in Conservation* **57(1)**, 52-62 (2014).
4. B.M. Eisenback, S.M. Salom, L.T. Kok and A.F. Lagalante "Impacts of Trunk and Soil Injections of Low Rates of Imidacloprid on Hemlock Woolly Adelgid (Hemiptera: Adelgidae) and Eastern Hemlock (Pinales: Pinaceae) Health" *Journal of Economic Entomology* **107(1)**, 250-258 (2014).
5. T.P. Umile, P.J. McLaughlin, K.R. Johnson, S. Honarvar; A.L. Blackman, E.A. Burnynski, R.W. Davis, T.L. Teotonio, G.W. Hearn, C.A. Hughey, A.F. Lagalante, and K.P.C. Minbiole "Nonlethal Amphibian Skin Swabbing of Cutaneous Natural Products for HPLC Fingerprinting" *Analytical Methods* **6**, 3277-3284 (2014).
6. D. McGarity, J. Tierney and A. Lagalante "An Anomalous Hammett Correlation for a Series of Substituted 3-Benzyl-2-phenyl-1,3-thiazolidin-4-ones" *International Journal of Chemistry* **6(4)**, 1-7 (2014).
7. R.S. Cowles, A. Lagalante and K. Lombard "Imidacloprid contamination of maple sap following Asian longhorned beetle quarantine treatment" *Maple Syrup Digest* **26A(3)**, 22-27 (2014).

Presentations:

Nassif, N.D. Kraut, D.A. To Gamma, or Not to Gamma: The Effects of ATPγS on Proteasome Unfolding and Release Rates. Younger Chemists Committee Poster Session (Philadelphia ACS), University of the Sciences, Philadelphia, PA.

2015

Publications

1. M. Rotella, A. Briegel, J. Hull, A. Lagalante and R. Giuliano Synthesis and antibacterial activity of antibiotic-functionalized graphite nanofibers. *Journal of Nanomaterials*, **2015**, 1-10.
2. K. Cannon, D. Gandla, S. Lauro, L. Mascavage, L. Silverberg, J. Tierney and A. Lagalante Selective Synthesis of Ortho-substituted 3-Cyclohexyl-2-phenyl-1,3-thiazolidin-4-one Sulfoxides and Sulfones by S-Oxidation with Oxone. *International Journal of Chemistry*, **2015**, 7(2), 73-84.

3. L.J. Silverberg, C.N. Pacheco, A. Lagalante, K.C. Cannon, J.T. Bachert, Y. Xie, L. Baker and J.A. Bayliff Synthesis and Spectroscopic Properties of 2,3-Diphenyl-1,3-thiaza-4-one Heterocycles *International Journal of Chemistry*, **2015**, 7(2), 150-162.
4. E.P. Benton, J.F. Grant, R.J. Webster, R.J. Nichols, R.S. Cowles, A.F. Lagalante and C.I. Coots Assessment of Imidacloprid and Its Metabolites in Foliage of Eastern Hemlock Multiple Years Following Treatment for Hemlock Woolly Adelgid, *Adelges tsugae*, in Forested Conditions. *Journal of Economic Entomology*, **2015**, **108(6)**, 2672-2682.
5. Kemmerer ZA, Ader NR, Mulroy SS, Eggler AL. Comparison of human Nrf2 antibodies: A tale of two proteins. *Toxicol Lett*. **2015**, 238(2), 83-9.
6. Fede, A and Grannas, AM. Photochemical Production of Singlet Oxygen from Dissolved Organic Matter in Ice., *Environmental Science and Technology*, **2015,** 49(21), 12808-12815.
7. Skaf, D; Grannas AM; Weinstein, R; Greeley, R. Photocatalytic Oxidation of Dimethyl Methylphosphonate in Aqueous Suspensions of TiO_2. *Journal of Chemical Engineering and Process Technology*, **2015**, 6(3), doi:10.4172/2157-7048.1000235.
8. Lisa K. Belden, Myra C. Hughey, Eria A. Rebollar, Thomas P. Umile, Stephen C. Loftus, Elizabeth A. Burzynski, Kevin P.C. Minbiole, Leanna L. House, Roderick V. Jensen, Matthew H. Becker, Jenifer B. Walke, Daniel Medina, Roberto Ibanez, Reid N. Harris. Panamanian frog species host unique skin bacterial communities. *Frontiers in Microbiology*, **2015**, 6(1171).
9. Jenifer B. Walke, Matthew H. Becker, Stephen C. Loftus, Leanna L. House, Thais L. Teotonio, Kevin P. C. Minbiole, Lisa K. Belden. Community Structure and Function of Amphibian Skin Microbes: An Experiment with Bullfrogs Exposed to a Chytrid Fungus. *PLOS One*, **2015**, 0139848.
10. Myles A. Mitchell, Anthony A. Iannetta, Megan C. Jennings, Madison H. Fletcher, William M. Wuest and Kevin P. C. Minbiole. Scaffold-hopping of Multicationic Amphiphiles Yields Three New Classes of Antimicrobials. *ChemBioChem*, **2015**, 2299–2303.
11. 28. Megan C. Jennings, Bettina A. Buttaro, Kevin P.C. Minbiole, William M. Wuest. Bioorganic Investigation of Multicationic Antimicrobials to Combat QAC-Resistant Staphylococcus aureus. *ACS Infectious Diseases,* **2015,** 304-308.
12. Megan C. Jennings, Kevin P.C. Minbiole, William M. Wuest. Quaternary Ammonium Compounds: An Antimicrobial Mainstay and Platform for Innovation to Address Bacterial Resistance. *ACS Infectious Diseases*, **2015**, 289-303.
13. Matthew H. Becker, Jenifer B. Walke, Lindsey Murrill, Douglas C. Woodhams, Laura K. Reinert, Louise A. Rollins-Smith, Elizabeth A. Burzynski, Thomas P. Umile, Kevin P. C. Minbiole, Lisa K. Belden. Phylogenetic distribution of symbiotic bacteria from Panamanian amphibians that inhibit growth of the lethal fungal pathogen Batrachochytrium dendrobatidis. *Molecular Ecology*, **2015**, 1628–1641.
14. Matthew H. Becker, Jenifer B. Walke, Shawna Cikanek, Anna E. Savage, Nichole Mattheus, Celina N. Santiago, Kevin P.C. Minbiole, Reid N. Harris, Lisa K. Belden, Brian Gratwicke. Composition of symbiotic bacteria predicts survival in Panamanian golden frogs infected with a lethal fungus. P*roceedings of the Royal Society of London B*, **2015**. 282:20142881.
15. Elizabeth A. Burzynski, Tatyana Livshultz, Kevin P.C. Minbiole. New sources of lycopsamine-type pyrrolizidine alkaloids and their distribution in Apocynaceae. *Biochemical Systematics and Ecology*, **2015**, 331-339.
16. Jeremy P. Ramsey, Albert Mercurio, Jessica A. Holland, Reid N. Harris, Kevin P.C. Minbiole. The Cutaneous Bacterium Janthinobacterium lividum Inhibits the Growth of Trichophyton rubrum In Vitro. *International Journal of Dermatology*, **2015**, 156-159.

17. K Gupta and BS Selinsky. Bacterial and algal orthologs of prostaglandin H_2 synthase: novel insights into the evolution of an integral membrane protein. *Biochim. Biophys. Acta* **2015** 1848: 83-94.

2016

Publications

Key: Faculty · Undergraduate Students · Graduate Students

1. M. Rotella, M. Giovine, W. Dougherty, Jr.; W. J. Boyko,. S. Kassel, and R. Giuliano, Synthesis and X-ray Crystallographic Analysis of 4,6-Di-*O*-Acetyl-2,3-Dideoxy-a-D-*threo*-hexopyranosyl Cyanid *Carbohydrate Research*, **2016**, 40 42. http://dx.doi.org/10.1016/j.carres.2016.03.001

2. H. Curran, C. Zhang, N.A. Piro, W. S. Kassel, and R. M. Giuliano, Allyl 3,4,6-tri-*O*-acetyl-2-deoxy-2-phthalimido-β-D-glucopyranoside, IUCrData, **2016**, x161363. https://doi.org/10.1107/S2414314616013638.

3. Suleyman Ozakin, Robert W. Davis, Thomas P. Umile, Necmettin Pirinccioglu, Murat Kizil, Gurbet Celik, Alaattin Sen, Kevin P. C. Minbiole, Ebru İnce. The isolation of tetrangomycin from terrestrial Streptomyces sp. CAH29: evaluation of antioxidant, anticancer, and anti-MRSA activity. *Medicinal Chemistry Research*. **2016**, *25*, 2872–2881. doi: 10.1007/s00044-016-1708-6.

4. Megan E. Forman, Megan C. Jennings, William M. Wuest, Kevin P.C. Minbiole. Building a Better QAC: Branched Tetracationic Antiseptic Amphiphiles. *ChemMedChem*. **2016**, *11*, 1401–1405. doi:10.1002/cmdc.201600176.

5. Myra Hughey, Jenifer Walke, Matthew Becker, Thomas Umile, Elizabeth Burzynski, Kevin Minbiole, Anthony Iannetta, Celina Santiago, William Hopkins, Lisa Belden. Short-term exposure to coal combustion waste has little impact on the skin microbiome of adult spring peepers, *Pseudacris crucifer*. *Applied and Environmental Microbiology*. **2016**, *82*, 3493-3502. doi:10.1128/AEM.00045-16.

6. Megan E. Forman, Madison H. Fletcher, Megan C. Jennings, Stephanie M. Duggan, Kevin P.C. Minbiole, William M. Wuest. Structure-Resistance Relationships: Interrogating Antiseptic Resistance in Bacteria with Multicationic Quaternary Ammonium Dyes. *ChemMedChem.* **2016**, *11*, 958–962. doi: 10.1002/cmdc.201600095

7. Eria A. Rebollar, Rachael E. Antwis, Matthew H. Becker, Lisa K. Belden, Molly C. Bletz, Robert M. Brucker, Xavier A. Harrison, Myra C. Hughey, Jordan G. Kueneman, Andrew H. Loudon, Valerie McKenzie, Daniel Medina, Kevin P.C. Minbiole, Louise A. Rollins-Smith, Jennifer B. Walke, Sophie Weiss, Douglas C. Woodhams, Reid N. Harris. Using "omics" and integrated multi-omics approaches to guide probiotic selection to mitigate chytridiomycosis and other emerging infectious diseases. *Frontiers in Microbiology - Infectious Diseases.* **2016**. 2016.00068.

8. Kevin P.C. Minbiole, Megan C. Jennings, Laura E. Ator, Jacob W. Black, Melissa C. Grenier, Jade E. LaDow, Kevin L. Caran, Kyle Seifert, William M. Wuest. From Antimicrobial Activity to Mechanism of Resistance: The Multifaceted Role of Simple Quaternary Ammonium Compounds in Bacterial Eradication. *Tetrahedron*. **2016**. 3559-3566. doi:10.1016/j.tet.2016.01.014

9. Maureen D. Joyce, Megan C. Jennings, Celina N. Santiago, Madison H. Fletcher, William M. Wuest, Kevin P. C. Minbiole. Natural Product-Derived Quaternary Ammonium Compounds with Potent Antimicrobial Activity. *The Journal of Antibiotics*. **2016**, *69*, 344-347.

10. Emily C. Minbiole, Kevin P. C. Minbiole. The Petasis-Ferrier Reaction - Developments and Applications. *The Journal of Antibiotics.* **2016**, *69*, 213-219.

11. Kevin P. C. Minbiole. Organic Synthesis in the Smith Group: A Personal Selection of a Dozen Lessons Learned at the University of Pennsylvania. *Journal of Antibiotics*. **2016**, *69*, 192–202

12. I. Ziraldo, K. Watts, A. Luk, A.F. Lagalante and R.C. Wolbers. The influence of temperature and humidity on swelling and surfactant migration in acrylic emulsion paint films. *Studies in Conservation*. **2016**, 209-221.

13. A.F. Lagalante and R.C. Wolbers, The Cleaning of Acrylic Paintings. New Particle-Based Water-in-Oil Emulsifiers" in *Dall'olio all'acrilico, dall'impressionismo all'arte contemporanea. Studi, ricerche, indagini scientifiche ed interventi conservativ*, Proceedings of VII Congresso Internazionale Colore e Conservazione (CESMAR7), il prato Publishing, Milan, **2016** p. 163-176.

14. E.P. Benton, J.F. Grant, R.S. Cowles, R.J. Webster, R.J. Nichols, A.F. Lagalante and C.I. Coots. Assessing relationships between tree diameter and long-term persistence of imidacloprid and olefin to optimize imidacloprid treatments on eastern hemlock. *Forest Ecology and Management*. **2016**. **370**, 12-23.

15. E.P. Benton, J.F. Grant, R.J. Webster, R.S. Cowles, R.J. Nichols, A.F. Lagalante, and C.I. Coots. Hemlock Woolly Adelgid and Hemlock Canopy Health Numerous Years after Imidacloprid Basal Drench Treatments: Implications for Management Programs. *Journal of Economic Entomology*. **2016**, 109(5), 2125-2136.

16. C. Mannikarottu, J. Tierney, K. Cannon, L. Mascavage and A. Lagalante. A Study of 13C Chemical Shifts for a Series of 2-(4-methoxyphenyl)-substituted-3-phenyl-1,3-thiazolidin-4-ones" *International Journal of Chemistry*, **2016**, 8(2), 43-50.

17. L.J. Silverberg, C. Pacheco, A. Lagalante, J. Tierney, J.T. Bachert, J.A. Bayliff, R.V. Bendinsky, A.S. Cali, L. Chen, A.D. Cooper, M.J. Minehan, C.R. Mroz, D.J. Noble, A.K. Weisbeck, Y. Xie, Z. Yanga. Synthesis and spectroscopic properties of a series of novel 2-aryl-3-phenyl-2,3-dihydro-4H-1,3-benzothiazin-4-ones. *ARKIVOK*. **2016**, **accepted**.

18. Turcotte, F. Cook, J. Jones, A.F. Lagalante, Spatial and Temporal Distribution of Imidacloprid within the Crown of Eastern Hemlock. *Journal of Insect Science* **2016 accepted**.

19. Grannas, AM. Photochemistry of organic pollutants in/on snow and ice. P*ole to Pole: Implications and Consequences of Anthropogenic Pollution in Polar Environments* (Ed: Roland Kallenborn), Springer, **2016**. ISBN: 978-3-642-12314-6.

20. Attanasio, N., Shaik, N. Neal, E; Peel, M.T., Leone, SG, Cali, B; Grannas, AM; Wykoff D., Partial decay of thiamine (THI) signal transduction pathway underlies the niche properties of C. glabrata Iosue. *PLoS ONE*, **2016**. doi: 10.1371/journal.pone.0152042.

21. Skaf, D., Grannas, AM, Colotti, D, Bowes, E. The Effects of Photocatalyst and Solution Co-Contaminants on Photocatalytic Oxidation of 1,3- Dinitrobenzene in Aqueous Semiconductor Oxide Suspensions. *Journal of Chemical Engineering and Process Technology*, **2016**. doi:10.4172/2157-7048.1000275

2017

Publications

1. Abdalrahman, M. A.; Abebe, F.; Briggs, J.; Kassel, W. S.; Burdette, S. C.; Seitz, W. R.; Planalp, R. P. A bifunctional 2,2 ':6 ',2 ''-terpyridine-based ligand for ratiometric Cu(II) sensing. *Journal of Coordination Chemistry* **2017**, *70*, 1123-1136.

2. Al-Khalifa, S. E.; Jennings, M. C.; Wuest, W. M.; Minbiole, K. P. C. The Development of Next-Generation Pyridinium-Based multiQAC Antiseptics. *Chemmedchem* **2017**, *12*, 280-283.

3. Allen, R. A.; Jennings, M. C.; Mitchell, M. A.; Al-Khalifa, S. E.; Wuest, W. M.; Minbiole, K. P. C. Ester- and amide-containing multiQACs: Exploring multicationic soft antimicrobial agents. *Bioorg. Med. Chem. Lett.* **2017**, *27*, 2107-2112.

4. Antony, R.; Willoughby, A. S.; Grannas, A. M.; *Catanzano, V.*; Sleighter, R. L.; Thamban, M.; Hatcher, P. G.; Nair, S. Molecular Insights on Dissolved Organic Matter Transformation by Supraglacial Microbial Communities. *Environ. Sci. Technol.* **2017**, *51*, 4328-4337.

5. Barnhart, K.; Forman, M. E.; Umile, T. P.; Kueneman, J.; McKenzie, V.; Salinas, I.; Minbiole, K. P. C.; Woodhams, D. C. Identification of Bufadienolides from the Boreal Toad, Anaxyrus boreas, Active Against a Fungal Pathogen. *Microb. Ecol.* **2017**, *74*, 990-1000.

6. Bhattacharya, P.; Heiden, Z. M.; Wiedner, E. S.; Raugei, S.; Piro, N. A.; Kassel, W. S.; Bullock, R. M.; Mock, M. T. Ammonia Oxidation by Abstraction of Three Hydrogen Atoms from a Mo-NH3 Complex. *J. Am. Chem. Soc.* **2017**, *139*, 2916-2919.

7. Cabrera, K. D.; Rowland, A. T.; Szarko, J. M.; Diaconescu, P. L.; Bezpalko, M. W.; Kassel, W. S.; Nataro, C. Monodentate phosphine substitution in [Pd(kappa(3)-dppf)(PR3)][BF4](2) (dppf=1,1 '-bis(diphenyl-phosphino)ferrocene) compounds. *Dalton Transactions* **2017**, *46*, 5702-5710.

8. Eichman, H. J., Jr.; Eck, B. J.; Lagalante, A. F. A comparison of electrospray ionization, atmospheric pressure chemical ionization, and atmospheric pressure photoionization for the liquid chromatography/tandem mass spectrometric analysis of bisphenols. Application to bisphenols in thermal paper receipts and US currency notes. *Rapid Communications in Mass Spectrometry* **2017**, *31*, 1773-1778.

9. Hartlaub, S. F.; Lauricella, N. K.; Ryczek, C. N.; Furneaux, A. G.; Melton, J. D.; Piro, N. A.; Kassel, W. S.; Nataro, C. Late Transition Metal Compounds with 1,1-Bis(phosphino)ferrocene Ligands. *European Journal of Inorganic Chemistry* **2017**, 424-432.

10. Hosseinpour, S.; Hosseini-Yazdi, S. A.; White, J.; Kassel, W. S.; Piro, N. A. X-ray crystal structural and spectral studies of copper(II) and nickel(II) complexes of two asymmetric bis(thiosemicarbazone) ligands and the investigation of relationship between the N(4)-substituent and the electrochemical behavior. *Polyhedron* **2017**, *121*, 236-244.

11. Jennings, M. C.; Forman, M. E.; Duggan, S. M.; Minbiole, K. P. C.; Wuest, W. M. Efflux Pumps Might Not Be the Major Drivers of QAC Resistance in Methicillin-Resistant Staphylococcus aureus. *Chembiochem* **2017**, *18*, 1573-1577.

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