

CURRICULUM VITAE

ALEXANDRA C. NAHM KINGSTON

University of South Carolina
Department of Biological Sciences
715 Sumter Street CLS606
Columbia, SC 29208

Email Addresses: acnahm@gmail.com
kingstoa@mailbox.sc.edu

PROFESSIONAL POSITIONS

- 09/2015 – present **University of South Carolina** Columbia, SC
Postdoctoral Fellow
Advisor: Dr. Daniel I. Speiser
Project Title: Evolutionary origins of chiton shell-eyes: Integrating structure, function, and gene expression within a phylogenetic context
- 04-09/2017 **Belle W. Baruch Institute for Marine & Coastal Sciences**
Georgetown, SC
Visiting Scientist

EDUCATION

- 08/2008 – 09/2015 **University of Maryland, Baltimore County** Baltimore, MD
Doctor of Philosophy: Biological Sciences
Advisor: Dr. Thomas W. Cronin
Thesis Title: A comparative molecular characterization of extraocular photoreceptors
- 08/2004 – 05/2008 **Arizona State University** Tempe, AZ
Bachelor of Science; Major: Biology, *Cum laude*
Undergraduate Research Advisor: Dr. Ronald L. Rutowski

PEER-REVIEWED PUBLICATIONS

- Havens, L.T., **A.C.N. Kingston**, and D.I. Speiser. (*In revision*) A novel method for automated and efficient electroretinography.
- Kingston, A.C.N.**, R.L. Lucia, L.T. Havens, T.W. Cronin, and D.I. Speiser. (*In press*) Vision in the snapping shrimp *Alpheus heterochaelis*. *Journal of Experimental Biology*.
- Harris, O.K., **A.C.N. Kingston**, C. Wolfe, S. Ghoshroy, S. Johnsen, & D.I. Speiser (*In press*) Core-shell nanospheres behind the blue eyes of the bay scallop *Argopecten irradians*. *Royal Society Interface*.
- Miller, H.V., Y. Gagnon, **A.C.N. Kingston**, & D.I. Speiser. (2019) Light-evoked pupillary response in scallops. *Current Biology*: doi:10.1016/j.cub.2019.03.053
- Kingston, A.C.N.**, J.D. Sigwart, D.R. Chappell, & D.I. Speiser. (2019) Monster or multiplacophoran: A teratological specimen of the chiton *Acanthopleura granulata* with a valve split into independent and symmetrical halves. *Acta Zoologica*: doi: 10.1111/azo.12289

- Kingston, A.C.N.**, D.R. Chappell, & D.I. Speiser. (2018) Evidence for spatial vision in *Chiton tuberculatus*, a chiton with eyespots. *Journal of Experimental Biology*: doi:10.1242/jeb.183632.
- Kingston, A.C.N.**, D.R. Chappell, H.V. Miller, S.J. Lee, and D.I. Speiser (2017). Expression of G-proteins in the eyes and parietovisceral ganglion of the bay scallop *Argopecten irradians*. *The Biological Bulletin*: doi:10.1086/694448.
- Kingston, A.C.N.** and T.W. Cronin (2016). Diverse distributions of extraocular opsins in crustaceans, cephalopods and fish. *Integrative and Comparative Biology*: doi:10.1093/icb/icw022.
- Kingston, A.C.N.** and T.W. Cronin (2015). Short- and long-wavelength-sensitive opsins are involved in photoreception both in the retina and throughout the central nervous system of crayfish. *Journal of Comparative Physiology A*: doi: 10.1007/s00359-015-1043-2.
- Kingston, A.C.N.**, T.J. Wardill, R.T. Hanlon, and T.W. Cronin (2015b). An unexpected diversity of extraocular photoreceptor classes in the longfin squid, *Doryteuthis pealeii*. *PLOS ONE*: doi: 10.1371/journal.pone.0135381.
- Kingston, A.C.N.**, A.M. Kuzirian, R.T. Hanlon, and T.W. Cronin (2015a). Visual phototransduction components in cephalopod chromatophores suggest dermal photoreception. *Journal of Experimental Biology*: doi:10.1242/jeb.117945.
- Porter, M.L., **A.C.N. Kingston**, R. McReady, E.G. Cameron, C. Hoffman, L. Suarez, G. Olsen, P.R. Robinson, & T.W. Cronin (2014). Visual pigments, oil droplets, lens and cornea characterization in the endangered whooping crane *Grus americana*. *Journal of Experimental Biology* 217: 3883-3890.
- Pegram, K.V., **A.C. Nahm**, & R.L. Rutowski (2013). Warning color changes in response to food deprivation in the pipevine swallowtail butterfly, *Battus philenor*. *Journal of Insect Science* 13:1-16.
- Rayjyaguru P.K., K.V. Pegram, **A.C.N. Kingston** & R.L. Rutowski (2013). Male wing color properties predict the size of nuptial gifts given during mating in the Pipevine Swallowtail butterfly (*Battus philenor*). *Naturwissenschaften* 100: 507-513.
- Rutowski, R.L., **A.C. Nahm**, & J.M. Macedonia (2010). Iridescent hindwing patches in the Pipevine Swallowtail: differences in dorsal and ventral surfaces relate to signal function and context. *Functional Ecology*: doi:10.1111/j.1365-2435.2010.01693.x

AWARDS AND HONORS

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| 2019 | Outstanding Service , Student and Postdoctoral Affairs Committee, Society for Integrative and Comparative Biology (SICB) |
| 2018 | Best Postdoctoral Poster , Discover UofSC, University of South Carolina |
| 2016 | Wolf Dissertation Award , University of Maryland, Baltimore County |
| 2015 | Best Student Oral Paper , Division of Neurobiology, Society for Integrative and Comparative Biology (SICB) |
| 2014 | Best Student Oral Paper , Division of Neurobiology, Society for Integrative and Comparative Biology (SICB) |
| 2013 | Best Poster , Graduate Association of Biological Sciences Symposium, UMBC |
| 2012 | Invited Presenter , Graduate Association of Biological Sciences, UMBC |
| 2007-2008 | SOLUR (School of Life Sciences Undergraduate Research Program)
Undergraduate Researcher , Arizona State University (supported by HHMI) |

GRANT PROPOSALS FUNDED

- UofSC Advanced Support Program for Innovative Research Excellence-I (ASPIRE-1, Track IIB for Postdoctoral Scholars): How eyes evolve: relationships between structural complexity, molecular complexity, and function across the diverse light-sensing organs of chitons (Mollusca: Polyplacophora). \$5000. 7/2019-10/2020
- UofSC Advanced Support Program for Innovative Research Excellence-I (ASPIRE-1, Track IIB for Postdoctoral Scholars): “Co-evolution of complex traits associated with a key innovation: Weaponry, armor, vision, and predator avoidance in the snapping shrimp, *Alpheus heterochaelis*”. \$5000. 7/2017-10/2019
- 2017 Visiting Scientist Award, Belle W. Baruch Institute for Marine and Coastal Sciences, University of South Carolina, Baruch Marine Field Laboratory. \$3000. 5/2017-9/2017

GRANT PROPOSALS SUBMITTED

- UofSC Advanced Support Program for Innovative Research Excellence-I (ASPIRE-1, Track IIB for Postdoctoral Scholars): How eyes evolve: relationships between structural complexity, molecular complexity, and function across the diverse light-sensing organs of chitons (Mollusca: Polyplacophora).
- NSF IOS Neural Systems: Activation: “IOS Preliminary Proposal: Co-evolution of complex traits associated with a key innovation: Weaponry, armor, vision, and predator avoidance in snapping shrimp (Decapoda: Alpheidae)”
Position on grant proposal: Co-PI
Contributions to grant proposal: I conceptualized and co-wrote this proposal.
Rated: HIGH PRIORITY
- UofSC Advanced Support Program for Innovative Research Excellence-I (ASPIRE-1, Track IIB for Postdoctoral Scholars): “Co-evolution of complex traits associated with a key innovation: Weaponry, armor, vision, and predator avoidance in the snapping shrimp, *Alpheus heterochaelis*”
- L’Oréal USA For Women in Science Fellowship: “Co-evolution of complex traits associated with a key innovation: A comparative study of weaponry, armor, vision, and predator avoidance in snapping shrimp (Decapoda: Alpheidae).
- 2017 Visiting Scientist Award, Belle W. Baruch Institute for Marine and Coastal Sciences, University of South Carolina, Baruch Marine Field Laboratory

INVITED SEMINARS/SYMPOSIUM PRESENTATIONS

- Kingston, A.C.N.** (2019) Co-evolution of complex traits: Weaponry, armor, and vision in snapping shrimp. East Carolina University, Greenville, NC.
- Kingston, A.C.N.** (2018) Structure, function, and evolution of sensory systems in marine invertebrates. University of Hawai’i at Mānoa, Honolulu, HI.
- Kingston, A.C.N.** (2017) Using visual systems in marine invertebrates to ask how and why complex traits evolve. Marine Sciences Seminar Series. University of South Carolina, Columbia, SC.
- Kingston, A.C.N., D.R. Chappell, and D.I. Speiser** (2017) How and why eyes evolved in chitons. PopBio Seminar Series, Duke University, Durham, NC.
- Kingston, A.C.N.** (2017) Co-evolution of complex traits associated with a key innovation: Weaponry, armor, vision, and predator avoidance in the snapping shrimp, *Alpheus heterochaelis*. Belle W. Baruch Institute for Marine and Coastal Sciences: Visiting Scientist

Lecture. Georgetown, SC.

- Kingston, A.C.N. & T.W. Cronin (2016)** Dermal and central nervous system opsins in crustaceans, cephalopods, and fish. Society for Integrative and Comparative Biology Annual Meeting, Portland, OR.
- Kingston, A.C.N., R.T. Hanlon, and T.W. Cronin (2013)** Characterizing light sensors in the skin of squid. National Zoological Park, Smithsonian Institution, Washington DC.
- Kingston, A., and T.W. Cronin (2012)** Photoreception on the surface: Dermal opsins in cuttlefish, squid and flounder. GABS symposium, UMBC, Baltimore, MD.

SELECTED PRESENTATIONS (2017-present)

- Kingston, A.C.N. (2019)** Snapping shrimp see through transparent armor. International Conference for Invertebrate Vision. Bäckaskog, Sweden.
- Kingston, A.C.N., L.T. Havens, T.W. Cronin, and D.I. Speiser (2019)** The visual system of the snapping shrimp, *Alpheus heterochaelis*: Morphology, physiology, and visually-influenced behavior. Society for Integrative and Comparative Biology Annual Meeting, Tampa, FL.
- Kingston, A.C.N., D.R. Chappell, and D.I. Speiser. (2018)** Structural, molecular, and functional complexities of the distributed visual systems of chitons. International Congress for Neuroethology, Brisbane, Australia.
- Kingston, A.C.N., L.T. Havens, & D.I. Speiser (2018)** Co-evolution of complex traits associated with a key innovation: Weaponry, armor, and vision in the snapping shrimp, *Alpheus heterochaelis*. Discover UofSC, Columbia, SC. (Poster)
- Kingston, A.C.N. & D.I. Speiser (2018)** Molecular, structural, and functional complexity of the sensory organs of chitons. Society for Integrative and Comparative Biology Annual Meeting, San Francisco, CA.
- Kingston, A.C.N. & D.I. Speiser (2017)** Decreasing molecular complexity in increasingly complex sensory structures of chitons. Evolution, Portland, OR.
- Kingston, A.C.N. & D.I. Speiser (2017)** Diverse sensory structures in the shell plates of chitons express the molecular components of rhabdomeric phototransduction. Society for Integrative and Comparative Biology Annual Meeting, New Orleans, LA.

TEACHING EXPERIENCE

- 09-11/2018 Guest Lecturer, UofSC, BIOL270: Introduction to Environmental Biology, 5 lectures: Geological Processes, Geological Processes, Environmental Economics, Animal Behavior, Climate Change
- 09/2017 Guest Lecturer, UofSC, BIOL 543: Comparative Physiology: Metabolism and Thermogenesis
- 10/2016 Guest Lecturer, UofSC, BIOL 543: Comparative Physiology: Non-visual Photoreceptors
- 04/2015 Guest Lecturer, UMBC, BIOL 454: Vision Science: Non-visual Photoreceptors
- 01-05/2011 Teaching Assistant, UMBC, Foundations of Biology: Ecology and Evolution
- 08-12/2010 Teaching Assistant, UMBC: Cell Biology Lab
- 01-05/2010 Teaching Assistant, UMBC: Plant Biology Lab
- 08-12/2009 Teaching Assistant, UMBC: Cell Biology Lab

PROFESSIONAL SERVICE

- 01/2016-01/2019** Society for Integrative and Comparative Biology
Student and Postdoc Affairs Committee
- 01/2016-01/2019** Society for Integrative and Comparative Biology
Division of Neurobiology, Neuroethology, and Sensory Biology
Postdoc Representative
- 06/2017-06/2018** University of South Carolina Postdoctoral Association (PDA)
Treasurer

Reviewer: *Science*, *Proceedings of the Royal Society B: Biological Sciences*, *Tissue and Cell*, *Integrative and Comparative Biology*, *Journal of Experimental Marine Biology and Ecology*, *Journal of Visualized Experiments*

PROFESSIONAL DEVELOPMENT

- Emerging Scholars Symposium participant hosted by East Carolina University (March 2019)
- Attendee of Aurion/Electron Microscopy Sciences Immunogold Silver Staining workshop (October 2016)
- Participant in NextProf:Science hosted by the University of Michigan (May 2016)