

## Dr. Jens Herberholz

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Department of Psychology • Neuroscience and Cognitive Science Program

University of Maryland, College Park, MD 20742

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### **Education**

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|------|---------------------------------------|---|
| 1999 | Dr. rer. nat. (PhD, Natural Sciences) | Technical University Munich, Germany        |
| 1995 | Diplom (M.Sc., Zoology)               | Albert-Ludwigs-University Freiburg, Germany |
| 1992 | Vordiplom (B.Sc., Biology)            | Albert-Ludwigs-University Freiburg, Germany |

### **Academic Positions & Appointments**

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|------------------|--|
| 8/2015 - present | <u>Co-Director</u> , Brain and Behavior Initiative (BBI), University of Maryland, College Park, USA            |
| 7/2013 - 6/2017  | <u>Director</u> , Neuroscience and Cognitive Science Program (NACS), University of Maryland, College Park, USA |
| 1/2012 - 7/2012  | <u>Visiting Professor</u> (sabbatical), Department of Zoology, Technical University Munich, Germany            |
| 8/2011 - present | <u>Associate Professor</u> (tenured), Department of Psychology, University of Maryland, College Park, USA      |
| 8/2005 - 8/2011  | <u>Assistant Professor</u> , Department of Psychology, University of Maryland, College Park, USA               |
| 1/2002 - 7/2005  | <u>Research Scientist</u> , Department of Biology, Georgia State University, Atlanta, USA                      |
| 8/1999 - 12/2001 | <u>Postdoctoral Research Associate</u> , Department of Biology, Georgia State University, Atlanta, USA         |

### **Affiliations & Memberships**

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|----------------|--|
| 2009 - present | Affiliate Faculty Member, Department of Biology, University of Maryland, College Park                                      |
| 2009 - 2013    | Affiliate Faculty Member, Center for Comparative and Evolutionary Biology of Hearing, University of Maryland, College Park |
| 2005 - present | Affiliate Faculty Member, Neuroscience & Cognitive Science Graduate Program (NACS), University of Maryland, College Park   |
| 2003 - 2005    | Member, Center for Behavioral Neuroscience, Atlanta  |
| 2003 - present | Member, International Society for Neuroethology  |
| 2000 - present | Member, Society for Neuroscience   |

## Awards & Honors

- 2014 Dean Research Initiative Award, College of Behavioral and Social Sciences, University of Maryland, College Park
- 2012 Emerging Scholars Program Award; College of Behavioral and Social Sciences, University of Maryland, College Park
- 2008 Research Support Award; General Research Board, Graduate School, University of Maryland, College Park
- 2007 Faculty Mentor Award; Philip Merrill Presidential Scholars Program, University of Maryland, College Park
- 2006 Summer Research Award; General Research Board, Graduate School, University of Maryland, College Park

## Publications

### A) Peer-reviewed articles and book chapters

1. Swierzbinski M.E. and **Herberholz J.** (2017) Neuropharmacological interactions between alcohol and giant interneurons in crayfish. *Frontiers in Physiology*. (in preparation; invited)
2. Swierzbinski M.E., Lazarchik A.R. and **Herberholz J.** (2017) Prior social experience affects the behavioral and neural responses to acute alcohol in juvenile crayfish. *Journal of Experimental Biology* 220: 1516-1523. [Editor's choice]
3. Schadeegg A.C. and **Herberholz J.** (2017) Satiation level affects anti-predatory decisions in foraging juvenile crayfish. *Journal of Comparative Physiology A* 203: 223-232.
4. **Herberholz J.**, Swierzbinski M.E. and Birke J.M. (2016) Effects of different social and environmental conditions on established dominance relationships in crayfish. *Biological Bulletin* 230: 152-164. [Cover picture]
5. **Herberholz J.** (2014) Neurobiology of social status in crustaceans. In: The Natural History of the Crustacea, Vol. 3: Crustacean Nervous Systems and Their Control of Behavior, C. Derby and M. Thiel (eds). Oxford University Press, 457-483.
6. **Herberholz J.** (2013) Serotonergic modulation of aggression. In: Serotonin: Biosynthesis, Regulation and Health Implications, F.S. Hall (ed.). NOVA Science Publishers, 27-51.
7. Sullivan J.M. and **Herberholz J.** (2013) Structure of the nervous system: general design. In: The Natural History of the Crustacea, Vol. 1: Functional Morphology and Diversity, L. Watling and M. Thiel (eds). Oxford University Press, 451-484.
8. **Herberholz J.** and Marquart G. (2012) Decision making and behavioral choice during predator avoidance. *Frontiers in Neuroscience* 6:125. doi: 10.3389/fnins.2012.00125.
9. **Herberholz J.**, Mishra S.H., Uma D., Germann M.W., Edwards D.H., and Potter K. (2011) Non-invasive imaging of neuroanatomical structures and neural activation with high-resolution MRI. *Frontiers in Neuroscience* 5:16. doi: 10.3389/fnbeh.2011.00016.
10. Liden W.H., Phillips M.L. and **Herberholz J.** (2010) Neural control of behavioral choice in crayfish. *Proceedings of the Royal Society B: Biological Sciences* 277: 3493-3500.
11. Liu Y.C. and **Herberholz J.** (2010) Sensory activation and receptive field organization of the lateral giant escape neurons in crayfish. *Journal of Neurophysiology* 104: 675-684.

12. **Herberholz J.** (2009) Recordings of neural circuit activation in freely behaving animals. *Journal of Visualized Experiments* 29, doi: 10.3791/1297.
13. Graham M.E. and **Herberholz J.** (2009) Stability of dominance relationships in crayfish depends on social context. *Animal Behaviour* 77, 195-199.
14. Liden W.H. and **Herberholz J.** (2008) Behavioral and neural responses of juvenile crayfish to moving shadows. *Journal of Experimental Biology* 211, 1355-1361.
15. **Herberholz J.** (2007) The neural basis of communication in crustaceans. In: Evolutionary ecology of social and sexual systems: crustaceans as model organisms, J. E. Duffy and M. Thiel (eds). Oxford University Press, 71-89.
16. **Herberholz J.**, McCurdy C. and Edwards D.H. (2007) Direct benefits of social dominance in juvenile crayfish. *Biological Bulletin* 213, 21-27.
17. Song C.-K., **Herberholz J.** and Edwards D.H. (2006) The effects of social experience on the behavioral response to unexpected touch in crayfish. *Journal of Experimental Biology* 209, 1355-1363.
18. Antonsen B.L., **Herberholz J.** and Edwards D.H. (2005) The retrograde spread of synaptic potentials and recruitment of presynaptic inputs. *Journal of Neuroscience* 25, 3086-3094.
19. Edwards D.H. and **Herberholz J.** (2005) Crustacean models of aggression. In: The Biology of Aggression, R. J. Nelson (ed). Oxford University Press, 38-61.
20. **Herberholz J.**, Mims C.J., Zhang X., Hu X. and Edwards D.H. (2004) Anatomy of a live invertebrate revealed by manganese-enhanced Magnetic Resonance Imaging. *Journal of Experimental Biology* 207, 4543-4550.
21. **Herberholz J.**, Sen M.M. and Edwards D.H. (2004) Escape behavior and escape circuit activation in juvenile crayfish during prey-predator interactions. *Journal of Experimental Biology* 207, 1855-1863.
22. Edwards D.H., Issa F.A. and **Herberholz J.** (2003) The neural basis of dominance hierarchy formation in crayfish. *Microscopy Research and Technique* 60, 369-376.
23. **Herberholz J.**, Sen M.M. and Edwards D.H. (2003) Parallel changes in agonistic and non-agonistic behaviors during dominance hierarchy formation in crayfish. *Journal of Comparative Physiology A* 189, 321-325.
24. **Herberholz J.**, Antonsen B.L. and Edwards D.H. (2002) A lateral excitatory network in the escape circuit of crayfish. *Journal of Neuroscience* 22, 9078-9085.
25. Drummond J., Issa F.A., Song C.K., **Herberholz J.**, S.R. Yeh and D.H. Edwards (2002) Neural mechanisms of dominance hierarchies in crayfish. In: The Crustacean Nervous System, K. Wiese (ed). Springer Verlag, Berlin, 124-135.
26. **Herberholz J.**, Issa F.A. and Edwards D.H. (2001) Patterns of neural circuit activation and behavior during dominance hierarchy formation in freely behaving crayfish. *Journal of Neuroscience* 21, 2759-2767.
27. Edwards D.H., Antonsen B.L. and **Herberholz J.** (2001) Network, neuronal and biochemical computations in the escape circuit of crayfish. In: Proceedings of the Eleventh Yale Workshop on Adaptive and Learning Systems, K. S. Narendra (ed). Center for Systems Science, Yale University, New Haven, 225-232.

28. **Herberholz J.** and Schmitz B. (2001) Signaling via water currents in behavioral interactions of snapping shrimp (*Alpheus heterochaelis*). *Biological Bulletin* 201, 6-16.
29. **Herberholz J.** and Schmitz B. (1999) Flow visualisation and high speed video analysis of water jets in the snapping shrimp (*Alpheus heterochaelis*). *Journal of Comparative Physiology A* 185, 41-49.
30. **Herberholz J.** and Schmitz B. (1998) Role of mechanosensory stimuli in intraspecific agonistic encounters in the snapping shrimp (*Alpheus heterochaelis*). *Biological Bulletin* 195, 156-167.
31. Schmitz B. and **Herberholz J.** (1998) Snapping behaviour in intraspecific agonistic encounters in the snapping shrimp (*Alpheus heterochaelis*). *Journal of Biosciences* 23, 623-632.

## B) Published conference contributions

1. **Herberholz J.**, Swierzbinski M.E., Venuti L.S., Lee H.J., and Exum A.C. (2017) Neuropharmacology of alcohol effects on crayfish neural circuitry. *Society for Neuroscience 47<sup>th</sup> Annual Meeting*; 156.27 (accepted)
2. Rajasekaran P.R., Quan D.N., Chapin A., **Herberholz J.**, Bentley W.E. and Ghodssi R. (2017) A bio-electronic membrane to investigate the Gut Brain Microbiome Axis. *ACS Div Biol Chem* (submitted)
3. Algarin J.M., Ramaswamy B., Venuti L., Swierzbinski M., Villar P., Chen Y.J., Weinberg I., **Herberholz J.**, Araneda R., Shapiro B. and Waks E. (2017) Modulation and detection of single neuron activity using spin transfer nano-oscillators. *SPIE Nanoscience and Engineering Conference*; 10357-78.
4. **Herberholz J.**, Swierzbinski M.E., and Lazarchik A.R. (2014) Interactions between social status and alcohol intoxication in crayfish. *Society for Neuroscience 44<sup>th</sup> Annual Meeting*; 181.16
5. Hu R., Murphy M. and **Herberholz J.** (2014) Monoaminergic modulation of sensory inputs to the crayfish medial giant escape neurons. *Society for Neuroscience 44<sup>th</sup> Annual Meeting*; 181.17
6. Swierzbinski M.E. and **Herberholz J.** (2014) Inhibitory properties of the medial giant escape circuit in crayfish. *Society for Neuroscience 44<sup>th</sup> Annual Meeting*; 181.18
7. Venuti L.S., Swierzbinski M.E. and **Herberholz J.** (2014) Investigation of fast autoinhibition in the lateral giant circuit of crayfish. *Society for Neuroscience 44<sup>th</sup> Annual Meeting*; 181.19
8. **Herberholz J.**, Swierzbinski M.E., and Hu R. (2014) Modulation of neural thresholds in a decision-making circuit. *Conference Abstract: Eleventh International Congress of Neuroethology*; PO2194
9. Swierzbinski M.E. and **Herberholz J.** (2012) Interactions between alcohol and GABAergic inhibition in the escape circuit of crayfish. *Front. Behav. Neurosci. Conference Abstract: Tenth International Congress of Neuroethology*. doi: 10.3389/conf.fnbeh.2012.27.00327
10. Uma D. and **Herberholz J.** (2012) Are juvenile crayfish attracted to their natural predators? *Front. Behav. Neurosci. Conference Abstract: Tenth International Congress of Neuroethology*. doi: 10.3389/conf.fnbeh.2012.27.00196
11. Swierzbinski M.E. and **Herberholz J.** (2011) Effects of alcohol on escape behavior and underlying neural circuitry in crayfish. *Society for Neuroscience 41<sup>th</sup> Annual Meeting*; 944.09.

12. Richards J.M., Leonard J.R., Meshera N., **Herberholz J.**, Lejeuz C.W. and Daughters S.B. (2011) HPA axis response to stress predicts distress tolerance in a sample of cocaine users. *The College on Problems of Drug Dependence Annual Meeting*; 585.
13. **Herberholz J.**, Phillips M.L., Sichler, K. and Medley V.A. (2010) Crayfish select escape strategies based on external conditions and internal states. *Proceedings of the 9<sup>th</sup> International Congress of Neuroethology*, Salamanca, Spain; P150.
14. **Herberholz J.** and Liden W. H. (2009) Escape circuit activation and behavioral choice in juvenile crayfish. *Society for Neuroscience 39<sup>th</sup> Annual Meeting*; 287.
15. Medley V.A. and **Herberholz J.** (2009) Mechanisms underlying visual activation of the medial giant escape circuit in crayfish. *Society for Neuroscience 39<sup>th</sup> Annual Meeting*; 288.
16. **Herberholz J.** and Liu Y.-C. (2008) Receptive field organization of the giant escape neurons in crayfish. *Society for Neuroscience 38<sup>th</sup> Annual Meeting*; 198.4.
17. **Herberholz J.** (2007) Manganese-enhanced Magnetic Resonance Imaging in crayfish. *Proceedings of the 8<sup>th</sup> International Congress of Neuroethology*, Vancouver, Canada; SY45.
18. **Herberholz J.** and Liden W. H. (2007) Behavioral and neural responses of juvenile crayfish to visual threat stimuli. *Proceedings of the 8<sup>th</sup> International Congress of Neuroethology*, Vancouver, Canada; PO219.
19. **Herberholz J.** and Edwards D.H. (2005) The control of escape in crayfish through interactions of command neurons. *Society for Neuroscience 35<sup>th</sup> Annual Meeting*; 754.7.
20. **Herberholz J.**, Sen M.M. and Edwards D.H. (2004) Patterns of neural activity during escape from predators. *Society for Neuroscience 34<sup>th</sup> Annual Meeting*; 870.4.
21. Mims C.J., **Herberholz J.**, Zhang X., Hu X. and Edwards D.H. (2004) Anatomical and functional studies in the crayfish brain by means of manganese-enhanced Magnetic Resonance Imaging. *Proceedings of the 7<sup>th</sup> International Congress of Neuroethology*, Nyborg, Denmark; 251.
22. **Herberholz J.**, Sen M.M. and Edwards D.H. (2004) Behavioral and neural responses in crayfish to attacks from a natural predator. *Proceedings of the 7<sup>th</sup> International Congress of Neuroethology*, Nyborg, Denmark; 233.
23. Zhang X., **Herberholz J.**, Mims C. J., Edwards D.H. and Hu X. (2004) Observation of neural activity in crayfish with Mn-enhanced MRI. *Proceedings of the International Society of Magnetic Resonance in Medicine* 11: 1115.
24. **Herberholz J.**, Mims C.J., Zhang X. , Hu X. and Edwards D.H. (2003) Manganese-enhanced MRI of the crayfish brain. *Society for Neuroscience 33<sup>rd</sup> Annual Meeting*; 270.5.
25. Versteeg S., Antonsen B.L., Agran J., **Herberholz J.** and Edwards D.H. (2003) Simulation of the lateral excitatory network in crayfish based on anatomical and physiological data. *Society for Neuroscience 33<sup>rd</sup> Annual Meeting*; 270.8.
26. **Herberholz J.**, Antonsen B.L. and Edwards D.H. (2002) Lateral and retrograde amplification of sensory inputs to the lateral giant escape circuit of crayfish. *Society for Neuroscience 32<sup>nd</sup> Annual Meeting*; 60.9.
27. Antonsen B.L., **Herberholz J.** and Edwards D.H. (2002) Interactions between primary afferent neurons mediated through the dendrites of the lateral giant interneuron in crayfish. *Society for Neuroscience 32<sup>nd</sup> Annual Meeting*; 60.10.

28. **Herberholz J.**, Antonsen B.L. and Edwards D.H. (2001) Coupled sensory afferents form a presynaptic excitatory network in the terminal ganglion of crayfish. *Society for Neuroscience 31<sup>st</sup> Annual Meeting*; 307.8.
29. Antonsen B.L., **Herberholz J.** and Edwards D.H. (2001) The organization of sensory input to the lateral giant escape command neuron of crayfish. *Proceedings of the 6<sup>th</sup> International Congress of Neuroethology*, Bonn, Germany; 196.
30. Issa F.A., **Herberholz J.** and Edwards D.H. (2001) Patterns of tailflip escape behavior in crayfish during agonistic interactions. *Proceedings of the 6<sup>th</sup> International Congress of Neuroethology*, Bonn, Germany; 249.
31. Song C.K., **Herberholz J.**, Drummond J. and Edwards D.H. (2001) The behavioral response to unexpected touch depends on the agonistic condition in socially experienced crayfish. *Proceedings of the 6<sup>th</sup> International Congress of Neuroethology*, Bonn, Germany; 195.
32. **Herberholz J.**, Issa F.A., and Edwards D.H. (2000) The role of tailflip behavior in crayfish during dominance hierarchy formation. *American Zoologist* 40: 1053.
33. **Herberholz J.**, Issa F.A., and Edwards D.H. (2000) Hands-off-electrophysiology reveals a new offensive type of tail flip in fighting juvenile crayfish. *Society for Neuroscience 30<sup>th</sup> Annual Meeting*; 1725.
34. Song C.-K., **Herberholz J.**, Drummond J. and Edwards D.H. (2000) Social experience changes the behavioral response to unexpected touch in crayfish. *Society for Neuroscience 30<sup>th</sup> Annual Meeting*; 174.
35. **Herberholz J.** and Schmitz B. (1998) The visible water jet: flow visualisation in snapping shrimp (*Alpheus heterochaelis*). N. Elsner and R. Wehner (eds). Thieme, Stuttgart. *Proceedings of the 26<sup>th</sup> Göttingen Neurobiology Conference*; 242.
36. Schmitz B. and **Herberholz J.** (1998) Snapping movements and laser Doppler anemometry analysis of water jets in the snapping shrimp *Alpheus heterochaelis*. N. Elsner and R. Wehner (eds). Thieme, Stuttgart. *Proceedings of the 26<sup>th</sup> Göttingen Neurobiology Conference*; 241.
37. Schmitz B., **Herberholz J.**, Schultz S. and Wuppermann K. (1998) Behavioral and biophysical analysis of rapid waterjets in the snapping shrimp *Alpheus heterochaelis*. *Proceedings of the 5<sup>th</sup> International Congress of Neuroethology*, San Diego, USA; 183.
38. **Herberholz J.** and Schmitz B. (1997a) The role of visual and mechanosensory input during intraspecific agonistic encounters in the snapping shrimp (*Alpheus heterochaelis*). N. Elsner and H. Wässle (eds). Thieme, Stuttgart. *Proceedings of the 25<sup>th</sup> Göttingen Neurobiology Conference*; 251.
39. **Herberholz J.** and Schmitz B. (1997b) Sex-specific behaviour in intraspecific agonistic encounters in the snapping shrimp (*Alpheus heterochaelis*). *Verhandlungen der Deutschen Zoologischen Gesellschaft* 90: 355.

## **Research Grant Support**

### **Current**

1. "Modulation of alcohol effects on nervous system function by social experience". PI: Jens Herberholz. Agency: National Institute on Alcohol Abuse and Alcoholism (NIAAA). Grant type: Small Research Grant Program (R03). Total costs: \$152,000. Funding period: 8/1/2017 - 7/31/2019.
2. "Effects of social and non-social stress on decision-making in crayfish". PI: Erik Gunnarsson. Research Sponsor: Jens Herberholz. Agency: College of Behavioral and Social Sciences, University of Maryland. Grant type: Summer Scholar Award. Total costs: \$3,000. Funding period: 6/15/2017 - 8/15/2017.

### **Pending**

1. "Neuronal Modulation by Nanoscale Spintronic Devices". PI: Benjamin Shapiro. Co-PIs: Jens Herberholz, Edo Waks, Ricardo Araneda. Agency: National Institute on Biomedical Imaging and Bioengineering (NIBIB). Grant type: Exploratory/Developmental Grant Program (R21). Submitted 12/07/2016. Pending Council Review (Impact score: 51).

### **Past**

1. "A novel use of catanionic vesicles to modulate nervous system function and behavior". PIs: Jens Herberholz, Philip DeShong, Erica Glasper, Farrah Madison. Agency: University of Maryland, Brain and Behavior Initiative. Grant type: Seed grant. Total costs (Herberholz): \$11,575. Funding period: 4/1/2016 - 3/31/2017.
2. "Wireless Measurement of Neuronal Currents Using Spin-Torque Nano-Oscillators". PIs: Jens Herberholz, Edo Waks, Ben Shapiro, Ricardo Araneda. Agency: University of Maryland, Brain and Behavior Initiative. Grant type: Seed grant. Total costs (Herberholz): \$10,985. Funding period: 4/1/2016 - 3/31/2017.
3. "Social Status and Stress Effects on Cost Benefit Decisions in *Procambarus Clarkii*". PI: Amelia Kracinovich. Research Sponsor: Jens Herberholz. Agency: Maryland Undergraduate Research Office, University of Maryland. Grant type: Maryland Summer Scholar Award. Total costs: \$3,000. Funding period: 6/15/2016 - 8/15/2016.
4. "Physiological Effects of Alcohol on Crayfish Escape Circuitry". PI: Matthew Swierzbinski. Research Sponsor: Jens Herberholz. Agency: College of Behavioral and Social Sciences, University of Maryland. Grant type: Doctoral Dissertation Research Award. Total costs: \$2,500. Funding period: 7/1/2015 - 6/30/2016.
5. "Investigation of a novel glia-mediated inhibitory mechanism". PI: Jens Herberholz. Agency: College of Behavioral and Social Sciences, University of Maryland. Grant type: Research Initiative Award. Total costs: \$6,500. Funding period: 7/1/2014 - 12/31/2015.
6. "Cellular mechanisms underlying alcohol intoxication". PI: Andrew Lazarchik. Research Sponsor: Jens Herberholz. Agency: College of Behavioral and Social Sciences, University of Maryland. Grant type: Summer Scholar Award. Total costs: \$3,000. Funding period: 6/15/2015 - 8/15/2015.

7. "Identification of underlying mechanisms for decision-making and behavioral choice in crayfish". PI: Jens Herberholz. Agency: National Science Foundation. Grant type and number: Standard grant; IOS-0919845. Total costs: \$509,882. Funding period: 9/1/2009 – 8/31/2014.
8. "Can crayfish learn to associate specific visual features with an involuntary escape behavior?" PI: Jens Herberholz. Agency: University of Maryland, College of Behavioral and Social Sciences. Grant type: BSOS Emerging Scholars Program. Total costs: \$1,000. Funding period: 8/29/2012 - 12/11/2012.
9. "Integrative study of reward processes". Co-PIs: Jens Herberholz, Carl Lejuez, Laura MacPherson, Matthew Roesch, Richard Yi, Catalina Kopetz. Agency: University of Maryland, Division of Research. Grant type: DRIF support request; Tier 2 Incentive Program. Total costs (Herberholz): \$28,470. Funding period: 1/11/2011- 12/31/2011.
10. "Development of a new model system to study the effects of alcohol on neural circuitry that is modified by social experience". PI: Jens Herberholz. Agency: University of Maryland, Division of Research. Grant type: DRIF support request; Seed grant Type A. Total costs: \$49,985. Funding period: 4/1/2009-3/31/2011.
11. "Non-invasive imaging of escape circuitry in crayfish". PI: Jens Herberholz. Agency: University of Maryland, General Research Board. Grant type: Research Support Award. Total costs: \$3,500. Funding period: 7/1/08-6/30/09.
12. "Micro-imaging of brain activity in socially experienced crayfish". PI: Jens Herberholz. Agency: University of Maryland, General Research Board. Grant type: Summer Research Award. Total costs: \$8,750. Funding period: 6/1/06-8/31/06.
13. "The effects of conspecific odor on behavior of socially experienced crayfish". Co-PIs: Jens Herberholz, Charles Derby, Donald Edwards. Agency: National Science Foundation (Science & Technology Center Program). Grant type and number: Venture Grant; IBN-9876754. Total costs (Herberholz): \$26,600. Funding period: 11/30/2004-8/22/2005.
14. "Magnetic Resonance Imaging of the crayfish brain". Co-PIs: Jens Herberholz, Donald Edwards. Agency: National Science Foundation (Science & Technology Center Program). Grant type and number: Center for Behavioral Neuroscience Venture Grant; IBN-9876754. Total costs (Herberholz): \$30,000. Funding period: 5/31/2003-5/30/2004.



## **Editorial boards**

### ***Journals***

- *Behaviour*; Brill (Associate Editor; since 2012)
- *Frontiers in Invertebrate Physiology*; Frontiers (Review Editor; since 2011)
- *Invertebrate Neuroscience*; Springer (Review Editor; since 2015)

### **Review activity**

#### **A) Funding agencies**

- National Science Foundation (NSF)
- Natural Science and Engineering Research Council of Canada (NSERC)

#### **B) Panels & Study sections**

- National Science Foundation (NSF); Division of Integrative Organismal Systems; 2017

#### **C) Peer-reviewed journals**

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| • <i>Acta Ethologica</i>                           | • <i>Journal of Comparative Physiology A</i>               |
| • <i>Animal Behaviour</i>                          | • <i>Journal of Experimental Biology</i>                   |
| • <i>Behavioral Ecology</i>                        | • <i>Journal of Experimental Zoology</i>                   |
| • <i>Behavioral Neuroscience</i>                   | • <i>Journal of Neurophysiology</i>                        |
| • <i>Behaviour</i>                                 | • <i>Journal of Neuroscience</i>                           |
| • <i>Biological Bulletin</i>                       | • <i>Journal of Neuroscience Methods</i>                   |
| • <i>Brain Research Bulletin</i>                   | • <i>Journal of Physiology</i>                             |
| • <i>Canadian Journal of Zoology</i>               | • <i>Journal of the Acoustical Society of America</i>      |
| • <i>Comparative Biochemistry and Physiology</i>   | • <i>Journal of Visualized Experiments</i>                 |
| • <i>Ethology, Ecology &amp; Evolution</i>         | • <i>Marine and Freshwater Physiology &amp; Behavior</i>   |
| • <i>Frontiers in Neuroscience</i>                 | • <i>Philosophical Transactions of the Royal Society B</i> |
| • <i>Frontiers in Physiology</i>                   | • <i>Physiology &amp; Behavior</i>                         |
| • <i>Fundamental and Applied Limnology</i>         | • <i>Proceedings of the Royal Society B</i>                |
| • <i>Hormones and Behavior</i>                     | • <i>PLoS</i>  |
| • <i>Invertebrate Reproduction and Development</i> | • <i>Science</i>   |
| • <i>Journal of Comparative Neurology</i>          | • <i>Science Advances</i>                                  |

#### **D) Others**

##### **External reviews**

- Promotion & Tenure review: UC Berkeley; College of Charleston.
- Program grant review: Tübingen-Maryland Bioscience, Neuroscience, and Cognitive Science Graduate Education Partnership.
- PhD student thesis review: University of Helsinki, Finland; University of Western Australia.
- Book chapter review: *Chemical Communication in Crustaceans* (Springer; T. Breithaupt & M. Thiel, eds.); *Crustacean Nervous Systems and their Control of Behavior* (Oxford University Press; C.D. Derby & M. Thiel, eds.)

**Invited Talks (since 2010)**

- 2016 Howard Hughes Medical Institute, Janelia Farm, Ashburn, VA
- 2015 East Carolina University, Dept. of Biology, Greenville, NC
- 2014 Unites States Institute of Peace (USIP), Washington, D.C.
- 2014 Summer Neuroscience Conference, University of Maryland, College Park, MD
- 2014 National Institute of Child Health and Human Development, Bethesda, MD
- 2013 Maryland Neuroimaging Retreat, University of Maryland, College Park, MD
- 2013 Gordon Research Conference (Neuroethology), West Dover, VT (*cancelled*)
- 2013 Howard Hughes Medical Institute, Janelia Farm, Ashburn, VA
- 2012 College of Charleston, Dept. of Biology, Charleston, SC
- 2011 Johns Hopkins University, Dept. of Psychological & Brain Sciences, Baltimore, MD
- 2010 University of Maryland Baltimore County, Dept. of Biology, Baltimore, MD
- 2010 9<sup>th</sup> International Congress of Neuroethology, Salamanca, Spain
- 2010 St. Mary's College of Maryland, Dept. of Psychology, St. Mary's City, MD

**Mentorship (current and past)**

*University of Maryland, College Park:*

- Postdoctoral Associates [1]
- Faculty research assistants [7]
- Graduate students [7] (*NACS, Psychology*)
- Honors Students [4] (*Biology, Psychology*)
- Undergraduate students [51] (*Animal Sciences, Biology, Economics, Psychology*)
- High School students [25]

Awards/fellowships/prizes received by supervised students:

- APA Summer Science Fellowship
- APA/NIGMS Program for Minority Undergraduates Award
- APA Special Award
- BSOS Doctoral Dissertation Research Award
- BSOS Emerging Scholar Semester Award
- BSOS Summer Scholar Award
- Fulbright Scholar Award
- Louis Stokes Alliances for Minority Participation (LSAMP) Undergraduate Research Program
- Maryland Summer Scholars Award
- NIH Postbaccalaureate IRTA Program Fellowship
- NIH Program in Biomedical Research Summer Internship
- NIH/NCMHD Minority International Research Training Award
- Philip Merrill Presidential Scholar Award
- Ronald E. McNair Post Baccalaureate Achievement Program
- UMD Senior Summer Scholar Award
- Virginia State Science and Engineering Fair, 1<sup>st</sup> Place

## **Teaching Experience**

*University of Maryland, College Park:*

### **A) Undergraduate Courses**

- *Neuroethology (PSYC406)*  
2007-2011, 2013-2017. Lecture; Average enrollment: 36; Average evaluation score: 3.63 (out of 4.0).
- *Animal Behavior (PSYC403)*  
2006-2012, 2014; Lecture; Average enrollment: 34; Average evaluation score: 3.58 (out of 4.0)
- *Topics in Neurosciences Undergraduate Seminar (PSYC409)*  
2008-2009. Seminar; Average enrollment: 6; Average evaluation score: 3.60 (out of 4.0).

### **B) Graduate Courses**

- *Topics in Neurosciences Graduate Seminar (PSYC789C)*  
2005-2007. Seminar; Average enrollment: 6; Average evaluation score: 3.69 (out of 4.0).
- *Biopsychology of Aggression (PSYC798L)*  
2008-2013. Seminar; Average enrollment: 5; Average evaluation score: 3.84 (out of 4.0).
- *Introduction to Neuroscience (NACS641)*  
2013-2016. Lecture; Average enrollment: 15; Average evaluation score: 3.44 (out of 4.0).

## **Academic Service**

*University of Maryland, College Park:*

### **A) University**

- Member, Neuroscience Major Committee (2016 - )
- Member, Research and Scholarship Awards Selection Committee (2016 - 2017)
- Member; Limited Submission Review Committee; Division of Research (2015 - )
- Member; Steering Committee, T32 Pre-doctoral Training Grant "Comparative and Evolutionary Biology of Hearing" (2015 - 2017)
- Co-Director; Brain and Behavior Initiative (2015 - )
- Member; Review Committee for the Dean, College of BSOS (2013)
- Director, Neuroscience and Cognitive Science Program (2013 - 2017)
- Member; Biological and Chemical Hygiene Committee (2008-2010)

### **B) College**

- Member, Search Committee Associate/Assistant Dean for Research, College of BSOS (2016)

### **C) Psychology Department**

- Member, 3<sup>rd</sup> Year Review committee; Dr. Ed Bernat (2016)
- Chair; Faculty Recruitment Committee (2015 - )
- Chair, 3<sup>rd</sup> Year Review committee; Dr. Erica Glasper (2015)
- Member; Graduate Committee (2012)
- Member; Executive Committee (2011 - 2014)
- Member; Vision Committee (2010 - 2011)

- Member; Space Committee (2009)
- Member; Faculty Salary Committee (2008 - 2009)
- Member; Faculty Recruiting Committee (2007- 2009)
- Member; Graduate Studies Committee (2006 - 2007)
- Member; Promotion & Tenure Committee (2005 - 2006 & 2007 - 2008)

#### ***D) Neuroscience & Cognitive Science (NACS) Program***

- Member; Executive Committee (2011 - 2013)
- Chair; NACS-Fest Organizational Committee (2006 - 2011)
- Member; Graduate Admissions Committee (2005 - 2009)

#### ***E) Student Committees***

##### *Thesis Defense Examination committees:*

- Ph.D. students [14] (*Biology, Engineering, NACS, Psychology*)
- Masters Students [4] (*NACS, Psychology*)
- Honors Students [5] (*Biology, Psychology*)

##### *Advisory committees:*

- Ph.D. students [22] (*Bioengineering, Biology, NACS, Psychology*)

#### ***F) Other Services***

- Served as faculty advisor for Psychology majors enrolled in the “Minor in Neuroscience Program”, University of Maryland (2008-2009)
- Serving as research advisor and student mentor to the Neuroscience Research Laboratory, Thomas Jefferson High School for Science and Technology, Alexandria, VA (since 2007).

#### **Media coverage/Research output**

My work has been covered in numerous media outlets, including The Economist, Fortune Magazine, New Scientist, Baltimore Sun, The Verge, SciShow, The Scientist, California Academy of Sciences, National Science Foundation, and several international newspapers and magazines. My 2017 paper “Prior social experience affects the behavioral and neural responses to acute alcohol in juvenile crayfish” published in the Journal of Experimental Biology is in the top 5% of all research outputs (>8 M) ever tracked by Altmetric.