

SHAOHUI WU

Curriculum Vitae

Education

Ph.D. 2013, Entomology. Virginia Tech, Blacksburg, VA, USA

M.S. 2008, Zoology (Entomology). Jiangxi Agricultural University, Nanchang, China

B.S. 2005, Plant Protection. Jiangxi Agricultural University, Nanchang, China

Professional Membership

Entomological Society of America (ESA)

Sigma Xi

Professional Experience

2023–current, Assistant Professor, Department of Entomology, Ohio State University

2022–2023, Assistant Research Scientist, Department of Entomology, University of Georgia

2018–2022, Postdoctoral Research Associate, Department of Entomology, University of Georgia

2014–2018, Postdoctoral Research Associate, Department of Entomology, Rutgers University

2013–2014, Postdoctoral Research Associate, Western Triangle Ag Research Center, Montana State University

Professional service

Secretary and treasurer, *S1070: The Working Group on Improving Microbial Control of Arthropod Pests* (multi-state project supported by NIFA, NIMSS) (since 2021)

Associate Editor, *Environmental Entomology* (since 2020)

Topic Editor, *Insects* (since 2020)

Review Editor, *Frontiers in Physiology* (since 2021)

Guest Editor, *Journal of Fungi*, Special Issue “*Novel Advances in the Use of Entomopathogenic Fungi for Biological Pest Suppression in Horticulture*” (2022-2023)

Patents

Shapiro-Ilan, D., Behle, R., Wu, S., Toews, M., Castrillo, L. 2023. Compositions and Methods to Reduce Insect Pests: A new strain of *Isaria javanica* isolated from a natural epizootic in the silverleaf whitefly, *Bemisia tabaci* (biotype B). US Patent No. 11576384. Filed on April 16, 2020, Issued on February 14, 2023.

Ment, D., Mechrez, G., Karasik, L., Ramakrishnan, J., Shapiro-Ilan, D., Wu, S. 2022. Pickering emulsion for coating entomopathogenic nematodes. US Provisional Patent Application No. 63/358,387, filed on July 5, 2022. (Pending)

Grants

External competitive grants (total \$1,023,111 funded)

PI: Pest management using novel bacterial toxins with pecan as a model crop system. USDA NIFA Agriculture and Food Research Initiative. FY 2023-2026, \$748,195.

Co-PI: Safety aspects of nanoparticle-stabilized formulations for biopesticides. USDA NIFA Agriculture and Food Research Initiative. FY 2023-2026, \$800,000. (Pending)

Co-PI: Biological control of annual bluegrass weevil with novel formulation types and application systems for entomopathogenic fungi: microsclerotia-based formulations and hydrogels. United States Golf Association. FY 2017-2018, \$38,976.

Co-PI: Biological control of annual bluegrass weevil with novel formulation types and application systems for entomopathogenic fungi: microsclerotia-based formulations and hydrogels. NY Greengrass Assn. FY 2016-2017, \$20,000.

Co-PI: Developing optimal management programs for annual bluegrass weevil populations with different insecticide resistance levels. NY State Turfgrass Assn. FY 2016-2017, \$20,000.

Co-PI: Developing optimal management programs for annual bluegrass weevil populations with different insecticide resistance levels. Golf Course Superintendents Assn. of America (GCSAA) –Chapter Supported Research Program (Chapters: CAGCS, GCSANJ, LIGCSA, MetGCSA, NJTA). FY 2016-2017, \$42,500.

Co-PI: Developing optimal management programs for annual bluegrass weevil populations with different insecticide resistance levels. United States Golf Association. FY 2016-2017, \$19,960.

Co-PI: Biorational control of important golf turf insect pests. United States Golf Association. FY 2015-2016, \$38,128.

Cooperator: Trapping click beetles (Coleoptera: Elateridae) with pheromone traps. Montana Wheat and Barley Committee. FY 2014-2015, \$64,900.

Cooperator: Evaluation of effectiveness of entomopathogens for the management of wireworms (Coleoptera: Elateridae) on spring wheat. Montana Wheat and Barley Committee. FY 2014-2015, \$30,452.

Internal competitive grants (total \$295,950 funded)

PI: Non-target effects of *Photorhabdus* and *Xenorhabdus* metabolite toxins. University of Georgia CAES Seed Grant. FY 2021, \$9,950.

Co-PI: IPM of major turfgrass insect pests with emphasis on biological control. Rutgers Center f. Turf. Sci. FY 2019-2020, \$96,000.

Co-PI: Towards sustainable management of the annual bluegrass weevil. Rutgers Center f. Turf. Sci. FY 2017-2018, \$90,000.

Co-PI: Towards sustainable management of the annual bluegrass weevil. Rutgers Center f. Turf. Sci. FY 2015-2016, \$100,000.

Publication

Book chapters

Koppenhöfer, A.M. and **Wu, S.** 2017. Microbial control of insect pests of turfgrass. *In* L. Lacey (ed), *Microbial Agents for Control of Insect Pests: from theory to practice*. Academic Press, pp. 331-341.

Wu, S., Reddy, G.V.P. and Jaronski, S.T. 2014. Advances in microbial insect control in horticultural ecosystem, *In* D. Nandawani (ed), *Sustainable Horticultural Systems, Sustainable Development and Biodiversity 2*, Springer International Publishing, Switzerland, pp. 223-252.

Peer-reviewed journal articles

[Shaohui Wu - Google Scholar](#)

1. Gulzar, S., Wakil, W., Usman, M., **Wu, S.**, Rasool, K.G., Husain, M., Aldawood, A.S., Toews, M. 2023. Development of insecticide resistance in field populations of onion thrips, *Thrips tabaci* (Thysanoptera: Thripidae). *Insects*. (In review)
2. **Wu, S.**, Mechrez, G., Ment, D., Toews, M.D., Mani, K.A., Feldbaum, R.A. & Shapiro-Ilan, D.I. 2023. Tolerance of *Steinernema carpocapsae* infective juveniles in novel nanoparticle formulations to ultraviolet radiation. *Journal of Invertebrate Pathology*. 196, 107851. <https://doi.org/10.1016/j.jip.2022.107851>.
3. Fu, S., Huang, L., He, H., Tang, J., **Wu, S.**, Xue, F. 2022. Differentiation of developmental pathways results in different life-history patterns between the high and low latitudinal populations in the Asian corn borer. *Insects*. 13(11), 1026. <https://doi.org/10.3390/insects13111026>
4. McGraw, B.A., Koppenhöfer, A.M., Kostromytska, O., **Wu, S.**, Alm, S. 2022. Insecticidal activity of a petroleum-derived spray oil and an organosilicone surfactant on *Listronotus maculicollis* (Kirby) adults in laboratory and greenhouse bioassays. *Insects*. 13(11), 1032. <https://doi.org/10.3390/insects13111032>
5. Liliya Kotliarevski, L., Cohen, R., Ramakrishnan, J., **Wu, S.**, Mani, K.A., Feldbaum, R.A., Yaakov, N., Zelinger, E., Belausov, E., Shapiro-Ilan, D., Glazer, I., Ment, D. and Mechrez, G. 2022. Individual coating of entomopathogenic nematodes with titania (TiO₂) nanoparticles based on oil-in-water Pickering emulsion: A new formulation for biopesticides. *Journal of Agricultural and Food Chemistry*. 70, 42, 13518–13527. <https://pubs.acs.org/doi/10.1021/acs.jafc.2c04424>
6. **Wu, S.**, Toews, M.D., Cottrell, T.E., Schmidt, J., Shapiro-Ilan, D.I. 2022. Toxicity of *Photorhabdus luminescens* and *Xenorhabdus bovienii* bacterial metabolites to pecan aphids (Hemiptera: Aphididae) and the lady beetle *Harmonia axyridis* (Coleoptera: Coccinellidae). *Journal of Invertebrate Pathology*. 194:107806. doi: 10.1016/j.jip.2022.107806.
7. Wakil, W., Usman, M., Gulzar, S., Piñero, J.C., **Wu, S.**, Toews, M.D., Shapiro-Ilan, D.I. 2022. Combined application of entomopathogenic nematodes and fungi against fruit flies, *Bactrocera zonata* and *B. dorsalis* (Diptera: Tephritidae). *Pest Management Science*. 78(7): 2779-2791. doi: 10.1002/ps.6899.
8. Behle, R.W., **Wu, S.**, Toews, M.D., Duffield, K.R., Shapiro-Ilan, D.I. 2022. Comparing production and efficacy of *Cordyceps javanica* with *Cordyceps fumosorosea*. *Journal of Economic Entomology*. 115(2): 455-461. <https://doi.org/10.1093/jee/toac002>

9. Tang, J.-J., Liu, X.-P., He, H.-M., Huang, L.-L., **Wu, S.-H.**, Xue, F.-S. 2022. A multi-year dormancy strategy in a cabbage beetle population in southeastern China. *Ecology and Evolution*. 12(5): e8900. doi: 10.1002/ece3.8900.
10. Usman, M., Wakil, W., Gulzar, S., Piñero, J.C., **Wu, S.**, Toews, M.D., Shapiro-Ilan, D.I. 2021. Evaluation of locally isolated entomopathogenic fungi against multiple life stages of *Bactrocera zonata* and *Bactrocera dorsalis* (Diptera: Tephritidae): laboratory and field study. *Microorganisms*. 9, 1791. <https://doi.org/10.3390/>
11. **Wu, S.**, Blackburn, M.B., Mizell III, R.F., Duncan, L.W., Toews, M.D., Sparks, M.E., El-Borai, F., Bock, C., Shapiro-Ilan, D. 2021. Pupal cell antibiosis suppresses plant and insect pathogenic fungi and is associated with a bacterium related to *Serratia nematodiphila*. *Journal of Invertebrate Pathology*. 184: 107655. <https://doi.org/10.1016/j.jip.2021.107655>
12. **Wu, S.**, Toews, M.D., Castrillo, L.A., Barman, A.K., Cottrell, T.E., Shapiro-Ilan, D.I. 2021. Identification and virulence of *Cordyceps javanica* strain Wf GA17 isolated from a natural fungal population in sweetpotato whiteflies (Hemiptera: Aleyrodidae). *Environmental Entomology*. 50(5): 1127–1136. <https://doi.org/10.1093/ee/nvab061>
13. Gulzar, S., Usman, M., Wakil, W., **Wu, S.**, Oliveira-Hofman, C., Srinivasan, R., Toews, M., Shapiro-Ilan, D. 2021. Virulence of entomopathogenic nematodes to pupae of *Frankliniella fusca* (Thysanoptera: Thripidae). *Journal of Economic Entomology*. 114(5): 2018–2023. <https://doi.org/10.1093/jee/toab132>
14. He, H., Tang, J., Huang, L., **Wu, S.**, Peng, Y., Xue, F. 2021. Inheritance of key life-history traits in crosses between northern and southern populations of the cabbage beetle *Colaphellus bowringi* (Coleoptera: Chrysomelidae). *Bulletin of Entomological Research*. 111 (4): 420–428. DOI: [10.1017/s000748532100002x](https://doi.org/10.1017/s000748532100002x)
15. Usman, M., Gulzar, S., Wakil, W., **Wu, S.**, Piñero, J.C., Leskey, T.C., Nixon, L.J., Oliveira-Hofman, C., Toews, M.D., Shapiro-Ilan, D. 2020. Virulence of entomopathogenic fungi to *Rhagoletis pomonella* (Diptera: Tephritidae) and interactions with entomopathogenic nematodes. *Journal of Economic Entomology*. 113(6): 2627–2633. doi: 10.1093/jee/toaa209
16. **Wu, S.**, Toews, M.D., Hofman, C.O., Behle, R.W., Simmons, A.M., Shapiro-Ilan, D.I. 2020. Environmental tolerance of entomopathogenic fungi: a new strain of *Cordyceps javanica* isolated from a whitefly epizootic versus commercial fungal strains. *Insects*. 11, 711. doi:10.3390/insects11100711
17. Usman, M., Gulzar, S., Wakil, W., Piñero, J.C., Leskey, T.C., Nixon, L.J., Oliveira-Hofman, C., **Wu, S.**, Shapiro-Ilan, D. 2020. Potential of entomopathogenic nematodes against soil dwelling stage of the apple maggot *Rhagoletis pomonella* (Walsh) (Diptera: Tephritidae). *Journal of Nematology*. 52: 1-9 <https://doi.org/10.21307/jofnem-2020-079>
18. Koppenhöfer, A.M., Kostromytska, O.S., **Wu, S.** 2020. Optimizing the use of entomopathogenic nematodes for the management of *Listronotus maculicollis* (Coleoptera: Curculionidae): Split applications and combinations with imidacloprid. *Crop Protection*. 137: 105229. <https://doi.org/10.1016/j.cropro.2020.105229>

19. Koppenhöfer, A.M., **Wu, S.**, Kostromytska, O.S. 2020. Microsclerotial granular formulation of the entomopathogenic fungus *Metarhizium brunneum* and its combinations with hydrogel and imidacloprid against the annual bluegrass weevil, *Listronotus maculicollis* (Coleoptera: Curculionidae). *Journal of Economic Entomology*. 113(3):1118-1128. doi: 10.1093/jee/toaa052.
20. **Wu, S.**, Kostromytska, O.S., Goble, T., Hajek, A.E., Koppenhöfer, A.M. 2020. Compatibility of a microsclerotia-based formulation of *Metarhizium brunneum* with fungicides. *BioControl*. 65: 113–123. doi:10.1007/s10526-019-09983-9
21. Tang, J., He, H., **Wu, S.**, Zou, C., Xue, F., Xiao, L. 2019. Expression of alternative developmental pathways in the cabbage butterfly, *Pieris melete* and their differences in life history traits. *Ecology and Evolution*. 9: 12311–12321.
22. **Wu, S.**, Kostromytska, O.S., Koppenhöfer, A.M. 2019. Effect of temperature on post-diapause reproductive diapause in *Listronotus maculicollis* (Coleoptera: Curculionidae). *Bulletin of Entomological Research*. 109: 669–677. doi:10.1017/S0007485318001025
23. Koppenhöfer, A.M., McGraw, B.A., Kostromytska, O.S., **Wu, S.** 2019. Variable effect of larval stage on the efficacy of insecticides against *Listronotus maculicollis* (Coleoptera: Curculionidae) populations with different levels of pyrethroid resistance. *Crop Protection*. 125: 104888.
24. Hofman, C.O., Kaplan, F., Stevens, G., Lewis, E., **Wu, S.**, Alborn, H.T., Shapiro-Ilan, D.I. 2019. Pheromones act as boosters for entomopathogenic nematodes efficacy. *Journal of Invertebrate Pathology*. 164: 38–42. (Selected as a research highlight in 2019 Society of Invertebrate Pathology annual meeting)
25. **Wu, S.**, Kaplan, F., Lewis, E., Alborn, H. T., Shapiro-Ilan, D.I. 2018. Infected host macerate enhances entomopathogenic nematode dispersal and infectivity in a soil profile. *Journal of Invertebrate Pathology*. 159: 141–144. <https://doi.org/10.1016/j.jip.2018.10.007>
26. Kostromytska, O.S., **Wu, S.**, Koppenhöfer, A.M. 2018. Diagnostic dose assays for the detection and monitoring of resistance in adults from *Listronotus maculicollis* (Coleoptera: Curculionidae) populations. *Journal of Economic Entomology*. 111: 2329-2339. doi: 10.1093/jee/toy167
27. Koppenhöfer, A.M., Kostromytska, O.S., **Wu, S.** 2018. Pyrethroid-resistance level affects performance of larvicides and adulticides from different insecticide classes in populations of *Listronotus maculicollis* (Coleoptera: Curculionidae). *Journal of Economic Entomology*. 111: 1851-1859. doi: 10.1093/jee/toy142
28. Kostromytska, O.S., **Wu, S.**, Koppenhöfer, A.M. 2018. Cross-resistance patterns to insecticides of several chemical classes among *Listronotus maculicollis* (Coleoptera: Curculionidae) populations with different levels of resistance to pyrethroids. *Journal of Economic Entomology*. 111: 391-398. doi: 10.1093/jee/tox345
29. **Wu, S.**, Kostromytska, O.S., Xue, F., Koppenhöfer, A.M. 2018. Chilling effect on termination of reproductive diapause in *Listronotus maculicollis* (Coleoptera: Curculionidae). *Journal of Insect Physiology*. 104: 25-32. DOI: 10.1016/j.jinsphys.2017.11.005

30. **Wu, S.**, Kostromytska, O.S., Koppenhöfer, A.M. 2017. Synergistic combinations of a pyrethroid insecticide and an emulsifiable oil formulation of *Beauveria bassiana* to overcome insecticide resistance in *Listronotus maculicollis* (Coleoptera: Curculionidae). *Journal of Economic Entomology*. 110(4): 1794-1802. DOI: 10.1093/jee/tox176
31. Xiao, H., Chen, J., Chen, L., Chen, C., **Wu, S.** 2016. Exposure to mild temperatures decreases overwintering larval survival and post-diapause reproductive potential in *Chilo suppressalis*. *Journal of Pest Science*. DOI: 10.1007/s10340-016-0769-0
32. Gyawaly, S., Koppenhöfer, A.M., **Wu, S.**, Kuhar, T.P. 2016. Biology, ecology and management of masked chafer (Coleoptera: Scarabaeidae) grubs in turfgrass. *Journal of Integrated Pest Management*. 7(1): 3. DOI: 10.1093/jipm/pmw002
33. **Wu, S.**, Youngman, R.R., Kok, L.T., Laub, C.A. 2016. Sublethal effect of *Beauveria bassiana* and *Metarhizium brunneum* (Hypocreales: Clavicipitaceae) on *Cyclocephala lurida* (Coleoptera: Scarabaeidae). *Journal of Entomological Science*. 51(1):43-53. DOI: 10.18474/15-19.1
34. **Wu, S.**, Refinetti, R., Kok, L. T., Youngman, R. R., Reddy, G. V. P., Xue, F. 2014. Photoperiod and temperature effects on the adult eclosion and mating rhythms in *Pseudopidorus fasciata* (Lepidoptera: Zygaenidae). *Environmental Entomology*. 43(6): 1650-1655.
35. **Wu, S.**, Youngman, R. R., Kok, L. T., Laub, C. A., Pfeiffer, D. G. 2014. Interaction between entomopathogenic nematodes and entomopathogenic fungi applied to third instar southern masked chafer white grubs, *Cyclocephala lurida* (Coleoptera: Scarabaeidae), under laboratory and greenhouse conditions. *Biological Control* 76: 65-73.
<http://dx.doi.org/10.1016/j.biocontrol.2014.05.002>
36. **Wu, S.**, Youngman, R. R., Kok, L. T., Eisenbeck, J. D. and Paulson, S. L. 2014. A defensive interaction of *Heterorhabditis bacteriophora* (Rhabditida: Heterorhabditidae) infective juvenile nematodes against *Metarhizium anisopliae* (Hypocreales: Clavicipitaceae). Scientific Note. *Journal of Entomological Science* 49 (2): 215-217.
37. Reddy, G. V. P., Tangtrakulwanich, K., **Wu, S.**, Miller, J. H., Ophus, V. L., Prewett, J. Jaronski, S. T. 2014. Evaluation of the effectiveness of entomopathogens for the management of wireworms (Coleoptera: Elateridae) on spring wheat. *Journal of Invertebrate Pathology* 120: 43-49.
38. Reddy, G. V. P., **Wu, S.**, Mendi, R. C. and Miller, R. H. 2014. Efficacy of pheromone trapping of the sweetpotato weevil, *Cylas formicarius* (Coleoptera: Brentidae): based on dose, septum age and attractive radius. *Environmental Entomology* 43: 767-773.
39. Reddy, G. V. P., Tangtrakulwanich, K., **Wu, S.**, Miller, J.H., Ophus, V.L., and Prewett J. 2014. Sustainable management tactics for control of *Phyllotreta cruciferae* (Coleoptera: Chrysomelidae) on canola in Montana. *Journal of Economic Entomology* 107: 661-666.
40. Tangtrakulwanich, K., Reddy, G. V. P., **Wu, S.**, Miller, J. H., Ophus, V. L., Prewett, J. 2014. Developing nominal threshold levels for *Phyllotreta cruciferae* (Coleoptera: Chrysomelidae) damage on canola in Montana, USA. *Crop Protection* 66: 8-13.
10.1016/j.cropro.2014.08.013.

41. Tangtrakulwanich, K., Reddy, G.V.P., **Wu, S.**, Miller, J.H., Ophus, V.L., and Prewett J. 2014. Efficacy of entomopathogenic fungi and nematodes, and low risk insecticides against wheat stem sawfly, *Cephus cinctus* (Hymenoptera: Cephidae). *Journal of Agricultural Sciences* 6 (5):1-9.
42. Kuhn, W. R., Youngman, R. R., **Wu, S.** and Laub, C. A. 2013. Ecology, taxonomy, and pest management of billbugs (Coleoptera: Curculionidae) in orchardgrass of Virginia. *Journal of Integrated Pest Management* 4 (3): 1 DOI: [10.1603/IPM12022](https://doi.org/10.1603/IPM12022)
43. Kuhn, W. R., Youngman, R. R., Love, K., Mize, T., **Wu, S.** and Laub, C. A. 2013. Billbugs (Coleoptera: Curculionidae) new to orchardgrass (*Dactylis glomerata*) grown in Virginia. Scientific Note. *Entomological News* 123 (4): 315-316.
44. Xiao, H., **Wu, S.**, Chen, C., Xue, F. 2013. Optimal low temperature and chilling period for both summer and winter diapause development in *Pieris melete*: Based on a similar mechanism. *PLOS ONE* 8, e56404.
45. Xiao, H., **Wu, S.**, He, H., Chen, C., Xue, F. 2012. Role of natural day-length and temperature in determination of summer and winter diapause in *Pieris melete* (Lepidoptera: Pieridae). *Bulletin of Entomological Research* 102, 267-273.
46. Liu, X., **Wu, S.**, He, H., Xue, F. 2009. Induction of summer diapause in the cabbage beetle, *Colaphellus bowringi* (Coleoptera: Chrysomelidae) based on a quantitative photoperiodic response. *Acta Entomologica Sinica* 52, 651-655. (In Chinese)
47. Lai, X., Yang, D., **Wu, S.**, Zhu, X., Xue, F. 2008. Diapause incidence of progeny in relation to parental geographic origin, host plant and rearing density in the cabbage beetle, *Colaphellus bowringi*. *Entomologia Experimentalis et Applicata* 129, 117-123.
48. **Wu, S.**, Li, F., Zhou, Y., Xue, F. 2007. Night-interruption response of diapause induction in *Pseudopidorus fasciata* (Lepidoptera: Zygaenidae): based on a time measurement of the critical night length. *Acta Entomologica Sinica* 50, 703-708. (In Chinese)
49. Xiao, H., Xu, Q., **Wu, S.**, Xue, F. 2007. Advances on photoperiodic clock of diapause control in insects and mites. *Acta Agriculturae Jiangxi* 19, 42-47. (In Chinese)
50. Wei, X., Xiao, H., Yang, D., **Wu, S.**, Xue, F., Shao, X., Wu, X. 2006. Several important biological characters in the fall webworm, *Hyphandria cunea*. *Plant Quarantine* 20, 14-17. (In Chinese)
51. **Wu, S.**, Yang, D., Lai, X., Xue, F. 2006. Induction and termination of prepupal summer diapause in *Pseudopidorus fasciata* (Lepidoptera: Zygaenidae). *Journal of Insect Physiology* 52, 1095-1104.
52. Yang, D., **Wu, S.**, Yang, Z., Xue, F. 2005. Parental effects in insect diapause. *Acta Agriculturae Universitatis Jiangxiensis* 27, 242-248. (In Chinese)
53. Hua, A., Yang, D., **Wu, S.**, Xue, F. 2005. Photoperiodic control of diapause in *Pseudopidorus fasciata* (Lepidoptera: Zygaenidae) based on a qualitative time measurement. *Journal of Insect Physiology* 51, 1261-1267.

Non-referred journal article & proceedings

1. **Wu. S.**, Kostromytska, O.S., Koppenhöfer, A.M. 2018. Reproductive diapause in the annual bluegrass weevil, *Listronotus maculicollis*. Proc. 27th Ann. Rutgers Turfgrass

- Symp. 12 January 2018, New Brunswick, NJ, p.26-271.
2. **Wu, S.**, Kostromytska, O.S., Koppenhöfer, A.M. 2017. Entomopathogenic nematodes for the control of annual bluegrass weevil, *Listronotus maculicollis*, larvae: optimizing efficacy through split applications and combinations with imidacloprid. Proc. 26th Ann. Rutgers Turfgrass Symp. New Brunswick, NJ, p. 43-44.
 3. Kostromytska, O.S., **Wu, S.**, Koppenhöfer, A.M. 2017. Understanding and managing insecticide resistance in the annual bluegrass weevil. Proc. 26th Ann. Rutgers Turfgrass Symp. New Brunswick, NJ, p.26-28.
 4. Kostromytska, O.S., **Wu, S.**, Koppenhöfer, A.M. 2016. Sustainable management of the annual bluegrass weevil. Proc. 25th Ann. Rutgers Turfgrass Symp. New Brunswick, NJ. p. 59-61.
 5. Kostromytska O.S., **Wu, S.**, Rodriguez-Saona C., Koppenhöfer A.M. 2015. Advancing integrated management of the annual bluegrass weevil. Proc. 24th Ann. Rutgers Turfgrass Symp. New Brunswick, NJ, p.30-32.
 6. **Wu, S.**, Xiang, Q., Xue, F. 2006. Circadian behavioral rhythms in insects. *Jiangxi Plant Protection*. 29, 147-157. (in Chinese)

Scientific presentations

1. **Wu, S.**, Toews, M.D., Shapiro-Ilan, D.I. 2023. Management of whiteflies with microbial biopesticides. Whitefly Biology, Ecology and Management Update Meeting, Feb. 16, 2023. Athens, GA.
2. **Wu, S.**, Toews, M.D., Arthurs, S., Wallingford, A., Shapiro-Ilan, D.I. 2022. Enhanced persistence of entomopathogenic nematodes based on a novel capsule formulation. ESA 2022 national meeting, Vancouver, Canada.
3. Parkins, A., Kheirodin, A., **Wu, S.**, Shapiro-Ilan, D.I., Schmidt, J.M. 2022. Direct and indirect effects of entomopathogenic fungi on generalist predators of whiteflies. ESA 2022 national meeting, Vancouver, Canada. (Poster)
4. **Wu, S.**, Toews, M.D., Shapiro-Ilan, D.I. 2022. Management of whiteflies using entomopathogenic fungi. Annual Whitefly Biology, Ecology and Management Update Meeting, June 13, 2022. Tifton, GA.
5. **Wu, S.**, Toews, M.D., Shapiro-Ilan, D.I. 2022. Microorganisms as biocontrol agents in crop protection. **Invited presentation**, Biological control symposium, Georgia Entomological Society 2022 annual meeting. Jekyll Island, GA.
6. **Wu, S.**, Toews, M.D., Cottrell, T., Schmidt, J., Shapiro-Ilan, D.I. 2022. Toxicity of *Photorhabdus luminescens* and *Xenorhabdus bovienii* bacterial metabolites against pecan aphids and lady beetles. ESA SE Branch 2022 annual meeting. San Juan, PR.
7. **Wu, S.**, Mechrez, G., Ment, D., Toews, M.D., Srinivasan, R., Shapiro-Ilan, D.I. 2021. Novel nanoparticle formulation improves tolerance of *Metarhizium brunneum* exposed to ultraviolet radiation. ESA 2021 national meeting (virtual).
8. **Wu, S.**, Toews, M., Behle, R., Barman, A., Shapiro-Ilan, D. 2021. Post-application persistence and field efficacy of a new strain of *Cordyceps javanica* against the silverleaf whitefly, *Bemisia tabaci* biotype B. 53rd Annual Meeting of the Society for Invertebrate

Pathology (virtual).

9. **Wu, S.**, Toews, M., Barman, A., Behle, R., Shapiro-Ilan, D. 2020. Field efficacy and post-application persistence of a new strain of *Cordyceps javanica*. ESA 2020 national meeting (virtual).
10. **Wu, S.** 2020. A new insecticidal fungus for managing whiteflies. **Department Seminar.** Department of Entomology, University of Georgia (virtual).
11. **Wu, S.**, Toews, M., Behle, R., Hofman, C.O., Shapiro-Ilan, D. 2019. Environmental factors affecting the viability and virulence of entomopathogenic fungi. ESA 2019 annual national meeting. St. Louis, MO.
12. Hofman, C.O., Kaplan, F., Stevens, G., Lewis, E.E., **Wu, S.**, Alborn, H.T., Perret-Gentil, A., Shapiro-Ilan, D. 2019. Pheromone-mediated behavioural manipulation of entomopathogenic nematodes to improve biocontrol efficacy. ESA 2019 annual national meeting. St. Louis, MO.
13. Hofman, C.O., Kaplan, F., Stevens, G., Lewis, E.E., **Wu, S.**, Alborn, H.T., Perret-Gentil, A., Shapiro-Ilan, D. 2019. Pheromones as drivers of entomopathogenic nematodes movement and infectivity. International Congress on Invertebrate Pathology and Microbial Control & 52nd Annual Meeting of the Society for Invertebrate Pathology & 17th Meeting of the IOBC-WPRS Working Group “Microbial and Nematode Control of Invertebrate Pests”. Valencia, Spain. (Poster)
14. **Wu, S.**, Toews, M., Shapiro-Ilan, D., Castrillo, L., Barman, A., Cottrell, T. 2019. Virulence of a new strain of *Isaria fumosorosea* against Coleopterans. Georgia Entomological Society 2019 annual meeting. Cordele, GA.
15. Hofman, C.O., **Wu, S.**, Kaplan, F., Lewis, E., Schliekelman, P., Shapiro-Ilan, D. 2019. Leveraging entomopathogenic nematode movement for improved biological control. Georgia Entomological Society 2019 annual meeting. Cordele, GA.
16. **Wu, S.**, Toews, M., Shapiro-Ilan, D., Castrillo, L., Barman, A. 2019. Virulence of a new strain of *Isaria fumosorosea*. ESA Southeastern Branch 2019 annual meeting. Mobile, AL.
17. Hofman, C.O., **Wu, S.**, Kaplan, F., Lewis, E., Schliekelman, P., Shapiro-Ilan, D. 2019. Leveraging entomopathogenic nematode movement for improved biological control. ESA Southeastern Branch 2019 meeting. Mobile, AL.
18. Koppenhöfer, A., Kostromytska, O., **Wu, S.** 2018. Pyrethroid-resistance level affects performance of larvicides and adulticides from different insecticide classes in populations of the annual bluegrass weevil. ESA 2018 national meeting. Vancouver, CA.
19. Kostromytska, O., Koppenhöfer, A., **Wu, S.** 2018. Diagnostic dose assays for the detection and monitoring of resistance in adults from *Listronotus maculicollis* (Coleoptera: Curculionidae) populations. ESA 2018 national meeting. Vancouver, CA.
20. **Wu, S.**, Kostromytska, O.S., Koppenhöfer, A.M. 2018. Reproductive diapause in the annual bluegrass weevil. 27th Ann. Rutgers Turfgrass Symp. New Brunswick, NJ.
21. **Wu, S.**, Kostromytska, O.S., Koppenhöfer, A.M. 2016. Additive or synergistic interactions between bifenthrin and an emulsifiable formulation of *Beauveria bassiana* against insecticide-resistant annual bluegrass weevil *Listronotus maculicollis*. 2016 XXV

- ICE meeting. Orlando, FL.
22. Kostromytska, O.S., **Wu, S.**, Koppenhöfer, A.M. 2016. Annual bluegrass weevil, *Listronotus maculicollis* (Coleoptera: Curculionidae), insecticide resistance: Baseline susceptibility, cross-resistance patterns, and possible mechanisms. 2016 XXV ICE meeting. Orlando, FL.
 23. **Wu, S.**, Koppenhöfer, A.M., Kostromytska, O.S. 2016. Synergistic combinations of an emulsifiable formulation of *Beauveria bassiana* and a pyrethroid insecticide against insecticide-resistant annual bluegrass weevil, *Listronotus maculicollis*, adults. International Congress on Invertebrate Pathology and Microbial Control and the 49th Annual Meeting of the Society for Invertebrate Pathology. Tours, France.
 24. **Wu, S.**, Kostromytska, O.S., Koppenhöfer, A.M. 2015. Reproductive diapause in annual bluegrass weevil, *Listronotus maculicollis* (Coleoptera: Curculionidae). Symposium: Advances in Pest Management for Turfgrass and Ornamentals. ESA 2015 national meeting. Minneapolis, MN.
 25. **Wu, S.** 2014. Efficacy of entomopathogenic nematodes and entomopathogenic fungi against masked chafer white grubs, *Cyclocephala* spp. (Coleoptera: Scarabaeidae). **Department Seminar.** Department of Entomology, Rutgers University. New Brunswick, NJ.
 26. Thompson, B., Reddy, G.V.P., Tangtrakulwanich, K., **Wu, S.**, Miller, J., Ophus, V., Jaronski, S.T. 2014. Evaluation of the effectiveness of the entomopathogens for the management of wireworms (Coleoptera: Elateridae) on spring wheat. ESA 2014 national meeting. Portland, Ore.
 27. Reddy, G.V.P., Thompson, B., Tangtrakulwanich, K., **Wu, S.**, Miller, J., Ophus, V., Prewett, J. 2014. Effect of entomopathogenic fungi and entomogenous nematodes, and low risk insecticides against wheat stem sawfly (*Cephus cinctus*). ESA 2014 national meeting. Portland, Ore.
 28. **Wu, S.**, Youngman, R.R., Kok, L.T., Laub, C.A. 2012. Efficacy of *Metarhizium anisopliae*, *Beauveria bassiana* and *Heterorhabditis bacteriophora* against 3rd-instar masked chafer white grubs. ESA Eastern Branch 2012 annual meeting. Hartford, CT. (Poster)
 29. **Wu, S.**, Youngman, R.R., Kok, L.T., Leland, J.E., Laub, C.A. 2012. Role of *Heterorhabditis bacteriophora* infective juveniles in the spread of *Metarhizium anisopliae*. ESA Eastern Branch 2012 annual meeting. Hartford, CT.
 30. **Wu, S.**, Youngman, R. R., Kok, L.T., Laub, C.A. 2011. Efficacy of entomopathogenic fungi and *Heterorhabditis bacteriophora* against masked chafer, (Coleoptera: Scarabaeidae), white grubs. ESA 2011 national meeting. Reno, NV.
 31. **Wu, S.**, Youngman, R.R., Kok, L.T., Kuhn, W.R., Laub, C.A. 2011. Interaction between *Beauveria bassiana* GHA and entomopathogenic nematodes for control of *Cyclocephala* spp. (Coleoptera: Scarabaeidae). ESA Eastern Branch 2011 annual meeting. Harrisburg, PA.

32. **Wu, S.**, Youngman, R.R., Kok, L.T., Kuhn, W.R., Laub, C.A. 2010. Evaluation of entomopathogenic nematodes against masked chafer white grubs. ESA Eastern Branch 2010 annual meeting. Annapolis, MD.

Extension

Training manual

Youngman, R., Kuhar, T., Gyawaly, S., Laub, C. and **Wu, S.** 2015. Turfgrass insect management, *In "Turfgrass Certification Training Manual"*, Virginia Turfgrass Council (<http://www.turfprofessional.org/manual.html>), Chapter 9, p. 1-21.

Trade journal articles / Newsletters

1. Koppenhöfer, A.M., McGraw, B.A., Kostromytska, O.S., **Wu, S.** 2022. Effect of average larval stage on the efficacy of insecticides against ABW populations with different levels of pyrethroid resistance. *Golf Course Management*. March 2022, 70-74.
2. Kostromytska, O.S., **Wu, S.**, Koppenhöfer, A.M. 2019. Annual bluegrass weevil cross-resistance to insecticides. *Golf Course Management*, January 2019, 100-108.
3. Koppenhöfer, A.M., Kostromytska, O.S., **Wu, S.** 2019. Level of pyrethroid resistance affects efficacy of different insecticide classes on ABW. *Golf Course Management*, January 2019, 110-116.
4. Koppenhöfer A.M., Kostromytska O.S., **Wu S.** 2018. Developing optimal management programs for annual bluegrass weevil populations with different insecticide resistance levels. *NY State Turf Assn. Electronic Newsletter*, March 2018.
5. Koppenhöfer, A.M., Kostromytska, O., **Wu, S.** 2016. Optimal management programs for annual bluegrass weevil populations with different insecticide resistance levels. *Golf Course Management*. November 2016, 75-76.
6. Kostromytska, O.S., Koppenhöfer, A.M., **Wu, S.** 2015. Insecticide resistant annual bluegrass weevil: understanding, managing, alleviating, and preventing a superintendent's nightmare. *USGA Turfgrass and Environmental Research Online* 14(1), 25-27.
7. Koppenhöfer, A.M., Kostromytska, O.S., **Wu, S.** 2015. Insecticide resistant annual bluegrass weevil: Understanding, managing, and preventing a superintendent's nightmare. *NY State Turf Assoc. Electronic Newsletter*, December 2015.
8. Youngman, R. R., Laub, C., **Wu, S.** 2012. Efficacy of selected soil insecticides against white grubs in turf. *Virginia Turfgrass Journal (J. VA Turfgrass Council, circ. 2,800)*. 2 pp.
9. Youngman, R. R., Laub, C., **Wu, S.**, Kuhn, W. 2011. Masked chafer control. *Golf Course Management (Official Pub. Golf Course Superintendents of Am. circ. 26,400)*.
10. Youngman, R. R., Laub, C., **Wu, S.**, Kuhn, W. 2011. New chemistries and timing options for managing masked chafers. *Virginia Turfgrass Journal (J. VA Turfgrass Council, circ. 2,800)*. 2 pp.

11. Youngman, R. R., Laub, C., **Wu, S.**, Kuhn, W., Goatley, M. 2010. Efficacy of selected soil insecticides against masked chafer grubs in turf. Virginia Turfgrass Journal (J. VA Turfgrass Council, circ. 2,800). 2 pp.

Field days

- Georgia Pecan Field Day (2018, 2022)
- Georgia Cotton Field Day (2018-2019)
- Rutgers Turf Field Day (2014-2017)
- Virginia Turf Field Day (2009-2012)

Field day talks

Wu, S. 2018. Potential of using endophytic fungi for pest suppression in pecan orchards. 2018 Georgia Pecan Field Day. USDA-ARS, Byron, GA.

Wu, S., Youngman, R.R., Kok, L.T., Laub, C.A. 2011. Evaluation of entomopathogenic nematodes and fungi against northern and southern masked chafer grubs. 2011 Turf Field Day. Virginia Tech. Blacksburg, VA.

Wu, S., Youngman, R.R., Kok, L.T., Laub, C.A., Goatley, J.M., Kuhn, W.R. 2010. The application of entomopathogenic nematodes and entomopathogenic fungi against masked chafer grubs in turf. 2010 Turf Field Day. Virginia Tech. Blacksburg, VA.

Tradeshaw conferences

Anderson, K., **Wu, S.**, Toews, M.D., Arthurs, S., Wallingford, A., Shapiro-Ilan, D.I. 2023. Nematode Capsules: The Future of Nematode Application? Southeast Regional Fruit and Vegetable Conference. Savannah, GA. (Poster)

Wu, S., Toews, M., Barman, A., Sparks, A., Behle, R., Shapiro-Ilan, D. 2020. Use of insecticidal fungi for management of whiteflies. Southeast Regional Fruit and Vegetable Conference. Savannah, GA.

Wu, S., Youngman, R.R., Kok, L.T., Laub, C.A., Goatley, J.M. 2012. Evaluation of fungi and nematodes against masked chafer grubs. 52nd Annual Turf & Landscape Conference and Tradeshow. Fredericksburg, VA.

Awards

1. 3rd Place Student Poster Competition Eastern Branch ESA meeting. Hartford, CT, March 16-19, 2012.
2. Louis and Ginger Brooking Turf Graduate Student Scholarship 2012 (\$1,300)
3. Gene A. and Ina Mae James Graduate Scholarship 2011-2012 in Virginia Tech (\$3,000)
4. Virginia Tech Dept. of Entomology Alwood society travel fund 2011 fall (\$420)

Review service (for 23 journals)

- Annals of the Entomological Society of America

- BioControl
- Biocontrol Science and Technology
- Biological Control
- Biological Journal of the Linnean Society
- Crop Protection
- Environmental Entomology
- Florida Entomologist
- Frontiers in Insect Science
- Frontiers in Physiology
- Insects
- Journal of Agricultural Science and Technology
- Journal of Applied Entomology
- Journal of Economic Entomology
- Journal of Pest Science
- Journal of Entomological Science
- Journal of Insect Science
- Pest Management Science
- Physiological Entomology
- Phytoparasitica
- PLOS ONE
- Reviews in Environmental Science and Bio/Technology
- Scientific Report

Training

- Grant Writer's workshop, University of Georgia CAES. Athens, GA, 2022.
- Insect Pathology Short Course, Cornell University. Ithaca, NY, 2019.
- Identification of wireworm species, Montana State University. Bozeman, MT, 2014.

Other professional activities

- Judge B.S., M.S. and Ph.D. student oral presentation competition in Georgia Entomological Society 2022 annual meeting. Jekyll Island, GA.
- Judge Ph.D. student virtual oral presentation competition in ESA SE Branch 2022 annual meeting. San Juan, PR.
- Judge graduate student oral presentation competition in 53rd Annual Meeting of the Society for Invertebrate Pathology in 2021 (virtual).
- Search committee member for Horticulturist position at USDA-ARS, SE Fruit and Tree Nut Research Unit, Byron, GA in 2021 & 2022.
- Judge Ph.D. student oral presentation competition in Georgia Entomological Society 2019 annual meeting. Cordele, GA.

- Judge Master student oral presentation competition in ESA Southeast branch 2019 annual meeting. Mobile, AL.
- Student representative in ESA International Affair Committee & Membership Committee 2011-2012.
- Tour coordinator for Alwood Society in Dept. of Entomology in Virginia Tech 2010-2011.

Outreach

- National Ag Day at Byron Elementary School (Byron, GA), held in March, 2022.
- Entomology outreach education for > 100 children at Eagle Springs Elementary School (Byron, GA) in 2020.
- Volunteer in ESA 2011 national meeting in Reno, NV.
- Virginia Tech Entomology departmental tours & related events 2008-2013.