Jia-Wei Tay
College of Tropical Agriculture and Human Resources
Department of Plant and Environmental Protection Sciences
FTE Distribution: 25% I; 40% R; 35% E

Education

Degree	**University**	**Major**
PhD	University Science Malaysia	Urban and Industrial Entomology
Bachelors	University Science Malaysia	Applied Science (in Biology and Management of Vector and Parasites)

Professional Appointments

Title	**Employer**	**Dates Employed**
Assistant Researcher/Assistant Professor	University of Hawai‘i at Mānoa	2019 to Present
Postdoctoral Scholar	University of California, Riverside	2015 to 2018

Courses Taught

Course Number and Title (credits)

Fall 2019:	PEPS 690	Graduate Seminar in Entomology (1)
Fall 2019:	PEPS 363L	General Entomology Laboratory, Section 1 (1)
Fall 2019:	PEPS 363	General Entomology (3)
Spring 2020,2021:	PEPS 421	Foundations of Pest Management (1)
Spring 2020:	PEPS 491	Special Topics: Medical and Urban Entomology (3)
Fall 2021:	PEPS 463	Medical and Urban Entomology (3)
Fall 2020:	PEPS 499	Directed Research (3)

Fall 2020, 2021, Spring 2021: PEPS 700, 799,
PEPS 699 (Directed Research for PEPS and Tropical Medicine Certificate Program)

Publications

Refereed Journal Publications

Tay, Jia-Wei and Devon James. 2021. Field demonstration of heat technology to mitigate heat sinks for drywood termite (Blattodea: Kalotermitidae) management. *Insects* 12 (12): 1090. https://doi.org/10.3390/insects12121090

Choe, Dong-Hwan *, Jia-Wei Tay *, Kathleen Campbell, Houen Park, Les Greenberg and Michael K.Rust. 2021. Development and demonstration of low-impact IPM strategy to control Argentine ants in urban residential settings. *Journal of Economic Entomology* 114: 1752-1757 * ***Equal contribution***.

Tay, Jia-Wei, Dong-Hwan Choe, Ashok Mulchandani and Michael K. Rust. 2020. Hydrogels: From controlled release to a new bait delivery for insect pest management. *Journal of Economic Entomology* 113: 2061-2068.

McCalla, Kelsey, Jia-Wei Tay**,** Ashok Mulchandani, Dong-Hwan Choe and Mark Hoddle. 2020. Biodegradable alginate hydrogel bait delivery system effectively controls high-density populations of Argentine ant in commercial citrus. *Journal of Pest Science* 93: 1031-1042.

Tay, Jia-Wei, Mark Hoddle, Ashok Mulchandani and Dong-Hwan Choe. 2017. Development of an alginate hydrogel to deliver aqueous bait for pest ant management. *Pest Management Science* 73: 2028-2038.

Lee, Ching-Chen, Hirotaka Nakao, Shu-Ping Tseng, Hung-Wei Hsu, Gwo-Li Lin, Jia-Wei Tay, Johan Billen, Fuminori Ito, Chow-Yang Lee, Chung-Chi Lin and Chin-Cheng Yang. 2017. Worker reproduction of the invasive yellow crazy ant *Anoplolepis gracilipes. Frontiers in Zoology* 14: 24.

Tay, Jia-Wei and Chow-Yang Lee. 2015. Induced disturbances cause *Monomorium pharaonis* (Hymenoptera: Formicidae) nest relocation. *Journal of Economic Entomology* 108: 1237-1242.

Tay, Jia-Wei and Chow-Yang Lee. 2015. Effects of a juvenile hormone analogue pyriproxyfen on monogynous and polygynous colonies of the Pharaoh ant *Monomorium pharaonis* (Hymenoptera: Formicidae). *Tropical Biomedicine* 32: 453-462.

Tay, Jia-Wei, Kok-Boon Neoh and Chow-Yang Lee. 2014. The roles of the queen, brood and worker castes in the colony growth dynamics of the Pharaoh ant, *Monomorium pharaonis* (Hymenoptera: Formicidae). *Myrmecological* News 20: 87-94.

Tay, Jia-Wei and Chow-Yang Lee. 2014. Influences of pyriproxyfen on fecundity and reproduction of the Pharaoh ant (Hymenoptera: Formicidae). *Journal of Economic Entomology* 107: 1216-1223.

Cheah, Shao-Xiong, Jia-Wei Tay, Lai-Kheng Chan and Zairi Jaal. 2013. Larvicidal, oviposition, and ovicidal effects of *Artemisia annua* (Asterales: Asteraceae) against *Aedes aegypti, Anopheles sinensis*, and *Culex quinquefasciatus* (Diptera: Culicidae). *Parasitology Research* 112: 3275-3282.

Conference Proceedings

Tay, J.W., Hoddle, M., Mulchandani, A. and Choe, D. H. 2018. Use of a biodegradable hydrogel to deliver aqueous bait to control Argentine ants in residential settings. National Conference on Urban Entomology and Invasive Pest Ant Conference, Cary, NC.

Tay, J.W., Hoddle, M., Mulchandani, A. and Choe, D. H. 2017. The use of an alginate hydrogel to deliver aqueous bait to manage an invasive ant pest in residential settings. In: *Proceedings of the 9th International Conference on Urban Pests*. Birmingham, UK. M.P. Davies, C. Pfeiffer and W.H. Robinson (eds). Pureprint Group, UK, pp. 265-269.

Extension Publications

Choe, Dong Hwan and Jia-Wei Tay. 2021. Low-impact ant IPM. *Pest Control Technology*. November issue: 38-42. Available online at https://www.pctonline.com/article/low-impact-ant-ipm/

Tay, J. W. 2021. Introduction and identification: ants, termites, cockroaches, and mosquitoes in Hawaii. Available online at https://cms.ctahr.hawaii.edu/jwtay/Pest-info

Tay, J. W and D. H. Choe. 2018. Using seaweed to deliver liquid ant baits. *Green Bulletin* 8: 1-2. (invited) Available online at http://ipm.ucanr.edu/PDF/PUBS/greenbulletin.2018.spring.pdf

Schall K., Tay, J. W., Mulchandani, A., Choe, D. H. and Hoddle, M. 2018. Harnessing hydrogels in the battle against invasive ants: Could a hydrogel baiting system solve Argentine ant problems in southern California citrus? *Citrograph* 9: 30-35. (invited) Available online at https://ucanr.edu/sites/ucrurbanpest/files/285788.pdf

Extension Activities and Other Creative Works (i.e., Extension Videos, Websites, Exhibitions, etc.)

John M. Kirsch and Jia-Wei Tay. 2021. Larvicidal effects of low concentrations of *Beauveria bassiana* against *Aedes albopictus* (Diptera: Culicidae). MUVE section's poster. 1st place. 2021 Entomological Society of America.
(Students also won Entomology Games at Entomological Society of America 2021: https://cms.ctahr.hawaii.edu/News/ArtMID/48015/ArticleID/2236/The-Giant-Killers)

Jia-Wei Tay. Co-organizer with BASF and Veseris. Termite field day. Hawaiian Plantation Village. July 8, 2021.

Jia-Wei Tay. Co-organizer with Polyguard Inc. on termite session. Construction Specification Institute webinar. June 30, 2021.

Jia-Wei Tay. 2021. Course announcement YouTube video. July 25, 2021.
https://youtu.be/XuzrRo1eaCo

Jia-Wei Tay. Exhibitor and Educator. Mass Timber Conference. March 30-April1, 2021.

Jia-Wei Tay. Presenter. Mamalu Poepoe, Department of Land and Natural Resources meeting. Presented research to the "Strategic Biosecurity for Airports" working group and the stakeholders. August 3, 2021.

Jia-Wei Tay. Educational outreach. 2019-2021. Termite educational project. Kaiser High School, Hawaii, and Hawaii Pacific University.

Choe, Dong-Hwan, Jia-Wei Tay, Mark Hoddle, Ashok Mulchandani and Michael Rust. 2020. Biodegradable hydrogel to deliver aqueous bait to control pest ants. Patent application no. 62/400,161; Publication no. US20200029555; international publications BR112019005990, CN110114092, EP3518980, WO/2018/064186.

Jia-Wei Tay. November 6, 2019. Entomological Society of America (ESA) eNews:
https://www.entsoc.org/system/files/Nov6-2019.pdf

Jia-Wei Tay. November 4, 2019. Get to Know video interview. CTAHR YouTube channel, through the Office of Communication Services, University of Hawaii at Mānoa:
https://youtu.be/wJKvdXZrTTA

Jia-Wei Tay. November 1, 2019. CTAHR Exhibition. Society of Advancement of Chicanos/Hispanics and Native Americans (SACNAS) National Diversity in STEM Conference. Hawaii Convention Center.

Jia-Wei Tay. August 26, 2019. Plant and Environmental Protection Sciences Exhibition. Welina Mānoa, Campus Center, University of Hawaii at Mānoa.

Jia-Wei Tay. 2017. Using seaweed to kill invasive ants. Through University of California, Riverside official YouTube channel:
https://youtu.be/CwDB8uyCCmg

Jia-Wei Tay. 2017. Novel methods for Argentine ant IPM. Available online at
https://ucanr.edu/sites/ucrurbanpest/Research/Ant/

Leadership Roles (Committees, Boards, Advisory, etc.)

2021- Awardee. Entomological Society of America's MUVE Highlights in Urban Entomology.
2019- Ex-officio committee, State of Hawaii Pest Control Board, Dept. of Commerce and Consumer Affairs
2018- Reviewer, *Journal of Economic Entomology*, *Insects* (Reviewer Board), *Entomologia Experimentalis et Applicata*, *Journal of Asia-Pacific Entomology*, *Tropical Life Sciences Research*, *Journal of Agricultural and Food Chemistry*, *Proceedings of the Hawaiian Entomological Society, Forests, Journal of Medical Entomology, Agronomy*
2019- Member, UHM Graduate Faculty
2019- Member, Termite Inspection Training, Hawaii Pest Control Association
2019- Member, Hawaii Pest Control Association
2019- Student Competition Judge, Entomological Society of America Annual Meeting
2019- Search committee for mycology faculty position, Department of Plant and Environmental Protection Sciences, University of Hawaii at Mānoa (postponed due to COVID-19)
2019- Proctor, Board-Certified Entomologist (BCE) Certification Examination
2019- Member of Hawaiian Entomological Society
2020- Manage Nan-Yao and Jill Su Entomology Scholarship
2021- Reviewer; book proposal of Nan-Yao Su and Chow-Yang Lee. CABI International Publisher.
2021- Judge. ESA's new Alate Award (for Historically Black Colleges and Universities and other Minority-Serving Institutions' candidates)
2021- Judge. Waipahu High School's STEM (Science, Technology, Engineering, and Math) Honors projects.
2021- Advisory. Office of Communication Services, CTAHR.

Graduate Students

Category	Current Number of Students	Number Graduated (Career)
Chair of Master's Committees	4	0
Chair of PhD Committees	0	0
Member of Master's Committees	2	0
Member of PhD Committees	1	0

Grant Support

Grants received from July 2019-October 2021 at UHM:

Extramural Grants and Contracts (Total extramural: $ 389,722)

Title of Grant: Enhancing biological control of citrus sooty mold complex with novel ant control technology using entomopathogenic nematode water-storing hydrogels in an IPM approach
Source of Grant: Western IPM Center
Total Dollar Value: $ 29,999
Dates of Grant: 3/1/2021-2/28/2022
Role: PI: Jia-Wei Tay; Co-PI: Koon-Hui Wang, Jensen Uyeda, Roshan Manandhar

Title of Grant: A Pilot Study: Entomopathogenic fungi on ovitraps' egg-laying substrate for mosquito control
Source of Grant: Hawaii Invasive Species Council (HISC), Hawaii Department of Land and Natural Resources (DLNR)
Total Dollar Value: $ 24,000
Dates of Grant: 4/1/2021-1/31/2022
Role: PI: Jia-Wei Tay

Title of Grant: Biopesticides delivered with water-storing hydrogels for control of invasive yellow crazy ants
Source of Grant: Hawaii Invasive Species Council (HISC), DLNR
Total Dollar Value: $ 31,548
Dates of Grant: 1/1/2021-4/1/2022
Role: PI: Jia-Wei Tay

Title of Grant: Application of novel and effective oviposition deterrents for *Bactrocera dorsalis* and other invasive fruit flies
Source of Grant: USDA-ARS
Total Dollar Value: $ 145,972
Dates of Grant: 9/1/2021-8/31/2022
Role: PI: Jia-Wei Tay

Title of Grant: Identification of a fruit fly surrogate and development of postharvest treatments for the quarantine pest *Bactrocera dorsalis*
Source of Grant: USDA-ARS
Total Dollar Value: $ 119,703
Dates of Grant: 9/1/2020-7/31/2022
Role: PI: Jia-Wei Tay

Title of Grant: Field evaluations of baits in eliminating Formosan subterranean termites *Coptotermes formosanus* in Hawaii
Source of Grant: Corteva Agriscience
Total Dollar Value: $ 20,000
Dates of Grant: 6/1/2021-5/31/2025
Role: PI: Jia-Wei Tay

Title of Grant: Evaluation of cross laminated timber resistance to *Coptotermes formosanus* attack
Source of Grant: Kai Hawaii, Inc.
Total Dollar Value: $ 5,000
Dates of Grant: 1/1/2021-12/31/2021
Role: PI: Jia-Wei Tay

Title of Grant: Evaluation of a termite barrier as a defense system against Formosan subterranean termite in Hawaii
Source of Grant: Polyguard, Inc.
Total Dollar Value: $ 13,500
Dates of Grant: 1/1/2021-12/31/2021
Role: PI: Jia-Wei Tay

In preparation:
Vector suppression and prevention applied research program under One Health concept. Vector-Borne Disease Regional Centers of Excellence. Centers for Disease Control and Prevention. As co-PI.

Intramural Grants
Title of Grant: Improved detection and control of tropical invasive insect pests
Source of Grant: USDA-ARS
Total Dollar Value: $ 140,000
Dates of Grant: 9/1/2020-9/30/2023
Role: PI: Jia-Wei Tay

Title of Grant: Linalool: biosynthesis in sweet basil and application in human health and pest control
Source of Grant: USDA NIFA Research Capacity Funds
Total Dollar Value (Your share of the grant value): $ 8,970 ($ 3,370)
Dates of Grant: 2020
Role: Co-PI

Title of Grant: Ecology and management of invasive urban pests in Hawaii
Source of Grant: USDA NIFA Hatch
Total Dollar Value (Your share of the grant value): n/a
Dates of Grant: 2020-2024
Role: PI

Title of Grant: Managing insects of urban and medical importance in Hawaii using integrated pest management
Source of Grant: Extension Plan of Work, Smith-Lever Fund
Total Dollar Value (Your share of the grant value): $ 4,000
Dates of Grant: 2020-2024
Role: PI

Grants not awarded

NIFA Crop Protection and Pest Management. 2020, 2021. Title: Essential oils as effective organic alternatives to conventional insecticides for economically-damaging invasive pest species (as co-PI)

Western IPM Center Grant. 2020. Title: Development and evaluations of a controlled release system for mosquito management.

Pacific Southwest Center of Excellence in Vector-borne Diseases (PACVEC). 2020, 2021. Title: Development of a *Beauveria bassiana*-infused ovitraps network for biological control of *Aedes albopictus* and detection of future invasive mosquitoes on Oahu, Hawaii.

Presentations at Conferences

Title: Highlights in Urban Entomology for year 2021 - Award
Authors: Tay, J.W. *
Name of Conference: Entomological Society of America Annual Meeting
Location: Denver, Colorado
Date of Presentation: October 30 – November 3, 2021

Title: Hydrogel baits with improved water loss dynamics effectively attract and control higher numbers of pest ant populations
Authors: Tay, J.W. *
Name of Conference: Entomological Society of America Virtual Annual Meeting
Location: online
Date of Presentation: November 11-25, 2020

Title: Management of invasive sugar-feeding ant and subterranean termites in Hawaii
Authors: Tay, J.W. *
Name of Conference: CTAHR Virtual Invasive Pest Mini Conference
Location: online
Date of Presentation: October 15, 2020

Title: Field demonstration of heat technology to mitigate heat sinks for drywood termite management in Hawaii (paper accepted)
Authors: Tay, J.W. *
Name of Conference: International Congress of Entomology (cancelled due to Covid-19)
Location: Helsinki, Finland

Title: Formosan and Asian subterranean termite tunneling behavior and their sustainable pest management using physical barrier
Authors: Tay, J.W. *
Name of Conference: Entomological Society of America Annual Meeting
Location: St. Louis, Missouri
Date of Presentation: November 17-20, 2019

Title: Biology and management of common pest ant species in Hawaii
Authors: Tay, J.W. *
Name of Conference: Hawaii Pest Control Association Annual Learning Conference (275 attendees)
Location: The KROC Centre, Hawaii
Date of Presentation: September 20, 2019

Title: Ecology and management of invasive Argentine ant
Authors: Tay, J.W. *
Name of Conference: Invasive Ant Conference 2018
Location: Kyoto University, Japan
Date of Presentation: January 23, 2018

Title: Alginate hydrogel for pest ant management in urban and agricultural areas
Authors: Tay, J.W. *
Name of Conference: Entomological Association of Southern California, Fall Meeting
Location: Los Angeles County Arboretum, Arcadia, California
Date of Presentation: September 12, 2017

Title: Benefits of and developments in Argentine ant control for citrus
Authors: Schall, K.A.*, J.W. Tay, A. Mulchandani, D.H. Choe and M. Hoddle
Name of Conference: California Association of Pest Control Advisers
Location: Ontario, California
Date of Presentation: August 2, 2017

Title: The use of an alginate hydrogel to deliver aqueous bait to manage an invasive ant pest in residential settings
Authors: Tay, J.W. *
Name of Conference: 9th International Conference on Urban Pests
Location: Birmingham, England
Date of Presentation: July 12, 2017

Title: Development of a hydrogel bait to deliver liquid ant bait for pest ant management
Authors: Tay, J.W. *
Name of Conference: 26th annual UC Riverside Urban Pest Management Conference
Location: Riverside, California
Date of Presentation: March 29, 2017

Title: Enhancing biological control of citrus pests with hydrogel baits for sustainable Argentine ant, *Linepithema humile*, management
Authors: Tay, J.W. *
Name of Conference: XXV International Congress of Entomology
Location: Orlando, Florida
Date of Presentation: September 28, 2016

Title: Fire ant baiting technology in almonds: Today and beyond
Authors: Schall, K.A.*, J.W. Tay, L. Greenberg and M. Hoddle
Name of Conference: UC Cooperative University of California Almond Integrated Pest Management Meeting
Location: Kearney Agricultural Research and Extension Center, Parlier, California
Date of Presentation: January 7, 2016

Title: The effects of juvenile hormone analog pyriproxyfen on the ovary development of the Pharaoh ant
Authors: Tay, J.W. *
Name of Conference: 2nd Global Conference on Entomology
Location: Sarawak, Malaysia
Date of Presentation: November 8-12, 2013

Title: The effects of a juvenile hormone analog on the reproductive physiology of *Monomorium pharaonis*
Authors: Tay, J.W. *
Name of Conference: International Symposium on Insects
Location: Kuala Lumpur, Malaysia
Date of Presentation: December 3-5, 2012

Title: The effects of pyriproxyfen on the egg production and ovary development of *Monomorium pharaonis*
Authors: Tay, J.W. *
Name of Conference: 6th International Conference on Biopesticides
Location: Chiang Mai, Thailand
Date of Presentation: December 11-16, 2011