

CHANG-YU CHANG 張昌祐

My research interest lies in the intersection of systems biology, microbial evolution and community ecology. I am interested in combining theory and experiment to study how microbial communities assemble and evolve.

EDUCATION

now
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2017

- **Ph.D. Candidate, Ecology and Evolutionary Biology**
Yale University 📍 New Haven, CT
 - Thesis: Engineering emergent properties of microbial communities
 - Advisor: Dr. Alvaro Sanchez

2017
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2015

- **M.S., Ecology and Evolutionary Biology**
National Taiwan University 📍 Taipei, Taiwan
 - Thesis: Near-infrared modulates burying behavior in burying beetles
 - Advisor: Sheng-Feng Shen

2015
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2011

- **B.S., Life Science**
National Taiwan University 📍 Taipei, Taiwan
 - Math and computational courses oriented
 - Presidential and Dean's Award (ranking top 5% in the class)

PUBLICATIONS

2022

- **Generic pairwise competitive network of microbial communities**
In preparation
 - [Chang-Yu Chang](#), Djordje Bajic, Alvaro Sanchez

2022

- **Top-down and bottom-up cohesiveness in microbial community coalescence (2022). PNAS in press**
<https://www.biorxiv.org/content/10.1101/282723v1>
 - Juan Diaz-Colunga*, Nanxi Lu*, Alicia Sanchez-Gorostiaga*, [Chang-Yu Chang](#), Helen Cai, Joshua Goldford, Mikhail Tikhonov, Alvaro Sanchez

2021

- **Functional attractors in microbial community assembly (2021). Cell Systems.**
<https://doi.org/10.1016/j.cels.2021.09.011>
 - Sylvie Estrela, Jean C C Vila, Nanxi Lu, Djordje Bajic, Maria Rebolleda-Gomez, [Chang-Yu Chang](#), Joshua E. Goldford, Alicia Sanchez-Gorostiaga, Alvaro Sanchez



View this CV online with links at changyuchang.name

CONTACT INFO

- ✉ chang-yu.chang@yale.edu
- 🐦 [changyu_chang](https://twitter.com/changyu_chang)
- 🐙 [github](https://github.com)
- 🔗 changyuchang.name

For more information, please contact me via email.

This resume was made with the R package [pagedown](#).

The source code is available at github.com/Chang-Yu-Chang/cv.

Last updated on 2022-01-18.

- 2021 ● **Engineering complex communities by directed evolution (2021). Nature Ecology & Evolution**
<https://doi.org/10.1038/s41559-021-01457-5>
 • Chang-Yu Chang*, Jean C C Vila*, Madeline Bender, Richard Li, Madeleine C Mankowski, Molly Bassette, Julia Borden, Stefan Golfier, Paul Gerald L Sanchez, Rachel Waymack, Xinwen Zhu, Juan Diaz-Colunga, Sylvie Estrela, Maria Rebolledo-Gomez, Alvaro Sanchez
 • * contributed equally.
 • Coauthors include students from courses PBoC2019 and E&EB 729
- 2021 ● **Directed Evolution of Microbial Communities (2021). Annu. Rev. Biophys.**
<https://doi.org/10.1146/annurev-biophys-101220-072829>
 • Alvaro Sanchez, Jean C C Vila, Chang-Yu Chang, Juan Diaz-Colunga, Sylvie Estrela, Maria Rebolledo-Gomez
- 2020 ● **Artificially selecting bacterial communities using propagule strategies (2020). Evolution**
<https://doi.org/10.1111/evo.14092>
 • Chang-Yu Chang*, Melisa L Osborne*, Djordje Bajic, Alvaro Sanchez.
 • * contributed equally.
- 2018 ● **Ecological effects of cellular computing in microbial populations (2018). Natural Computing**
<https://doi.org/10.1007/s11047-018-9708-8>
 • Maia Baskerville*, Arielle Biro*, Mike Blazanin*, Chang-Yu Chang*, Amelia Hallworth*, Nicole Sonnert*, Jean C C Vila*, Alvaro Sanchez
 • * contributed equally.




FELLOWSHIPS, GRANTS, AND TRAVEL FUNDS

- 2020
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2017 ● **Government Fellowship for Oversea Study**
 Taiwan Ministry of Education
 • \$126,000
- 2016 ● **Graduate Student Attending International Conference**
 Taiwan Ministry of Education
 • \$1,000
- 2015
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2014 ● **College Student Research Scholarship**
 Taiwan Ministry of Science and Technology
 • \$1,200



TEACHING FELLOW EXPERIENCE

- 2020 ● **BIOL104: Ecology & Evolutionary Biology**
 Yale University  New Haven, CT
 • Lecture TF

- 2019

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E&EB729: Microbial Ecology and Evolution
 Yale University
 • Course facilitator

📍 New Haven, CT
- 2019

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PBoC2019: Physical Biology of the Cell course
 Marine Biological Laboratory
 • Course facilitator

📍 Woods Hole, MA
- 2019

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EEB250/550: Biology Of Terrestrial Arthropods
 Yale University
 • Lecture TF

📍 New Haven, CT
- 2019

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EEB251L/551L: Laboratory for Biology Of Terrestrial Arthropods
 Yale University
 • TF, organized field trips, and conducted demo experiments

📍 New Haven, CT
- 2019

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EEB223L/523L: Laboratory for Evolution & Functional Traits
 Yale University
 • TF, organized field trips, and conducted demo experiments

📍 New Haven, CT
- 2016

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LS3022: Biostatistics
 National Taiwan University
 • TF and lectured basic R

📍 Taipei, Taiwan
- 2015

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LS1019: General Botany Lab
 National Taiwan University
 • TF and lectured lab experiments

📍 Taipei, Taiwan



TALKS AND POSTERS

- 2021

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Workshop on Limits to Diversity Assembly, ICTP
 Trieste, Italy
 • Invited talk

📍 Virtual
- 2020

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Microbial Sciences Institute SMAL talks
 Yale University
 • Invited talk

📍 Virtual
- 2019

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The Graduate Research in Ecology, Behavior, and Evolution Annual Symposium (GREBE)
 Princeton University
 • Contributed talk

📍 Princeton, NJ
- 2019

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Microbial Sciences Institute Retreat
 Yale University
 • Poster presentation

📍 New Haven, CT

- 2019 ● **Yale EEB graduate student symposium**
 Yale University 📍 New Haven, CT
 • Best poster award
- 2018 ● **17th International Symposium on Microbial Ecology (ISME)**
📍 Leipzig, Germany
 • Poster presentation
- 2017 ● **18th Congress of Animal Behavior and Ecology**
 National Sun Yat-sen University 📍 Kaohsiung, Taiwan
 • Winner Prize for research and oral presentation
- 2016 ● **15th Congress of the International Society for Behavioral Ecology**
 University of Exeter 📍 Exeter, UK
 • Oral Presentation (abstract reviewed)
- 2016 ● **Graduate student symposium**
 College of Life Science, National Taiwan University 📍 Taipei, Taiwan
 • Best poster award



SERVICES

- 2020
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2018 ● **President, Yale Taiwanese Student Association**
 Yale University 📍 New Haven, CT
 • Organized recreational and holiday events for Taiwanese students
 • Facilitated connections among Taiwanese students across universities
- 2019 ● **Organizer, Yale EEB Hutchinson speaker**
 Yale University 📍 New Haven, CT
 • Dr. Dolph Schluter (UBC) invited as the 2019 Hutchinson Speaker
 • Organized and modulated invited speaker talks, sessions, and meetings

REFERENCES

- **Dr. Alvaro Sanchez**
 Ph.D. advisor 📍 alvaro.sanchez@yale.edu
 • Associate Professor, Yale University
- **Dr. Maria Rebolledo-Gomez**
 Ph.D. lab colleague 📍 mreboll@uci.edu
 • Assistant Professor, University of California, Irvine
- **Dr. David Vasseur**
 Dissertation committee 📍 david.vasseur@yale.edu
 • Professor, Yale University
- **Dr. Sheng-Feng Shen**
 M.S. advisor 📍 shensf@sinica.edu.tw
 • Research Fellow (Professor), Academia Sinica in Taiwan