

Thomas C. DAY

PhD | School of Physics, Georgia Institute of Technology

@ day.cooper.tom@gmail.com

& thomas-c-day.github.io

🎓 Google Scholar

PhD candidate at the Georgia Institute of Technology, planning to graduate in Spring 2023. Interested in the soft matter physics that constrains biology, and how these constraints lead to organization and patterning.

🎓 EDUCATION

2018-2023	PhD - School of Physics, Georgia Institute of Technology , Atlanta, GA USA
2017-2018	MS - School of Physics, Georgia Institute of Technology , Atlanta, GA USA
2012-2016	BS, Magna Cum Laude - Department of Physics, Lafayette College , Easton, PA USA

📖 PUBLICATIONS

-
- | | |
|------|--|
| 2023 | GO Bozdag, SA Zamani-Dahaj, Thomas C. Day , PC Kahn, K Tong, AH Balwani, EL Dyer, PJ Yunker, WC Ratcliff, <i>De novo evolution of macroscopic multicellularity</i> , Nature, https://doi.org/10.1038/s41586-023-06052-1 |
| 2023 | RM Pineau, D Demory, E Libby, DT Lac, Thomas C. Day , P Bravo, PJ Yunker, JS Weitz, GO Bozdag, WC Ratcliff, <i>Emergence and maintenance of stable coexistence during a long-term evolution experiment</i> , BioArxiv, doi : 10.1101/2023.01.19.524803 |
| 2022 | Thomas C. Day , SS Hohn, SA Zamani-Dahaj, A Burnetti, J Pentz, AR Honerkamp-Smith, H Wioland, HR Sleath, WC Ratcliff, RE Goldstein, PJ Yunker, <i>Cellular Packing in lab-evolved and extant multicellular species obeys a maximum entropy law</i> , eLife, doi : https://doi.org/10.7554/eLife.72707 |
| 2022 | Thomas C. Day , P Marquez-Zacarias, P Bravo, AR Pokhrel, KA MacGillivray, WC Ratcliff, PJ Yunker, <i>Varied solutions to multicellularity : The biophysical and evolutionary consequences of diverse intercellular bonds</i> , Biophysics Reviews, doi : https://doi.org/10.1063/5.0080845 |
| 2021 | SA Zamani-Dahaj, A Burnetti, Thomas C. Day , PJ Yunker, WC Ratcliff, MD Herron, <i>Spontaneous emergence of multicellular heritability</i> , doi : https://doi.org/10.1101/2021.07.19.452990 |
| 2018 | S Jacobeen, EC Graba, CG Brandys, Thomas C. Day , WC Ratcliff, PJ Yunker, <i>Geometry, packing, and evolutionary paths to increased multicellular size</i> , Physical Review E, doi : https://doi.org/10.1103/PhysRevE.97.050401 |
| 2022 | YM Wong, Thomas C. Day , JS Tumulty, BC Antanaitis, <i>Phase transitions detected in complex time series by multifractal detrended fluctuation analysis</i> , International Journal of Modern Physics B, doi : https://doi.org/10.1142/S0217979222400793 |

🏆 HONORS AND AWARDS

-
- | | |
|-----------|---|
| 2022 | WD Hamilton Award , Society for the Study of Evolution. Awarded to the most outstanding research talk at the annual Evolution conference. Link for more information about the award. |
| 2022 | Outstanding Graduate Research Prize, Center for Microbial Dynamics and Infection , Georgia Institute of Technology. |
| 2020-2022 | 3x Weatherly Travel Award , Georgia Institute of Technology. |
| 2017 | Presidential Fellowship , Georgia Institute of Technology. Fellowship awarded to outstanding graduate students. |
| 2016 | Physics Scholastic Award , Lafayette College. Inaugural recipient. Awarded to the most outstanding physics undergraduate student. |
| 2016 | Henry Richard Jahn Award , Lafayette College. Awarded to the most outstanding Track and Field student-athlete. |

🎤 PRESENTATIONS

Invited Talks

- | | |
|------------|---|
| April 2022 | Kennesaw State University , Kennesaw, Georgia. Invited to give an hour-long lecture as part of the Center for Microbial Dynamics and Infection Seminar Series. |
| March 2022 | American Physical Society (APS) March Meeting , Chicago, Illinois. Invited to give two 30-minute presentations at the annual APS March Meeting. <ul style="list-style-type: none">➢ Cellular Organization➢ Material property changes from physical entanglement |

Contributed Talks

March 2023	APS March Meeting , Las Vegas, Nevada.
June 2022	Evolution , Cleveland, Ohio. Hamilton Award Symposium.
May 2022	International Physics of Living Systems Conference , Montpellier, France.
October 2021	Southeastern Regional Society of Integrative and Comparative Biology , Atlanta, GA.
June 2021	Center for Microbial Dynamics and Infection , Atlanta, GA.
March 2021	APS March Meeting , Virtual.
March 2020	APS March Meeting , Virtual.
March 2019	APS March Meeting , Boston, MA

RESEARCH EXPERIENCE

Today 2018	Research Assistantship, Co-ADVISORS : PETER J. YUNKER AND WILLIAM C. RATCLIFF, <ul style="list-style-type: none">➤ Uncovered physical constraints underlying cellular spatial organization in nascent multicellular organisms using a combination of experiments and simulations.➤ Identified and measured material characteristics of growing, tangled branches of cells.➤ Described and reviewed biophysical consequence of diverse intercellular bond types. <div>Confocal microscopy AFM Materials Science Particle Tracking Image Analysis Numerical Simulations</div> <div>General wet lab Experimental evolution</div>
2016 2014	Undergraduate Research, Co-ADVISORS : BRADLEY C. ANTANAITIS AND YIU-MAN WONG, <ul style="list-style-type: none">➤ Analyzed data heart rate data from a variety of patients, identifying features of phase transitions in the heart rate time series for unhealthy patients. <div>Data analysis Nonlinear dynamics Phase transition theory</div>

TEACHING

2022	Instructor of Record, Physics 4801/8801, GEORGIA INSTITUTE OF TECHNOLOGY, Image Analysis in Dynamic Biophysical Systems <ul style="list-style-type: none">➤ Designed, created, and taught a course as the primary instructor.➤ Taught 17 total students in a cross-listed undergraduate/graduate course.
2019 2017	Teaching Assistant, GEORGIA INSTITUTE OF TECHNOLOGY, <ul style="list-style-type: none">➤ Teaching assistant, Physics 4321/4322 Advanced Lab.➤ Lab teaching assistant, Physics 2212.➤ Recitation teaching assistant, Physics 2211.
2017 2016	Instructor and Tutor, SUMMIT EDUCATION GROUP, <ul style="list-style-type: none">➤ Taught classes in math, science and test preparation.➤ One-on-one academic tutoring with high school students.

CERTIFICATIONS AND PROFESSIONAL DEVELOPMENT

2022	Tech to Teaching Certificate , Georgia Institute of Technology. Completed both the foundation level and the capstone level. Developed an understanding of the scholarship of teaching and learning, and applied these skills in the classroom. For the capstone project, designed, created, and instructed Physics 4801/8801 : Image Analysis of Dynamic Biophysical Systems.
------	--

REFERENCES

Peter J. Yunker

Associate Professor, PHYSICS

@ peter.yunker@gatech.edu
📞 +1 (404) 555-5555

William C. Ratcliff

Associate Professor, BIOLOGY, QUANTITATIVE BIOSCIENCES

@ william.ratcliff@biology.gatech.edu
📞 +1 (404) 894-8906