Haicen Yue

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Education

- **University of California, San Diego** — **La Jolla, CA**
  Ph.D. Physics, Advisor: Wouter-Jan Rappel — *Sept 2011–Jun 2018*
  Dissertation: Models to study the mechanism of single and collective cell migration
- **Peking University** — **Beijing, China**
  B.S. Physics — *Sept 2007–Jun 2011*

Professional Experience

- **Physics Department, University of Vermont** — **Burlington, VT**
  Assistant Professor — *Aug 2023 – Present*
- **Physics Department, Emory University** — **Atlanta, GA**
  Postdoc Fellow, Advisor: Daniel M. Sussman — *Aug 2020–July 2023*
- **Courant Institute of Mathematical Sciences, New York University** — **New York, NY**
  Postdoc Associate, Advisor: Alex Mogilner — *Sept 2018–Aug 2020*

Publications

H. Yue, C. R. Packard, and D. M. Sussman, "Scale-dependent sharpening of interfacial fluctuations in shape-based models of dense cellular sheets", Soft Matter **20**, 9444–9453 (2024).

H. Yue, J. C. Burton, and D. M. Sussman, "Coalescing clusters unveil regimes of frictional fluid mechanics", Phys. Rev. Res. **6**, 023115 (2024).

Y. Sun, B. Reid, Y. Zhang, K. Zhu, F. Ferreira, A. Estrada, Y. Sun, B. Draper, **H. Yue**, C. Copos, et al., "Electric field-guided collective motility initiation of large epidermal cell groups", Molecular Biology of the Cell, mbc–E22 (2023).

Y. Y. Bernadskaya, **H. Yue**, C. Copos, L. Christiaen, and A. Mogilner, "Supracellular organization confers directionality and mechanical potency to migrating pairs of cardiopharyngeal progenitor cells", Elife **10**, e70977 (2021).

R. Karmakar, M.-H. Tang, **H. Yue**, D. Lombardo, A. Karanam, B. A. Camley, A. Groisman, and W.-J. Rappel, "Cellular memory in eukaryotic chemotaxis depends on the background chemoattractant concentration", Physical Review E **103**, 012402 (2021).

H. Yue, B. A. Camley, and W.-J. Rappel, "Minimal network topologies for signal processing during collective cell chemotaxis", Biophysical Journal (2018).

A. Islam, **H. Yue**, M. Scavello, P. Haldeman, W.-J. Rappel, and P. G. Charest, "The cAMP-induced G protein subunits dissociation monitored in live Dictyostelium cells by BRET reveals two activation rates, a negative effect of caffeine and potential role of microtubules", Cellular signalling (2018).

R. M. Lee, **H. Yue**, W.-J. Rappel, and W. Losert, "Inferring single-cell behaviour from large-scale epithelial sheet migration patterns", Journal of The Royal Society Interface **14**, 20170147 (2017).

X. Chen, J. Chen, B. Shao, L. Zhao, **H. Yue**, and Q. Ouyang, "Relationship between cancer mutations and parameter sensitivity in Rb pathway", Journal of theoretical biology **404**, 120–125 (2016).

M. Skoge, **H. Yue**, M. Erickstad, A. Bae, H. Levine, A. Groisman, W. F. Loomis, and W.-J. Rappel, "Cellular memory in eukaryotic chemotaxis", Proceedings of the National Academy of Sciences **111**, 14448–14453 (2014).

J. Chen, **H. Yue**, and Q. Ouyang, "Correlation between oncogenic mutations and parameter sensitivity of the apoptosis pathway model", PLoS computational biology **10**, e1003451 (2014).

Preprints or Submitted

C. Copos, Y.-H. Sun, K. Zhu, Y. Zhang, B. Reid, B. Draper, F. Lin, **H. Yue**, Y. Bernadskaya, M. Zhao, et al., *Galvanotactic directionality of cell groups depends on group size*.

Y. Sun, **H. Yue**, C. Copos, K. Zhu, Y. Zhang, Y. Sun, X. Gao, B. Reid, F. Lin, M. Zhao, and A. Mogilner, *Pi3k inhibition reverses migratory direction of single cells but not cell groups in electric field*, bioRxiv: 2020.08.05.238170.

Teaching Experience at UVM

- **University of Vermont** — **Department of Physics**
  Quantum Mechanics (Grad level) — *2024 Fall*
- **University of Vermont** — **Department of Physics**
  Biological Physics (Grad level) — *2024 Spring*
- **University of Vermont** — **Department of Physics**
  Statistical Mechanics (Grad level) — *2023, 2024 Fall*

Teaching Experience Prior to UVM

- **New York University** — **Courant Institute of Mathematical Sciences**
  Guest Lecturer *Mathematical Modeling* — *2019*
- **University of California, San Diego** — **Physics Department**
  Teaching Assistant *Waves, Optics&Modern Physics Lab* — *2018*
- **University of California, San Diego** — **Physics Department**
  Teaching Assistant *Physics Laboratory–Mechanics* — *2016*
- **University of California, San Diego** — **Physics Department**
  Teaching Assistant *Statistical Physics (Grad level)* — *2016*

Presentations

APS March Meeting 2024 — **Minneapolis, MN**
- *Contributed Talk: Revisit Interface Fluctuations in Voronoi and Vertex Models* — *March 6, 2024*

APS March Meeting 2023 — **Las Vegas, NV**
- *Invited Talk: Coalescing Clusters Unveil New Regimes of Frictional Fluid Mechanics* — *March 10, 2023*

Soft, Living, Active and Adaptive Matter (SLAAM) seminars — **Virtual**
- *Invited Talk: Non-regular behavior during the coalescence of liquid-like cellular aggregates* — *April 25, 2022*

APS March Meeting 2022 — **Chicago, IL**
- *Contributed Talk: Non-regular behavior during the coalescence of liquid-like cellular aggregates* — *March 15, 2022*

74th Annual Meeting of the APS Division of Fluid Dynamics — **Phoenix, AZ**
- *Contributed Talk: Non-liquid behavior during the coalescence of liquid-like aggregates with cellular units* — *November 21-23, 2021*

Bridging Cellular and Tissue Dynamics from Normal Development to Cancer: Mathematical, Computational, and Experimental Approaches — **Banff, Canada**
- *Talk: Study the mechanical effect in collective movement of two cells using Cellular Potts Model* — *June 17-21, 2019*

Annual Meeting of the International Physics of Living Systems Network — **Paris, France**
- *Talk: Network topologies of signal processing for collective movement of border cell cluster* — *June 25-29, 2017*

Workshop on Modeling in Cell Biology: Scale and Granularity — **San Francisco, CA**
- *Talk: Combining modeling and experiments to probe cellular memory* — *May 18-19, 2015*

The Seventh q-bio Conference — **Santa Fe, NM**
- *Poster: Role of memory in the dynamics of Ras activation in chemotaxing cells* — *August 7-10, 2013*

Grants and Awards

NSF CAREER award — **Role: PI**
- *Tissues as Adaptive Materials: Investigating the Role of Cellular Adaptability in Tissue Mechanics* — *2025*

Professional Service

Thesis Committees

- Andrew Lewis (Ph.D.)
- Edward Buckser (Master)

Conference/Seminars Organization

- **Co-organizer:** SLAAM(Soft, Living, Active, and Adaptive Matter) Online Seminars

Journal Reviews

Physical Review Letter, Physical Review X Life, Physical Review Research, Soft Matter, Biophysical Journal, PLOS Computational Biology, Molecular Biology of the Cell, Nature Communications, Advanced Science

Grant Reviews

National Science Foundation (CMMI DIVISION)