Qiong Yang

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EDUCATION

Massachusetts Institute of Technology (MIT)	Ph.D. in Physics Thesis: "Dynamics of gene expression and signal transduction in single cells". Advisor: Prof. Alexander van Oudenaarden	09/2009
University of Science and Technology of China (USTC)	B.S. in Physics Thesis: Supersymmetry phenomenology. "Research and implementation of two-loop Feynman diagram calculations with massive particles" Advisor: Prof. Wengan Ma	06/2003

Other Trainings

MBL Zebrafish Development and Genetics Course, Woods Hole, MA	2012
QB3/UCSF Course in Biological Light Microscopy, UCSF, CA	2012
The 2nd q-Bio Summer School on Quantitative Biology, LANL, NM	2008

APPOINTMENTS

University of Michigan, Ann Arbor, MI

Associate Professor	Department of Biophysics & Department of Physics	2022 - present
Assistant Professor	Department of Biophysics & Department of Physics	2014 - 2022
Other Affiliations	Applied Physics, Center for Computational Medicine and Bioinformatics (CCMB), Center for the Study of Complex Systems (CSCS), Center for Systems Biology (CSB), Biomedical Engineering (BME), Cellular and Molecular Biology (CMB), Cell and Developmental Biology (CDB)	

Harvard Medical School, Boston, MA 2013 - 2014
Visiting Scholar, Department of Systems Biology. Collaborator: Prof. Sean Megason

Stanford University, Stanford, CA 2009 - 2013
Damon Runyon Postdoctoral Fellow, Department of Chemical & Systems Biology. Advisor: Prof. James E. Ferrell

HONORS AND AWARDS

Class of 1923 Memorial Teaching Award	2022
Elizabeth C. Crosby Award	2020
Alfred P. Sloan Foundation Research Fellowship (Physics)	2017
NIH MIRA Award (R35 Outstanding Investigator Award)	2016
NSF CAREER Award	2015
The Burroughs Wellcome Fund CRTG Grant	2014
The Helena Anna Henzl-Gabor Young Women in Science	2013, 2012
HHMI Fellow of the Damon Runyon Cancer Research Foundation	2011-13
Stanford Dean's Postdoctoral Fellowship	2010
The q-Bio Conference and Summer School Fellowships	2011, 08
The 10th, 8th, and 7th ICSB Travel Grants	2009, 07, 06
MIT GSC Travel Fund Grant	2008
MIT Graduate WIP Travel Grant	2006

PUBLICATIONS

†Corresponding Author **Equal Contribution*

Preprints

1. O. Puls*, D.R. Reynés*, F. Tavella, M. Jin, Y. Kim, L. Gelens†, **Q. Yang†**. Mitotic waves in frog egg extracts: Transition from phase waves to trigger waves. **BioRxiv** (2024). DOI: https://doi.org/10.1101/2024.01.18.576267
2. Y. Liu, Y.S. Kim, X. Xue, N. Kobayashi, S. Sun, **Q. Yang**, O. Pourquié, J. Fu† A human pluripotent stem cell-based somitogenesis model using microfluidics. **Cell Stem Cell** (in revision). DOI: https://doi.org/10.1101/2024.01.18.576267

Publications since tenure promotion

3. Z. Li*, S. Wang*, M. Sun*, M. Jin, D. Khain, **Q. Yang†**. Comprehensive parameter space mapping of cell cycle dynamics under network perturbations. **ACS Synthetic Biology** (2024). DOI: https://doi.org/10.1021/acssynbio.3c00631
4. G. Maryu, **Q. Yang†**. Nuclear-cytoplasmic compartmentalization of cyclin B1-Cdk1 promotes robust timing of mitotic events. **Cell Reports** 41, 111870 (2022). DOI: https://doi.org/10.1016/j.celrep.2022.111870

5. M. Jin*, F. Tavella*, S. Wang, **Q. Yang†**. *In vitro* cell cycle oscillations exhibit a robust and hysteretic response to changes in cytoplasmic density. **PNAS** 119, 6 (2022). DOI: https://doi.org/10.1073/pnas.2109547119

Publications since joining U Michigan

6. A. Pulianmackal, D. Sun, K. Yumoto, Z. Li, Y. Chen, M. Patel, Y. Wang, E. Yoon, A. Pearson, **Q. Yang**, R. Taichman, F. Cackowski†, L. Buttitta†. Monitoring spontaneous quiescence and asynchronous proliferation-quiescence decisions in prostate cancer cells. **Frontiers in Cell and Developmental Biology** 9, 3494 (2021). DOI: https://doi.org/10.3389/fcell.2021.728663
7. M. Sun, G. Maryu, S. Wang, **Q. Yang†**, R. C. Bailey†. Plug-in tubes removing oil and packing droplets for time-controlled droplet-based assays. **Biomicrofluidics** 15, 024108 (2021). DOI: https://doi.org/10.1063/5.0047924
   Z. Li*, S. Wang*, M. Sun*, M. Jin, D. Khain, **Q. Yang†**. High-resolution mapping of the period landscape reveals polymorphism in cell cycle frequency tuning. **bioRxiv** (2021). DOI: https://doi.org/10.1101/2021.05.10.442602
8. J. Kamenz†, R. Qiao, **Q. Yang**, J. E. Ferrell Jr.. Real-time monitoring of APC/C-mediated substrate degradation using *Xenopus laevis* egg extracts. **Methods in Molecular Biology** 2329, 29 (2021). DOI: https://doi.org/10.1007/978-1-0716-1538-6_3
9. A. Groaz, H. Moghimianavval, F. Tavella, T. Giessen*****, A. Vecchiarelli*****, **Q. Yang***, A. Liu*****†. Engineering spatiotemporal organization and dynamics in synthetic cells. **WIREs Nanomedicine and Nanobiotechnology** e1685 (2020). DOI: https://doi.org/10.1002/wnan.1685
10. Y. Guan, S. Wang, **Q. Yang†.** Generation of droplet-based artificial cells. **Bio-protocol** (2020). https://bio-protocol.org/prep590
11. M. Sun, Z. Li, S. Wang, G. Maryu, **Q. Yang†.** Building Dynamic Cellular Machineries in Droplet-based Artificial Cells with Single-Droplet Tracking and Analysis. **Analytical Chemistry** 91, 9813 (2019). DOI: https://doi.org/10.1021/acs.analchem.9b01481
12. M. Sun†, Z. Li, **Q. Yang†.** µdroPi: A Hand-Held Microfluidic Droplet Imager and Analyzer Built on Raspberry Pi. **Journal of Chemical Education** 96, 1152 (2019). DOI: https://doi.org/10.1021/acs.jchemed.8b00975
13. O. Puls, **Q. Yang†.** The Rise of Ultrafast Waves. **Developmental Cell** 47, 532 (2018). DOI: https://doi.org/10.1016/j.devcel.2018.11.026
14. Y. Guan, S. Wang, M. Jin, H. Xu, **Q. Yang†.** Reconstitution of Cell-cycle Oscillations in Microemulsions of Cell-free Xenopus Egg Extracts. **Journal of Visualized Experiments** 139, e58240 (2018). DOI: https://dx.doi.org/10.3791/58240 Press Coverage: The 2019 Winter Biophysics Newsletter.
15. Y. Guan, Z. Li, S. Wang, P. Barnes, X. Liu, H. Xu, M. Jin, A.P. Liu, **Q. Yang†**. A robust and tunable mitotic oscillator in artificial cells. **eLife** 7, e33549 (2018). DOI: https://doi.org/10.7554/eLife.33549
16. Z. Li, **Q. Yang†.** Systems and synthetic biology approaches in understanding biological oscillators. **Quantitative Biology** 6, 1–14 (2018). DOI: https://link.springer.com/article/10.1007/s40484-017-0120-7
17. Z. Li, S. Liu, **Q. Yang†.** Incoherent inputs enhance the robustness of biological oscillators. **Cell Systems** 5, 72 (2017). DOI: https://doi.org/10.1016/j.cels.2017.06.013

Publications before joining U Michigan

18. **Q. Yang** and J. E. Ferrell Jr.. The Cdk1-APC/C cell cycle oscillator circuit functions as a time-delayed, ultrasensitive switch. **Nature Cell Biology** 15, 519 (2013). DOI: https://doi.org/10.1038/ncb2737
19. J. E. Ferrell Jr., T. Tsai, and **Q. Yang**. Modeling the cell cycle: why do certain circuits oscillate? **Cell** 144, 874 (2011). DOI: https://doi.org/10.1016/j.cell.2011.03.006
20. **Q. Yang***, B. F. Pando*, G. Dong, S. S. Golden, and A. van Oudenaarden. Circadian gating of the cell cycle revealed in single cyanobacterial cells. **Science** 327, 1522 (2010). DOI: https://doi.org/10.1126/science.1181759
21. G. Dong, **Q. Yang**, Q. Wang, Y. Kim, T. L. Wood, K. W. Osteryoung, A. van Oudenaarden, and S. S. Golden. Elevated ATPase activity of KaiC applies a circadian checkpoint on cell division in *Synechococcus elongatus*. **Cell** 140, 529 (2010). DOI: https://doi.org/10.1016/j.cell.2009.12.042
    Preview: Morf & Schibler. Circadian cell-cycle progression: Cracking open the gate. *Cell* **140,** 458–459 (2010). DOI: https://doi.org/10.1016/j.cell.2010.02.002
22. B. B. Kaufmann*, **Q. Yang***, J. T. Mettetal, and A. van Oudenaarden. Heritable stochastic switching revealed by single-cell genealogy. **PLoS Biology** 5, e239 (2007). DOI: https://doi.org/10.1371/journal.pbio.0050239
    Faculty Opinions F1000 Recommended: https://facultyopinions.com/prime/1094878

SERVICE

Committees

Executive Committee:

NIH Microfluidics Training Program at UM with Xudong Fan, Ryan Bailey, Nils Walter. (2021-present).

Advisory Committee:

NIH-funded High-Performance Computing Cluster for Biomedical Research consists of hybrid GPU and CPU nodes. (2021-present).

F1000Prime:

Faculty member in the biological physics section (2019-present).

Conference Organizing

Session Chair:

Chair 2025-2026: “Physical Cell Biology” at Biophysical Society (BPS)
Chair Elect 2024-2025: “Physical Cell Biology” at Biophysical Society (BPS)
Co-Chair Elect: “Single-Molecule Forces, Manipulation, and Visualization” at BPS
Chair of Special Interest Subgroup at ASCB|EMBO Co-Chair with Mustafa Aydogan (2019, 2022, 2023).
Chair of Special Interest Subgroup at ASCB|EMBO (2018).
Lead a Roundtable Discussion at ASCB|EMBO 2019 Washington, DC.

Conference Organizing:

Annual q-Bio Conference Program Committee (2018-present).
17th Annual q-bio Conference, July 29-Aug 1, 2023, Shenzhen, China.
15th Annual q-bio Conference, June 15-17, 2022, Colorado State University, Fort Collins, CO, USA.
14th Annual q-bio Conference, University of Maryland, College Park (switch to Virtual), 2020.
13th Annual q-bio Conference, San Francisco State University, CA, 2019.
12th Annual q-bio Conference, Rice University, 2018.

Expert Panel for NSF workshop:

Finding Your Inner Modeler (FYIM II Aug 2018 Chicago, IL).

Biophysics Liaison:

NextProf Science Annual Workshop, Ann Arbor, MI (2015-2022).
NextProf Workshop Panel “Faculty Search Process: Making the Short List” (2022).

Grant Review

Grant Review Panels:

NIH NCI U01 Special Emphasis panel (2020), NIH MABS study section (2017, 2016), NSF SSB panel (2023, 2021), NSF MCB panel (2016), NSF GRFP panel (2018-2019), European Science Foundation (ESF) Expert Reviewer (2021), Alfred P. Sloan Foundation proposal review (2023).

Ad-hoc Grant Referee:

Davidson Fellows Scholarship (2019, 2018), UMOR (2016).

Editorial and Journal Review

Editorial Board Member for Journals:

Frontiers in Synthetic Biology (2022-), PLoS One (2018-), Scientific Reports (2015-).

Referee for Journals:

ACS Synthetic Biology, Biophysical Journal, Cell Systems, Current Opinion in Systems Biology, eLife, Journal of Statistical Physics, Journal of Visualized Experiments (JoVE), Micromachines, Molecular Systems Biology (MSB), Nature Communications, Nature Microbiology, Physical Biology, PLoS Computational Biology, PLoS One, Review Commons, Proceedings of the National Academy of Sciences of the United States of America (PNAS), RSC Advances, Science, Scientific Reports.

DEI, Outreach, and Diversity in STEM

"Ambassador Program" of Physics at MIT (2008), CUWiP Invited Panel Talk (2008). WIP at MIT (2004-09), AWIS at Stanford (2011-13), SWIP at UM (2014-), NanoCamp and NanoDays with the Optical Society at UM (OSUM) (2014), CUWiP Science Café Talk (2015). Scientist Spotlight Program and Science Communication Fellows Program (2016-), UROP Panel on Interdisciplinary Research (2015), Dinosaur Discovery Day (2018-19), Science for Tomorrow program (SFT) workshop (2018-19), CRLT workshop Creating Climates Resistant to Sexual Harassment: A Toolkit for Academic Leaders (2020), Anti-Racism book group at UM (2021-). CUWiP Invited Panel Talk (2024).