Maryam Kohram

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Experience

- **Princeton University** — New Jersey, USA
  Associate Research Scholar / CPBF Fellow — *May 2021 – current*
  - Advisor: Celeste Nelson
  - Project: Dynamics of cytokinesis failure in individual tumorigenic cells

Education

- **University of Pittsburgh** — Pennsylvania, USA
  Ph.D. in Physics — *July 2015 – April 2021*
  - Advisor: Hanna Salman
  - Thesis: "Bacterial growth mechanisms and their role in cell size homeostasis and senescence"
  - Additional Coursework: Computational Physics, Biophysics, Advanced Statistical Mechanics
- **University of Akron** — Ohio, USA
  M.S. in Physics — *September 2012 – July 2015*
  - Thesis: “A combined microscopy and spectroscopy approach to study membrane biophysic”
  - Additional Coursework: Biochemistry, Techniques in Molecular Biology, Biological Physics
- **University of Tehran** — Tehran, IRAN
  B.S. in Physics — *September 2007 – July 2012*

Peer-Reviewed Journal Articles

- **Kohram, M.**, and Nelson, C., Mechanics, multinucleation, and EMT. *Under Preperation.*
- **Kohram, M.**, Sanderson, A., Loui A., Thompson, P., Vashistha, H., Shomar, A., Oltvai, Z., and Salman, H., Non-lethal deleterious mutation-induced allostasis accelerates bacterial aging. *Under Preperation.*
- **Kohram, M.**, Vashistha, H., Leibler, S., Xue, B., and Salman, H. (2021). Bacterial growth control mechanisms inferred from multivariate statistical analysis of single-cell measurements. *Current Biology, 31*(5), 955-964.
- Vashistha, H., **Kohram, M.**, and Salman, H. (2021). Non-genetic inheritance restraint of cell-to-cell variation. *Elife, 10*, e64779.
- Rashid, S., Long, Z., Singh, S., **Kohram, M.**, Navlakha, S., Vashistha, H., Salman, H., Oltvai, Z.N., Bar-Joseph, Z. (2019). Adjustment in tumbling rates improves bacterial chemotaxis on obstacle-laden terrains. *Proceedings of the National Academy of Sciences*, 116(24), 11770-11775.
- Susman, L., **Kohram, M.**, Vashistha, H., Nechleba, J. T., Salman, H., and Brenner, N. (2018). Individuality and slow dynamics in bacterial growth homeostasis. *Proceedings of the National Academy of Sciences*, 201615526.
- Shi, X., **Kohram, M.**, Zhuang, X., and Smith, A. W. (2016). Interactions and translational dynamics of Phosphatidylinositol Bisphosphate (PIP2) lipids in asymmetric lipid bilayers. *Langmuir*, 32(7), 1732-1741.
- Shi, X., Li, X., **Kohram, M.**, and Smith, A. W. (2016). Single Molecule Diffusion of Phosphatidylinositol Bisphosphate (PIP2) Lipids on Asymmetric Lipid Bilayers under the Influence of Polycationic Macromolecules. *Biophysical Journal*, 110(3), 573a-574a.

Presentations

- **Kohram, M.**, and Nelson, C. (2023). Dynamics of cytokinesis failure in individual tumorigenic cells. *Bulletin of the American Physical Society.*
- **Kohram, M.**, Leibler, S., Xue, B., and Salman, H. (2022). Bacterial Growth Mechanisms and Their Role in Cell Size Homeostasis. *Annual Meeting of the International Physics of Living Systems (iPoLS) Network*, Montpellier, France.
- **Kohram, M.**, Vashistha, H., Leibler, S., Xue, B., and Salman, H. (2021). Bacterial growth control mechanisms inferred from single-cell growth dynamics and sister cells correlations. *The 2021 virtual meeting on cellular dynamics and models*, Cold Spring Harbor Laboratory Meetings and Courses Program.
- **Kohram, M.** (2021). Bacterial growth mechanisms and their role in cell size homeostasis and senescence. *(Dissertation, University of Pittsburgh).*
- Vashistha, H., **Kohram, M.**, and Salman, H. (2020). Effect of non-genetic inheritance dynamics on the variation in cellular traits. *Bulletin of the American Physical Society, 65.*
- **Kohram, M.**, Vashistha, H., Oltvai, Z., and Salman, H. (2019). Modes of Bacterial Aging and Death. In *APS March Meeting Abstracts* (Vol. 2019, pp. Y66-010).
- Vashistha, H., **Kohram, M.**, and Salman, H. (2019). Strength and longevity of non-genetic memory in sister bacterial cells. In *APS March Meeting Abstracts* (Vol. 2019, pp. Y66-008).
- **Kohram, M.**, Vashishtha H., Oltvai, Z.N., and Salman, H. (2018). Modes of Bacterial Aging and Death. *4th Annual Women in STEM conference*, Pittsburgh, Pennsylvania.
- **Kohram, M.**, Shi, X., and Smith, A. (2015, March). Lipid mobility in supported lipid bilayers by single molecule tracking. In *APS March Meeting Abstracts* (Vol. 2015, pp. P1-113).
- **Kohram, M.** (2015).A combined microscopy and spectroscopy approach to study membrane biophysics. *(Dissertation, University of Akron).*
- **Kohram, M.**, and Smith, A.W. (2014). Spectroscopic detection of FRET as an alternative to image-based methods. *The 58th annual MSNO/SAS/ACS/AVS May conference*, John Carroll University, University Heights, Ohio.

Honors and Awards

- National Science Foundation Grant PHY-1734030 (through the Center for the Physics of Biological Function), 2021-2024
- Organizer and chair of "morphogenesis" session during the APS March Meeting, March 2023
- Committee member of the biophysics seminars at Princeton University, 2022-2023
- Andrew Mellon Predoctoral Fellowship for the academic year 2019-2020
- GPSG Travel Grant, University of Pittsburgh, May 2019
- A & S GSO Travel Grant, University of Pittsburgh, March 2019
- National Science Foundation Grant PHY-1401576 (to M.K., H.V., and H.S.), 2018
- First Place in Three Minute Thesis Competition (3MT), Department of Physics and Astronomy, University of Pittsburgh, April 2018
- Second Place in Poster Session at the 4th Annual Women in STEM conference, University of Pittsburgh Society of Women Engineers (SWE), Engineering Graduate Student Organization (EGSO), and Graduate Women in Engineering Network (GWEN), February 2018
- Fully funded participant in the 11th q-bio Summer School at Colorado State University as a member of the “Stochastic Gene Regulation” group, June 2017

- Shirley Chan Student Travel Award, Division of Biological Physics (DBIO) of the American Physical Society, January 2015

Certifications and Mentoring Experience

- CPBF Summer School, June 2022. This program was funded by NSF for advanced undergraduates and was an intense two weeks of lectures, seminars, and hands-on exercises. I participated in numerous activities as a lecturer and a mentor.
- Outreach Program: Instructional Material in Science for High Schools, Summer 2017. This program was funded by NSF and was set up in conjuction with the Pittsburgh Public School District (PPSD). I mentored two high school teachers and two students as part of this program.
- Associate Level Certification in STEM Teaching, August 2016
- Mentored four individuals in research, 2013 - 2019

Skills

- Multidisciplinary knowledge of physics, biology, and chemistry
- Experience working in nanofabrication and characterization facilities
- **Experimental Techniques:** image processing; spectroscopy; microscopy (AFM, SEM, confocal, and electron microscopy); cell culture techniques; lithography; PCR and cloning; cryosectioning; wet bench work
- **Computer:** MATLAB; Python; C++ Programming; ImageJ; LATEX; AutoCAD
- **Teaching:** More than three years experience as a teaching assistant
- **Communication:** Strong verbal and written communication skills

Extra-Curricular Activities

- **2021-present:** Member of Princeton Women in Physics (WiP) group
- **2019-2021:** Member of Women in Physics Club at the Department of Physics and Astronomy at University of Pittsburgh
- **2018-2021:** Member of Women in Science and Engineering Grad Student Organization (WISE GSO) at University of Pittsburgh
- **2016-2017:** Assembly board representative at University of Pittsburgh Graduate and Professional Student Government (GPSG)
- **2015-2021:** Member of the Society of Physics Students (SPS) at University of Pittsburgh
- **2012-2015:** Member of the Society of Physics Students (SPS) at the University of Akron
- **2008-2010:** President of the Astronomy Group at the University of Tehran