

Motasem ElGamel

Pittsburgh, PA

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Education

University of Pittsburgh

Physics - Ph.D. (expected 2025)

Advisor: Prof. Andrew Mugler.

2021 - Present

Pittsburgh, PA

University of Pittsburgh

Physics - M.Sc.

2019 - 2021

Pittsburgh, PA

University of Science and Technology at Zewail City

Physics - B.Sc. (Graduated Magna Cum Laude)

2015 - 2019

Giza, Egypt

Fellowships and Awards

Outstanding Presentation Award Pitt Grad Expo 2024

2024

Dietrich School of Arts and Sciences, University of Pittsburgh

- Awarded to the talk: “Clone size statistics of tumor-inhabiting bacteria”.

Andrew W. Mellon Predoctoral Fellowship

2023-2024

University of Pittsburgh

- Awarded school-wide to doctoral students of exceptional promise and ability across the disciplines.

Best Poster Award at the Physics of Life 2023 Conference, Harrogate, UK

2023

- Awarded to the poster presentation: “Effects of molecular noise on cell size control”.

Pitt Graduate and Professional Student Government (GPSG) Travel Grant

2023

University of Pittsburgh

Thomas-Lain Fund Scholarship Essay Competition

2023

Department of Physics and Astronomy, University of Pittsburgh

Competitive Programs

Finalist in the DBIO Early Career Prize Session

March 2024

APS March Meeting 2024

Minneapolis, MN

Les Houches Theoretical Biophysics Summer School 2023

July 2023

École de physique des Houches

Les Houches, France

NSF Center for the Physics of Biological Function - Physics of Life Symposium

November 2022

CUNY and Princeton University

New York City, NY

Publications

2. **M. ElGamel** and A. Mugler. Effects of molecular noise on cell size control. *Phys. Rev. Lett.*, 132:098403, 2024.

- Press release (link)

1. **M. ElGamel**, H. Vashistha, H. Salman, and A. Mugler. Multigenerational memory in bacterial size control. *Physical Review E*, 108(3):L032401, 2023.

Workshops and Schools

Les Houches Theoretical Biophysics Summer School 2023

July 2023

École de physique des Houches

Les Houches, France

NITMB Ecological Dynamics of Microbial Communities: New Approaches Workshop

May 2024

National Institute of Theory and Mathematics in Biology

Chicago, IL

Talks and Presentations

1. Invited talks

- The National Institute for Theory and Mathematics in Biology** **December 2024**
Invited talk: "Population dynamics and universal statistics of tumor-inhabiting bacteria" *Chicago, IL*
- Group meeting of Prof. Michael Stumpf (virtual)** **November 2024**
Invited talk: "Effects of molecular noise on cell size control" *The University of Melbourne, Australia*
- SIAM Conference on the Life Sciences 2024** **June 2024**
Invited talk: "Clone size statistics of tumor-inhabiting bacteria" *Portland, OR*

2. Competitively selected talks

- Gordon Research Conference and Seminar** **January 2025**
Selected talk and poster presentation: "Population dynamics and universal statistics of tumor-inhabiting bacteria". *Ventura, CA*
- APS March Meeting 2024** **March 2024**
Selected talk for DBIO Early Career Prize Session: "Clone size statistics of tumor-inhabiting bacteria". *Minneapolis, MN*
- Gordon Research Conference and Seminar** **January 2023**
Selected talk and poster presentation: "Effects of molecular noise on cell size control". *Ventura, CA*
- NSF Center for the Physics of Biological Function - Physics of Life Symposium** **November 2022**
Selected talk: "Theory of cell size homeostasis". *New York City, NY*
- The 2nd Biology for Physics Conference** **July 2022**
Selected talk: "Multigenerational memory in bacterial size control". *Barcelona, Spain*

3. Contributed, seminar, and poster presentations

- APS Global Physics Summit 2025** **March 2025**
Contributed talk: "Population dynamics and universal statistics of tumor-inhabiting bacteria". *Anaheim, CA*
- Pitt Biological Physics Day** **September 2024**
Poster presentation: "Population dynamics and universal statistics of tumor-inhabiting bacteria" *Pittsburgh, PA*
- NITMB Ecological Dynamics of Microbial Communities: New Approaches Workshop** **May 2024**
Lightning talk: "Clone size statistics of tumor-inhabiting bacteria" *Chicago, IL*
- University of Pittsburgh Grad Expo 2024** **March 2024**
Contributed talk: "Clone size statistics of tumor-inhabiting bacteria" *Pittsburgh, PA*
- Applied Math Seminar, Department of Mathematics, University of Pittsburgh** **March 2024**
Seminar: "Growth Dynamics of Tumor-Inhabiting Bacteria" *Pittsburgh, PA*
- Les Houches Theoretical Biophysics Summer School 2023** **July 2023**
Poster presentation: "Theory of noisy population growth in bacteria". *Les Houches, France*
- Physics of Life 2023 Conference** **March 2023**
Poster presentation: "Effects of molecular noise on cell size control". *Harrogate, UK*
- APS March Meeting 2023** **March 2023**
Contributed talk: "Adder minimizes cell size noise in bacteria". *Las Vegas, NV*
- APS March Meeting 2022** **March 2022**
Contributed talk: "Multigenerational memory in cell size homeostasis". *Chicago, IL*

Teaching Experience

Graduate Teaching Assistant

University of Pittsburgh

- PHYS 0110: Introduction to Physics 1.
- PHYS 0111: Introduction to Physics 2.
- PHYS 0174: Basic Physics for Science and Engineering 1.
- Lead recitations, held office hours, prepared quizzes, graded exams and wrote up homework solutions.

Undergraduate Junior Teaching Assistant

University of Science and Technology at Zewail City

- PHYS 101: Introduction to Physics 1.
- PEU 438: Compact Objects.

Mentoring, Outreach and Service

Journal Reviewer

- Reviewed articles for *Physical Review Letters*, *Physical Review E*, *Physical Review X Life*, *Physical Review X*, and *Springer's Bulletin of Mathematical Biology*.

Co-chair of the Stochastic Physics in Biology Gordon Research Seminar

January 2027

- Organizing the next Stochastic Physics in Biology Gordon Research Seminar in 2027.

Ventura, CA

Research Mentor

Department of Physics and Astronomy, University of Pittsburgh

- Mentored undergraduate students Jianan Zhao and Lucas Ribaldo* in research.

* Awarded the Emil Sanielevici Undergraduate Research Scholarship for his research on concentration-based cell size control in yeast.

Peer-Mentor in the Alumni Mentorship Program

Zewail City Alumni Association

- Mentored one undergraduate student.

Graduate Student Mentor

Department of Physics and Astronomy, University of Pittsburgh

- Mentored two incoming graduate students.

Lecturer at the 1st Zewail City Alumni Physics Winter School (virtual)

January 2025

University of Science and Technology at Zewail City

- *Lecture: "How Do Cells Navigate a Noisy Life?"*

Zewail City Science Festival

2016 - 2017

University of Science and Technology at Zewail City

- A public event that aims to deliver scientific concepts in a simplified manner to the public and spread the culture of science.
- Participated as an organizer, wrote a scientific talk for the public audience, and gave a mathematics talk.

Skills

Programming Languages: C++, Python, Matlab, Mathematica, LabVIEW.

Certificates: Neural Networks and Deep Learning ([link](#)).