

Motasem ElGamel

Pittsburgh, PA

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Education

University of Pittsburgh <i>Physics - Ph.D. (expected 2024)</i>	2021 - Present <i>Pittsburgh, PA</i>
University of Pittsburgh <i>Physics - M.Sc.</i>	2019 - 2021 <i>Pittsburgh, PA</i>
University of Science and Technology at Zewail City <i>Physics - B.Sc. (Graduated Magna Cum Laude)</i>	2015 - 2019 <i>Giza, Egypt</i>

Fellowships and Awards

Andrew W. Mellon Predoctoral Fellowship <i>University of Pittsburgh</i> <ul style="list-style-type: none">Awarded school-wide to doctoral students of exceptional promise and ability across the disciplines.	2023
Best Poster Award at Physics of Life 2023, Harrogate, UK <ul style="list-style-type: none">Awarded to the poster presentation: “Effects of molecular noise on cell size control”.	2023
Pitt GPSG Travel Grant <i>University of Pittsburgh</i>	2023
Thomas-Lain Scholarship Essay Competition <i>Department of Physics and Astronomy, University of Pittsburgh</i> <ul style="list-style-type: none">Awarded for excellence in scientific essay writing and judged by three faculty members.	2023

Publications

Submitted

2. **M. ElGamel** and A. Mugler. Effects of molecular noise on cell size control. *arXiv preprint arXiv:2303.15232*, 2023
1. **M. ElGamel**, H. Vashistha, H. Salman, and A. Mugler. Multigenerational memory in bacterial size control. *arXiv preprint arXiv:2206.05340*, 2022

Research Experience

Graduate Research Assistant (Advisor: Andrew Mugler, Ph.D.) <i>University of Pittsburgh</i> <ul style="list-style-type: none">Studying the effects of noise on bacterial growth on the single-cell level and population level.Project 1: Explaining the multi-generational size memory observed in Escherichia Coli. (publication 1)Project 2: Studying the effects of molecular noise on cell size control. (publication 2)Project 3: Studying the population growth dynamics of tumor-inhabiting bacteria subject to harsh environmental conditions.	Fall 2020 - Present
Undergraduate Thesis (Advisor: Ali Nassar, Ph.D.) <i>University of Science and Technology at Zewail City</i> <ul style="list-style-type: none">Explored the dynamics of the Ising model in 1 and 2 dimensions at criticality using analytical methods and simulations.	2018 - 2019
Research Work in High Energy Astrophysics (Advisor: Alaa Ibrahim, Ph.D.) <i>University of Science and Technology at Zewail City</i> <ul style="list-style-type: none">Analysed and interpreted the data of x-ray bursts emission activity in strong magnetic fields neutron stars using HEAsoft and IDL software and the data of NASA’s RXTE mission.	2017 - 2018

Talks and Presentations

Physics of Life 2023 Conference

Poster presentation: “Effects of molecular noise on cell size control”.

March 2023

Harrogate, UK

APS March Meeting 2023

Contributed talk: “Adder minimizes cell size noise in bacteria”.

March 2023

Las Vegas, NV

Gordon Research Conference and Seminar

Selected talk and poster: “Effects of molecular noise on cell size control”.

January 2023

Ventura, CA

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

Selected talk: “Theory of cell size homeostasis”.

November 2022

New York City

The 2nd Biology for Physics Conference

Selected talk: “Multigenerational memory in bacterial size control”.

July 2022

Barcelona, Spain

APS March Meeting 2022

Contributed talk: “Multigenerational memory in cell size homeostasis”.

March 2022

Chicago, IL

Workshops and Summer Schools

Les Houches Theoretical Biophysics Summer School 2023

École de physique des Houches

July 2023

Les Houches, France

Skills

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

Techniques: Monte Carlo, Stochastic Simulation Algorithm.

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 and Service

Undergraduate Research Mentor

Fall 2022 - Present

Department of Physics and Astronomy, University of Pittsburgh

- Mentored undergraduate student Jianan Zhao in research.

Peer-Mentor in the Alumni Mentorship Program

Fall 2021 - Spring 2023

Zewail City Alumni Association

- Mentored undergraduate student Mira Mohammed.

Graduate Student Mentor

Fall 2022 - Spring 2023

Department of Physics and Astronomy, University of Pittsburgh

- Mentored two incoming graduate students.

Head of Content Development of Educational Science Videos

Summer 2018 - Spring 2019

Zewail City Open Courseware (OCW)

- Helped build and design the scientific content of educational videos intended for the public.

Zewail City Science Festival

Summer 2016, Summer 2017

University of Science and Technology at Zewail City

- ZC Science Festival is a “conference for the public”. It 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.