Motasem ElGamel

Pittsburgh, PA
m.elgamel@pitt.edu | LinkedIn | Google Scholar | Website

Education

University of Pittsburgh **2021 - Present**
Physics - Ph.D. (expected 2025) *Pittsburgh, PA*

University of Pittsburgh **2019 - 2021**
Physics - M.Sc. *Pittsburgh, PA*

University of Science and Technology at Zewail City **2015 - 2019**
Physics - B.Sc. (Graduated Magna Cum Laude) *Giza, Egypt*

Fellowships and Awards

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 Physics of Life 2023, 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 Scholarship Essay Competition **2023**
Department of Physics and Astronomy, University of Pittsburgh
- Awarded for excellence in scientific essay writing and judged by three faculty members.

Publications

Submitted

2. **M. ElGamel** and A. Mugler. Effects of molecular noise on cell size control. *arXiv preprint arXiv:2303.15232*, 2023

Published

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

Research Experience

Graduate Research Assistant (Advisor: Andrew Mugler, Ph.D.) **Fall 2020 - Present**
University of Pittsburgh
- Studying the effects of noise on bacterial growth on the single-cell level and population level.

Undergraduate Thesis (Advisor: Ali Nassar, Ph.D.) **2018 - 2019**
University of Science and Technology at Zewail City
- Explored the dynamics of the Ising model in 1 and 2 dimensions at criticality using analytical methods and simulations.

Research Work in High Energy Astrophysics (Advisor: Alaa Ibrahim, Ph.D.) **2017 - 2018**
University of Science and Technology at Zewail City
- 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.

Workshops and Summer Schools

Les Houches Theoretical Biophysics Summer School 2023 **July 2023**
École de physique des Houches *Les Houches, France*
- Poster presentation: "Theory of noisy population growth in bacteria".
- Worked on assessing selection and coevolution in protein sequences as part of a group project.

Talks and Presentations

APS March Meeting 2024 **March 2024**
Selected talk for DBIO Early Career Prize Session: "Clone size statistics of tumor-inhabiting bacteria". *Minneapolis, MN*

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*

Gordon Research Conference and Seminar **January 2023**
Selected talk and poster: "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*

The 2nd Biology for Physics Conference **July 2022**
Selected talk: "Multigenerational memory in bacterial size control". *Barcelona, Spain*

APS March Meeting 2022 **March 2022**
Contributed talk: "Multigenerational memory in cell size homeostasis". *Chicago, IL*

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

Journal Reviewer

- Reviewed articles for *Physical Review E* and *Physical Review Letters*.

Undergraduate Research Mentor

Department of Physics and Astronomy, University of Pittsburgh

- Mentored undergraduate students Jianan Zhao and Lucas Ribaudo in research.

Peer-Mentor in the Alumni Mentorship Program

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.

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.