



Marcell Howard

Curriculum Vitae

PERSONAL DETAILS

Address 3941 OHara Street, Pittsburgh, PA 15260 USA
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EDUCATION

University of Pittsburgh, Pittsburgh, PA 2019 - Present
Ph.D., Physics

Case Western Reserve University, Cleveland, OH 2015 - 2019
B.S., Mathematics and Physics

RESEARCH EXPERIENCE

Graduate Research Assistant 2020 - Present
University of Pittsburgh advised by Arthur Kosowsky

Senior Honor's Thesis 2018 - 2019
Case Western Reserve University advised by Kurt Hinterbichler

Research Experience for Undergraduates Summer 2018
Rutgers, the State University of New Jersey advised by Andrew Baker

Research Experience for Undergraduates Summer 2017
Cornell University advised by Gordon Stacey

PUBLICATIONS

- Alexander, S., Daniel, T., Howard, M., & König, M. (2022, Nov). Exact fermionic chern-simons-kodama state in quantum gravity. *Phys. Rev. D*, 106, 106012. Retrieved from <https://link.aps.org/doi/10.1103/PhysRevD.106.106012> doi: 10.1103/PhysRevD.106.106012
- Howard, M., Kosowsky, A., & Valogiannis, G. (2022). *Galaxy cluster statistics in modified gravity cosmologies*. arXiv. Retrieved from <https://arxiv.org/abs/2205.13015> doi: 10.48550/ARXIV.2205.13015

CONFERENCE PROCEEDINGS

- Howard, M., Baker, A. J., & Wu, J. F. (2019, January). Probing the Evolution of Galaxies by Stacking Stellar Mass Selected Samples. In *American astronomical society meeting abstracts #233* (Vol. 233, p. 145.08).

TEACHING EXPERIENCE

Graduate Core Course Tutor

PHYS 1373 & 2373 (Combined section): Mathematical Methods in Physics

PHYS 2565: Non-Relativistic Quantum Mechanics 1

- Held two office hours per week.
- Provided homework help as well as furthered conceptual understanding of the material.

Graduate Teaching Assistant

PHYS 0111: Introduction to Physics 2

PHYS 0174: Basic Physics for Science and Engineering 1

PHYS 0175: Basic Physics for Science and Engineering 2

PHYS 0212: Introduction to Laboratory Physics

- Held two-four recitation sessions per week.
- Graded quizzes and tests.

Undergraduate Supplemental Instructor

MATH 121: Calculus for Scientists and Engineers I

MATH 122: Calculus for Scientists and Engineers II

- Held three small groups and one recitation session per week.
- Graded quizzes and tests.

Undergraduate Teaching Assistant

PHYS 121: General Physics I - Mechanics

PHYS 122: General Physics II - Electricity and Magnetism

- Graded written homework handed in every week.
- Handed out in class assignments and provided help to various students.

TALKS AND POSTER PRESENTATIONS

National Society of Black Physicists

Nov 2022

An Exact Fermionic Chern-Simons-Kodama State in Quantum Gravity

Contributed talk

Case Western Reserve University, Particle Astrophysics Seminar

Sep 2022

An Exact Fermionic Chern-Simons-Kodama State in Quantum Gravity

Invited talk

American Physical Society April Meeting 2022

Apr 2022

Galaxy Cluster Statistics in Modified Gravity Cosmologies

Contributed talk

Brown University

Mar 2022

Galaxy Cluster Statistics in Modified Gravity Cosmologies

Invited talk

National Society of Black Physicists

Nov 2021

Galaxy Cluster Statistics in Modified Gravity Cosmologies

Contributed talk

Case Western Reserve University

May 2019

The People vs Mimetic Gravity

Contributed poster and talk

American Astronomical Society Meeting (Seattle, WA)

Jan 2019

Probing the Evolution of Galaxies Using Stellar Mass Selected Samples

Contributed poster
Case Western Reserve University *Oct 2018*
Counting the Degrees of Freedom in Mimetic Gravity
 Contributed talk
Rutgers, the State University of New Jersey *Aug 2018*
Probing the Evolution of Galaxies Using Stellar Mass Selected Samples
 Contributed poster and talk
Cornell University *Aug 2017*
Using Far-Infrared Fine-Structure Lines for Characterizing the Star Formation Processes in Nearby Galaxies
 Contributed poster and talk

OUTREACH

Astronomy on Tap *Sept 2022*
Two Fray's Brewery
 Speaker
Cornell's Focus for Teens *Summer 2017*
Cornell University
 Workshop Leader

SKILLS

Programming Python, Mathematica, Matlab
Software SciPy/matplotlib, AstroPy, git

PROFESSIONAL ORGANIZATIONS

Pittsburgh Particle Astrophysics and Cosmology Center (PITT PACC) *2020 - Present*
National Society of Black Physicists *2018 - Present*

FELLOWSHIPS AND AWARDS

2021 Honorable Mention for the Ford Foundation Predoctoral Fellowship *2021*
Dietrich School of Arts and Sciences Summer Research Predoctoral Fellowship
2020
Kenneth P. Dietrich School of Arts & Sciences Fellowship *2019*
Hayden Scholarship *2017*
Gaemsslen Grant Fund *2017*

Case Alumni Scholarship

2017

University Scholarship

2015

CWRU Grant

2015