



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

Stephon Alexander, Tatsuya Daniel, Marcell Howard, and Morgane König. Exact fermionic chern-simons-kodama state in quantum gravity. *Phys. Rev. D*, 106:106012, Nov 2022

Marcell Howard, Arthur Kosowsky, and Georgios Valogiannis. Galaxy cluster statistics in modified gravity cosmologies, 2022

CONFERENCE PROCEEDINGS

Marcell Howard and Arthur Kosowsky. Galaxy Cluster Statistics in Modified Gravity Cosmologies. In *APS April Meeting Abstracts*, volume 2022 of *APS Meeting Abstracts*, page E16.007, April 2022

Marcell Howard, Andrew J. Baker, and John F. Wu. Probing the Evolution of Galaxies by Stacking Stellar Mass Selected Samples. In *American Astronomical Society Meeting Abstracts*

TEACHING EXPERIENCE

Graduate Core Course Tutor

PHYS 2565: Non-Relativistic Quantum Mechanics 1

PHYS 2566: Non-Relativistic Quantum Mechanics 2

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

- 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

Massachusetts Institute of Technology, String Theory Group Meeting <i>An Exact Fermionic Chern-Simons-Kodama State in Quantum Gravity</i> Invited talk	<i>Feb 2023</i>
National Society of Black Physicists Conference <i>An Exact Fermionic Chern-Simons-Kodama State in Quantum Gravity</i> Contributed talk	<i>Nov 2022</i>
Case Western Reserve University, Particle Astrophysics Seminar <i>An Exact Fermionic Chern-Simons-Kodama State in Quantum Gravity</i> Invited talk	<i>Sep 2022</i>
University of Pittsburgh, Group Meeting <i>An Exact Fermionic Chern-Simons-Kodama State in Quantum Gravity</i> Contributed talk	<i>Sep 2022</i>
American Physical Society April Meeting 2022 <i>Galaxy Cluster Statistics in Modified Gravity Cosmologies</i> Contributed talk	<i>Apr 2022</i>
Brown University, Alexander Lab Group Meeting	<i>Mar 2022</i>

Galaxy Cluster Statistics in Modified Gravity Cosmologies

Invited talk

National Society of Black Physicists Conference

Nov 2021

Galaxy Cluster Statistics in Modified Gravity Cosmologies

Contributed talk

Case Western Reserve University, Final Senior Project

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, Senior Project Update

Oct 2018

Counting the Degrees of Freedom in Mimetic Gravity

Contributed talk

Rutgers, the State University of New Jersey, REU Presentation

Aug 2018

Probing the Evolution of Galaxies Using Stellar Mass Selected Samples

Contributed poster and talk

Cornell University, REU Presentation

Aug 2017

Using Far-Infrared Fine-Structure Lines for Characterizing the Star Formation Processes in Nearby Galaxies

Contributed poster and talk

OUTREACH

Seminar at High School (SAHS) and Pathway Career Speaker Series

Dec 2022

Woodland Hills High School

Invited speaker

Society of Physics Students Graduate Student Panel

Oct 2022

University of Pittsburgh

Panel contributor

Astronomy on Tap

Sept 2022

Two Fray's Brewery

Contributed presentation

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*