



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

PREDOCTORAL 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

SELECTED PUBLICATIONS

- T. Daniel, M. Howard and M. König, *An SZ-Like Effect on Cosmological Gravitational Wave Backgrounds*, *arXiv e-prints* (2023) arXiv:2308.00111 [2308.00111]
- S. Alexander, T. Daniel, M. Howard and M. König, *Exact fermionic Chern-Simons-Kodama state in quantum gravity*, *Phys. Rev. D* **106** (2022) 106012 [2207.11856]
- M. Howard, A. Kosowsky and G. Valogiannis, *Galaxy Cluster Statistics in Modified Gravity Cosmologies*, *arXiv e-prints* (2022) arXiv:2205.13015 [2205.13015]

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

28th International Symposium on Particles, Strings, and Cosmology (PASCOS)

June 2023

An SZ-Like Effect On Stochastic Gravitational Wave Backgrounds

Invited talk

Simons Center for Geometry and Physics, Ending Inflation and the Hot Big Bang Workshop

June 2023

An SZ-Like Effect On Stochastic Gravitational Wave Backgrounds

Invited talk

American Physical Society April Meeting 2023

Apr 2023

An SZ-Like Effect On Stochastic Gravitational Wave Backgrounds

Contributed talk

Pennsylvania State University, Neighborhood Workshop

Apr 2023

An SZ-Like Effect On Stochastic Gravitational Wave Backgrounds

Contributed talk

Massachusetts Institute of Technology, String Theory Group Meeting

Feb 2023

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

Invited talk

National Society of Black Physicists Conference

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

University of Pittsburgh, Group Meeting

Sep 2022

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

Contributed talk

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>Galaxy Cluster Statistics in Modified Gravity Cosmologies</i> Invited talk	<i>Mar 2022</i>
National Society of Black Physicists Conference <i>Galaxy Cluster Statistics in Modified Gravity Cosmologies</i> Contributed talk	<i>Nov 2021</i>
Case Western Reserve University, Final Senior Project <i>The People vs Mimetic Gravity</i> Contributed poster and talk	<i>May 2019</i>
American Astronomical Society Meeting (Seattle, WA) <i>Probing the Evolution of Galaxies Using Stellar Mass Selected Samples</i> Contributed poster	<i>Jan 2019</i>
Case Western Reserve University, Senior Project Update <i>Counting the Degrees of Freedom in Mimetic Gravity</i> Contributed talk	<i>Oct 2018</i>
Rutgers, the State University of New Jersey, REU Presentation <i>Probing the Evolution of Galaxies Using Stellar Mass Selected Samples</i> Contributed poster and talk	<i>Aug 2018</i>
Cornell University, REU Presentation <i>Using Far-Infrared Fine-Structure Lines for Characterizing the Star Formation Processes in Nearby Galaxies</i> Contributed poster and talk	<i>Aug 2017</i>

OUTREACH AND SERVICE

Python Boot Camp 2023: Functions and Modules <i>University of Pittsburgh</i> Volunteer Presenter	<i>May 2023</i>
Astronomy on Tap NYC <i>Pete's Candy Store</i> Invited talk	<i>May 2023</i>
International Baccalaureate Class Group Project <i>St Edward High School</i> Invited speaker	<i>Mar 2023</i>
Seminar at High School (SAHS) and Pathway Career Speaker Series <i>Woodland Hills High School</i> Invited speaker	<i>Dec 2022</i>
Society of Physics Students Graduate Student Panel <i>University of Pittsburgh</i> Panel contributor	<i>Oct 2022</i>
Astronomy on Tap <i>Two Fray's Brewery</i> Contributed talk	<i>Sept 2022</i>
Summer Seminar Series: So You Wanna Get Good At L^AT_EX <i>University of Pittsburgh</i> Contributed talk	<i>July 2022</i>
Cornell's Focus for Teens <i>Cornell University</i>	<i>Summer 2017</i>

Workshop Leader

SKILLS

<i>Programming</i>	Python, Mathematica, Matlab
<i>Languages</i>	
<i>Software</i>	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

Peter F.M. Koehler Pre-Doctoral Fellowship *2023*

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*