Mario L. Gutierrez Abed

Curriculum Vitae

Rochester, NY
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EMPLOYMENT

JUN 2021 – PRESENT (PT)

Center for Computational Relativity & Gravitation
Graduate Research Assistant

Currently conducting research on the initial data problem of black-hole systems. The algorithm I am developing would be the first(!) to tackle a system of more than two black holes.

JAN 2021 – MAY 2021 (PT)

Rochester Institute of Technology
Graduate Teaching Assistant

Graded calculus assignments and assisted on workshops.

OCT 2018 – JAN 2020 (PT)

Newcastle University
Marking Assistant

Marked scripts for undergraduate modules (Complex Analysis, Calculus of Variations & Partial Differential Equations).

JAN – JULY 2017 (PT)

Miami Dade College
Adjunct Faculty

Taught undergraduate-level mathematics (Algebra, Calculus & Ordinary Differential Equations). Students' feedback and evaluation were 100% positive!

FEB – JULY 2017 (PT)

Florida International University
Tutor of Mathematics & Physics

Tutored for both mathematics and physics courses (Algebra, Calculus, Real Analysis, Differential Equations, Electricity & Magnetism, etc ...). Students' satisfaction was high, as evident by the sheer number of students who looked for me to teach them.

PUBLICATIONS

Gutierrez M. L. & Ian G. Moss (2020). [Preprint] Bubble nucleation at zero and nonzero temperatures. arXiv:2006.06289v2.

Gutierrez M. L. (2020). [Submitted for review] Brief Overview of Numerical Relativity. Tutorials, Schools, and Workshops in the Mathematical Sciences. Einstein Equations: Physical and Mathematical Aspects of General Relativity. *Birkhäuser*.

TALKS/CONFERENCES

NOV 2019 — *"The Cauchy Problem of Numerical General Relativity."* Applied Mathematics Postgraduate Seminar, NEWCASTLE UNIVERSITY

EDUCATION

2020 – PRESENT — **Doctor of Philosophy**
Mathematical Modeling
Rochester Institute of Technology

2018 – 2020 — **Master of Philosophy**
Theoretical Cosmology
Newcastle University

2017 – 2018 — **Master of Science**
Mathematical Physics
University of Edinburgh

2009 – 2016 — **Bachelor & Masters**
CUM LAUDE HONOURS
Mathematics
City University of New York

INTERESTS

- SCIENTIFIC COMPUTING
- NUMERICAL RELATIVITY
- AI & MACHINE LEARNING
- SOFTWARE DEVELOPMENT

TECHNICAL SKILLS

ADVANCED — LaTeX, **git**, Linux, bash/zsh

INTERMEDIATE — C/C++, Python, Matlab, Docker, Mathematica

BEGINNER — C#, JAVA, SQL, HTML, CSS, JAVASCRIPT, React.js, Node.js

SPOKEN LANGUAGES

NATIVE — English, Spanish

INTERMEDIATE — Italian

AWARDS

2021-PRESENT — **NSF Grant**
National Science Foundation

2021-PRESENT — **Graduate Research Assistanship**
Rochester Institute of Technology

SPRING 2021 — **Graduate Teaching Assistanship**
Rochester Institute of Technology

JULY 2019	*"A Numerical Approach to General Relativity."* International Alpine School of Maths & Physics, DOMODOSSOLA, ITALY
JUNE 2019	*"A Numerical Approach to General Relativity."* Applied Mathematics Postgraduate Conference, NEWCASTLE UNIVERSITY
MARCH 2019	*"The* $3+1$ *Approach to Numerical Relativity."* Theoretical Cosmology Group Meeting, NEWCASTLE UNIVERSITY
NOV 2015	*"2D Topological Quantum Field Theories & Frobenius Algebras."* City University of New York Research Symposium, MACAULAY HONORS COLLEGE
AUG 2015	*"A Brief Introduction to Topological Quantum Field Theories."* Summer Program Presentation, OHIO STATE UNIVERSITY
APRIL 2014	Compact for Faculty & Diversity Annual Conference, ATLANTA, GA
OCT 2013	SACNAS Annual Conference. SAN ANTONIO, TX
AUG 2012	*"Spectral Classification System at the Near-IR Wavelengths."* Research Experience for Undergraduates Symposium, AMERICAN MUSEUM OF NATURAL HISTORY

2015-PRESENT	**Pi Mu Epsilon Member** *Pi Mu Epsilon* *(U.S. Honorary Mathematics Society)*
2018-2020	**NUORS Scholarship** *Newcastle University*
2019	**DomoSchool Fellowship** *International Alpine School of Mathematics & Physics*
2016	**Lao G. Simons Prize** *Hunter College Mathematics Dept.*
2016	**David & Sadie Klau Foundation Fellowship** *Hunter College*
2015 – 2016	**Balsam Scholarship** *Hunter College Mathematics Dept.*
2014 – 2016	**McNair Scholarship** *Hunter College*
2013 – 2015	**Hunter College Mother's Day Fellowship** *Hunter College*
2013 – 2014	**AstrocomNYC Scholarship** *American Museum of Natural History*
2013	**Hunter College Research Fellow** *Hunter College*
2012 – 2013	**SciMON Catalyst Scholarship** *Hunter College*