BIOGRAPHICAL SKETCH

Marcus DuPont
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(a) Education & Training

New York University	New York, NY	Physics	Ph.D., present
New York University	New York, NY	Physics	MPhil., 2023
Florida State University	Tallahassee, FL	Physics and Astrophysics	B.S., 2019

(b) Research & Professional Experience

Sep 2019 – present	Graduate Associate (advisor: Andrew MacFadyen), New York University
Jun 2023 – Aug 2023	Research Fellow, Max Planck Institute for Astrophysics
Aug 2016 – May 2019	Research Fellow, Florida State University
Jun 2019 – Aug 2019	Research Fellow, Center for Astrophysics | Harvard & Smithsonian
Jun 2018 – Aug 2018	Research Fellow, Center for Astrophysics | Harvard & Smithsonian
Jun 2017 – Aug 2017	Research Fellow, Center for Astrophysics | Harvard & Smithsonian

(c) Skills

Programming	CUDA, HIP, C++, C, Python
Web	HTML, CSS, LESS
Language	English, French, Haitian-Creole

(d) Publications

1. M. DuPont, C. Shen, and N. A. Murphy. Comparative Analysis of the Solar Wind: Modeling Charge State Distributions in the Heliosphere. *arXiv e-prints*, page arXiv:2012.12297, Dec. 2020.
2. M. DuPont and J. W. Murphy. Fundamental physical and resource requirements for a Martian magnetic shield. *International Journal of Astrobiology*, 20(3):215–222, June 2021.
3. M. DuPont, A. MacFadyen, and J. Zrake. Ellipsars: Ring-like Explosions from Flattened Stars. *ApJL*, 931(2):L16, June 2022.
4. M. DuPont, A. MacFadyen, and R. Sari. On The Theory of Ring Afterglows. *arXiv e-prints, accepted to ApJ*, page arXiv:2304.00044, Mar. 2023.
5. M. DuPont and A. MacFadyen. Stars Bisected by Relativistic Blades. *arXiv e-prints, submitted to ApJL*, page arXiv:2309.15347, Sept. 2023.

(e) Awards & Honors

Kavli Summer Program in Astrophysics	University of California, Santa Cruz	2023
James Arthur Graduate Associate Fellowship	New York University	2023
LSSTC Data Science Fellowship	LSSTC Data Science Fellowship Program	2022
Outstanding Graduate Student Instructor Award	New York University	2022
KITP Graduate Fellowship	Kavli Institute for Theoretical Physics	2022
James Arthur Graduate Associate Fellowship	New York University	2021
AAS Travel Grant	American Astronomical Society	2017
Silver Garland in Mathematics	The Ledger Media Group	2014

(f) Programs & Committees

National Society of Black Physicists	2020
American Astronomical Society	2017
American Physical Society	2017
Society of Physics Students	2016

(g) Invited Presentations

1. M. DuPont. Death Stars: Ring-explosions from flattened stars, 2022. CalTech: Theoretical AstroPhysics Including Relativity (TAPIR).
2. M. DuPont. Death Stars: Discerning Astrophysical Transients From Non-Conventional Explosion Geometries, 2023. Flatiron Institute: Center for Computational Astrophysics (CCA).

(h) Poster Presentations

1. M. DuPont, C. Shen, and N. Murphy. Comparative Study of the Solar Wind: Modeling Charge State Distributions in the Heliosphere. In *American Astronomical Society Meeting Abstracts #233*, volume 233 of *American Astronomical Society Meeting Abstracts*, page 359.04, Jan. 2019.
2. M. Dupont and A. Foster. Modeling Solar Atmospheric Phenomena with AtomDB and PyAtomDB. In *American Astronomical Society Meeting Abstracts #231*, volume 231 of *American Astronomical Society Meeting Abstracts*, page 338.06, Jan. 2018.

(i) Synergistic Activities

1. Popular Media
   - LinkNYC — Cosmic Curiosity, My research was featured throughout the entire city of New York through interactive visual kiosks showcasing images from my high-resolution simulations of exploding stars.
2. Teaching Assistant
   - FSU — Physics Problem Solving
     - Developed a curriculum that was focused around helping students build physics intuition by means of order-of-magnitude focused exercise
   - NYU — Computational Physics
     - Taught with a focus on signal processing, dynamics, and optimization techniques.
3. Mentor
   - FIRST Lego Robotics

  - Teach kids simple coding methods utilizing Arduino boards coupled with the `Scratch` build block programming scheme. These robots were then used in competition with other in-state institutions.
- STEM Scholarbotics
  - Help students virtually perform surgery using digital Davinci arm simulation programs to provide hands-on experience with cutting edge technology.