



# Karl A. Drlica-Wagner

**Graduate Institution:** Stanford University

**Graduate Discipline:** Astro-particle Physics

**Hometown:** New York, NY

**Relevant SC Research:** High Energy Physics

## Research Interest:

I am currently involved in attempts to detect dark matter signals from astrophysical sources using the Fermi Gamma-ray Space Telescope. Dark matter comprises ~85% of the mass of the Universe, yet we know very little about its fundamental nature. Should dark matter be composed of weakly interacting massive particles, it is possible that these particles could decay or annihilate into gamma-rays that are detectable with the Fermi Telescope. I am specifically interested in the searches for local Galactic dark matter substructures, such as dwarf spheroidal galaxies and dark matter satellites of our Milky Way Galaxy.

As a member of the Fermi LAT Collaboration, I am also heavily involved in improving the telescope's performance through modifications to the event reconstruction software. Recently, I have been focused on the event level analysis for the Fermi-LAT anticoincidence detector. In the past, I have worked with x-ray emission from clusters of galaxies, simulations of next-generation space-based gamma-ray detectors, and antibiotic resistance in bacteria.

## About Me:

I am a graduate student member of the Kavli Institute for Particle Astrophysics and Cosmology, a joint endeavor between Stanford University and SLAC National Accelerator Laboratory. My current research interests are in particle astrophysics, specifically addressing the fundamental nature of dark matter.

I have long been an amateur astronomer, and as an undergraduate at Washington University in St. Louis, I helped operate Crow Observatory for introductory astronomy classes. At Stanford University, I have enjoyed serving as a teaching assistant for courses on black holes, introductory modern physics, and intermediate electricity and magnetism. I have helped to organize the Meeting of Astrophysics Students at Stanford, a group that brings together graduate students in various fields of astrophysics, and the SLAC Association for Student Seminars, where SLAC graduate students meet to discuss research topics.

I am heavily involved in competitive intercollegiate and club ultimate Frisbee. I have played for both Washington University in St. Louis and Stanford University. In 2009, I helped Stanford's

team reach the semi-finals of the collegiate national championships. I am currently the founder and captain of a San Francisco Bay Area club team.

I plan to continue my research in astrophysics as a career, ideally in a university setting where I would continue to have the opportunity to influence future generations of astronomers and physicists.



U.S. DEPARTMENT OF  
**ENERGY**

Office of  
Science