Investigating the Basic Building Blocks of the Universe

Daniel Whiteson
Associate Professor, Physics & Astronomy, University of California, Irvine

CURRENT RESEARCH

Uncovering dark matter and cosmic rays using the Large Hadron Collider and smart phones

Consider the life of an explorer in the 1400's when little was known about our planet. With tools we would now consider archaic, they discovered new continents, navigated raging seas, and encountered animal species that couldn't have been dreamt of. Similarly, scientists today are exploring the basic building blocks of the Universe around us.

One tool scientists use that has proven to shed light on the mysteries of the Universe is the Large Hadron Collider (LHC) at CERN. The collider allows exploration at the smallest scale by creating head-on collisions of protons of extraordinarily high energy in order to learn about the basic forces that have shaped our Universe. Therefore, much like the explorers of our past, scientists today have begun to forge a new frontier relying on their curiosities and the promise of understanding our Universe.

Dr. Daniel Whiteson, at the University of California, Irvine, is part of the ATLAS collaboration which built, maintains, and collects data from the ATLAS experiment at the Large Hadron Collider, where the Higgs boson was recently discovered. Dr. Whiteson's research uses the LHC to investigate the basic building blocks of the Universe around us, hoping to find new kinds of particles or interactions and reveal a deeper and simpler layer underlying our reality.

Dr. Whiteson is currently working on two major projects:

- Dark Matter: Scientists know that dark matter exists. But, they know very little else about it. What is it made of? Does it have interesting interactions, possibly even new kinds of dark-matter physics, chemistry or biology? Using the Large Hadron Collider, Dr. Whiteson...

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AFFILIATION

University of California, Irvine

EDUCATION

- Ph.D. in Physics 2003 ,University of California, Berkeley
- B.A. in Physics & Computer Science 1997 ,Rice University

AWARDS

- UC Irvine Cheancellor's Award for Excellence in Undertgraduate Research Supervisor
- Alfred P. Sloan Foundation Fellow, 2010
- DOE Outstanding Junior Investigator, 2007
- Fullbright Fellow, 1997 Niels Bohr Institute, Denmark

RESEARCH AREAS

Environment, Atmospheric / Space, Space

FUNDING REQUEST

Your contributions will aid Dr. Whiteson's unprecedented continued research in understanding dark matter, and detecting cosmic rays with smart phones. Through the support of his research, you will be a part of forging the frontier in scientific discovery. His research could impact our conception of what makes up the world and how that matter works. Donations will be used to fund the costs of personnel that are able to analyze the torrent of data from existing and future applications.