



SCHOOL OF NATURAL SCIENCES PHYSICS COLLOQUIUM 293

**Exploring the Building Blocks of Nature using Particle Collisions
with the ATLAS Detector and the Large Hadron Collider at
CERN**

Date: 3/10/17

Time: 10:30 AM

Location: COB 267

For more information contact:

Carrie Menke; cmenke@ucmerced.edu

Dr. Joshua Moss

Assistant Professor of Physics

California State University, Sacramento

ABSTRACT

Since operations began in 2010, the Large Hadron Collider (LHC) has been colliding protons at the highest energies reached in a man-made environment. The ATLAS detector at CERN is situated around one of LHC's 4 collision points and is measuring the products of these interactions to explore the properties of the universe at the smallest length scales. The fundamental constituents of matter and the forces that allow them to interact are being investigated along with additional questions about the origin of mass, the nature of dark matter, the lack of antimatter in the universe and many more. In the spring of 2017, the LHC will restart its physics program after the winter break and provide proton collisions at a center-of-mass energy of 13 TeV at the highest rates yet achieved. This talk will discuss the goals of particle physics, the tools that are used to make the measurements, and recent results from the ATLAS Experiment.

BIO:



Joshua Moss joined the physics faculty at the California State University, Sacramento as an Assistant Professor in 2014. Since 2007, he has been a member of the ATLAS Experiment (RD42 Collaboration). On July 4, 2012 the ATLAS and CMS experiments of the Large Hadron Collider (LHC) at CERN announced the first observation of the Higgs Boson. Dr. Moss is an expert in high-energy particle physics detector R&D, including experiment construction, management commissioning, and data analysis. He specializes in radiation hard, low noise and high reliability detection systems. He earned a B.S. in Chemistry from Hiram College in 1999, his Ph.D. in Physics from the College of William and Mary in 2007, and then started as a Post-Doctoral researcher at the Ohio State University.