

PHYSICS  
COLLEGE OF ARTS AND SCIENCES

SUMMER RESEARCH OPPORTUNITIES FOR UNDERGRADUATE WOMEN

FOR APPLICATION YEAR: 2021

PROJECT TITLE: Applications of Machine Learning in High Energy Physics

Michael D Sokoloff  
Professor of Physics  
411 Geology/Physics Building  
Cincinnati, OH 45221

**Project Description**

The student will work with a cross-disciplinary team of experimental high energy physicists and computer scientists that is developing machine learning algorithms for the LHCb experiment at CERN to replace some of the computationally expensive parts of the event pattern recognition algorithms and increase the performance of event-classification algorithms. The student should have (at least) some Python programming experience, be comfortable with multidimensional calculus, and have some college-level experience with probability and statistics. Knowledge of physics at the level of the freshmen-level calculus-based course will be useful, but is not necessary.