

WoPhys 2021 Conference presents:

Colliding Worlds

PRESENTED BY
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THURSDAY
OCTOBER 21
3:30 PM
NEBRASKA
CHAMPIONS
CLUB

Refreshments will be served at 3:10pm

ABSTRACT

The astrophysical evidence for dark matter and the profound questions in particle physics that were highlighted by the discovery of the Higgs boson suggests that new fundamental particles and interactions are awaiting discovery. The Large Hadron Collider (LHC), the world's most energetic particle accelerator at the European Organization for Nuclear Research (CERN) in Switzerland, is providing a wealth of high energy collision data that makes it possible to search for evidence of new physics phenomena. Over the past few years, my group has used the data collected by the Compact Muon Solenoid detector to search for new particles by using top quarks and Higgs bosons. Through detector developments and machine learning techniques, we have severely constrained prevailing notions of how natural solutions to Higgs mass hierarchy and dark matter can manifest themselves experimentally. I will talk about my ongoing journey towards understanding the fundamental components of our universe and discuss opportunities for student involvement in our quest to find new physics phenomena.

