Physicists Department  
The University of Texas at Arlington  
Colloquium  

Entering a new world through the Higgs portal  

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Monday September 17, 2018  
3:00 p.m. Room 101 Science Hall  

Abstract  
The discovery of the Higgs boson at CERN LHC in 2012 marks one of the biggest triumphs of the breath-taking particle physics of the past century. This discovery is exceptionally challenging and is only possible through the joint efforts between the experimentalists and theorists, resulting in many awards in both communities, including the Nobel Prize 2013, Break-Through Prize 2012, EPS-awards 2013, APS-awards such as Panofsky Prize 2017, Sakurai Prize 2010/2017. These ceremonies did not mark a closure but the opening of an exciting era for particle physics associated with the Higgs boson. The Higgs boson substantiates many fundamental physics questions and could play a unique role in solving some of the most mysterious puzzles of nature. In this colloquium, I will first discuss a brief history and physics of the basic Higgs boson, followed by its connections to puzzles of nature. The Higgs boson is likely to be a portal to new and secluded quantum chromodynamics, quantum electrodynamics, sterile neutrinos to solve the myth of dark matter, neutrino mass, and so on. These exciting new physics will be tested at the current and future programs including the hadron colliders such as LHC, lepton colliders such as ILC, neutrino experiments such as DUNE, and many more.  

Refreshments will be served at 2:30 p.m. in the Physics Lounge