



Contribution ID: 20

Type: parallel talk

Separating Dijet Resonances using the Coloron Discriminant Variable at LHC

Monday 4 May 2015 17:00 (15 minutes)

An exciting possibility for the upcoming 14 TeV run of the LHC is that a new strongly-coupled resonance decaying to dijets could be discovered. Once the resonance is detected, the immediate questions will be about the nature of the particle: is it colored? is it a vector, fermion, or scalar? This talk reviews the LHC discovery reach for a variety of dijet resonances and discusses a strategy for measuring the newly discovered state's properties. The method relies on the color discriminant variable, which can be readily determined at the LHC from the measurements of the di-jet signal cross section, the resonance mass and the resonance width. We discuss the ability of this method to distinguish between a $q\bar{q}$ excited quark resonance, a $q\bar{q}$ coloron, a $q\bar{q}$ Z' , and a $g\bar{g}$ color-octet scalar.

Primary author: Prof. SIMMONS, Elizabeth (Michigan State University)

Co-authors: VIGNAROLI, Natascia (Michigan State University); ITTISAMAI, Pawin (Michigan State University); CHIVUKULA, R. Sekhar (Michigan State University)

Presenter: Prof. SIMMONS, Elizabeth (Michigan State University)

Session Classification: BSM II