XXVIII International Workshop on Deep Inelastic Scattering and Related Subjects



Contribution ID: 167

Type: Contributed Talk

Constraints on anomalous quartic gauge couplings at the LHC

Tuesday, 24 March 2020 14:30 (30 minutes)

Most hard scattering processes at the LHC lead to breakup of the proton because of the single-parton exchange of the proton. However, since the proton is an electrically charged object, quasireal photon-exchange interactions can also take place. Since photons are color-singlet, sometimes the protons remain intact after the interaction, and these can be detected with forward proton detectors close to the beamline. These interactions open the possibility of studying electromagnetic interactions in energies never explored before. In this presentation, the discovery potential of anomalous quartic gauge couplings in photon-induced reactions at the LHC will be discussed. Special attention is given to constraints on quartic four-photon couplings induced by axion-like particles coupled to the electromagnetic field, which can be probed in the scattering of light-by-light at the LHC, and more generally on studies of yyyy, yyyZ, yyWW, and yyZZ anomalous quartic couplings.

Primary authors: BALDENEGRO BARRERA, Cristian (University of Kansas); ROYON, Christophe (University of Kansas); WILLIAMS, Justin (The University of Kansas)

Presenter: WILLIAMS, Justin (The University of Kansas)

Session Classification: Electroweak Physics and Beyond the Standard Model

Track Classification: Electroweak Physics and Beyond the Standard Model