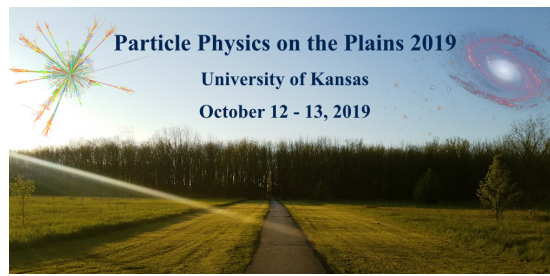


Particle Physics on the Plains 2019



Contribution ID: 11

Type: **not specified**

The Di-Higgs Photography with Deep Neural Networks

Saturday 12 October 2019 16:10 (20 minutes)

We search for a hint of new physics concealed in the structure of the Standard Model (SM) via double Higgs production. Focusing on a relatively overlooked $bbWW^*$ final state, we portray the full final state by treating a detector as a camera, and the streams of jets and leptons as images. We adopt various deep neural networks (DNN), which efficiently exploit the correlations among the images, to disentangle the SM Di-Higgs images of anomalous Higgs self-coupling from the SM backgrounds. The proposed method has a potential to improve the precise measurement of the Higgs self-coupling, and has a wide applicability to disentangle the higher dimensional operators in the effective field theories (EFT).

Authors: KIM, Jeong Han (University of Kansas); Mr KIM, Minho (POSTECH & Seoul Natl. U.); KONG, K.C. (University of Kansas); Prof. MATCHEV, Konstantin (University of Florida); Prof. PARK, Myeonghun (Seoul Natl. U.)

Presenter: KIM, Jeong Han (University of Kansas)

Session Classification: Higgs