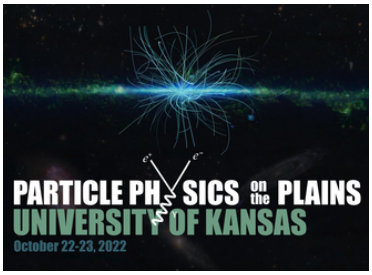

Contribution ID: **39** Type: **not specified**

NLO Multijet Merging for Higgs Production Beyond the VBF Approximation, Part II

Saturday 22 October 2022 12:05 (20 minutes)

About ten years ago, the ATLAS and CMS collaborations at the Large Hadron Collider (LHC) announced a landmark discovery in particle physics, the discovery of the Higgs boson predicted by the Standard Model. The Higgs production through vector boson fusion (VBF) process plays a key role in the precision measurements of properties of the Higgs boson. We present an investigation of the NLO multijet merging and matching results that employ the general purpose Monte Carlo event generator Herwig 7. In part I of this talk, Dr. Figy will present the full calculation results using the HJets library for 2-> h+n amplitudes where n=2,3,4 at tree level and n=2,3 at one-loop. The NLO merging predictions are compared to the NLO plus parton shower (NLOPS) predictions. I will perform comparison results of the full calculations and approximate calculations using VBFNLO with different selection criteria. This talk is based on the paper Eur.Phys.J.C 82 (2022) 8, 704.

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Session Classification: Session 2