



SPeCial4Young

SYSU-PKU Collider physics forum For Young scientists



中山-北大联合高能物理青年论坛第五期

自希格斯玻色子发现后，标准模型预言的粒子都已被找到。然而近些年来，在实验中发现越来越多与标准模型不符合的迹象，例如中微子质量、轻子味道普适性破坏以及CDF实验测量W玻色子质量反常等问题。这些“乌云”催促我们去寻找标准模型之外的新物理。高能物理界提出了各种不同的未来实验项目，例如基于LHC对撞机的升级计划（HL-LHC、HE-LHC）、未来环形对撞机（FCC、SPPC）、国际直线对撞机（ILC）、紧凑型直线对撞机（CLIC）、环形正负电子对撞机（CEPC）、缪子对撞机（MuC）、电子-缪子乃至电子-中微子对撞机等。

本论坛目的在于为高能物理工作者提供平台交流其在高能物理前沿的进展与经验，包括但不限于对撞机技术、软件模拟、物理分析等，同时也为高年级本科生及研究生提供接触高能物理前沿的机会。

报告题目: Improved asymptotic formulae and its application to the DiHiggs search

摘要: Asymptotic formulae to describe the probability distribution of the test statistics are widely used to interpretate the experimental results in High Energy Physics. They work well in the large sample limit. In this talk, I will provide a simple idea to improve them. Imagining we are doing pseudo experiments, if the number of observed events is very small, we can calculate the possible values of the test statistic explicitly; otherwise, we can choose to use the asymptotic formulae. The new formulae are able to describe the bump structures very well in the low-statistics cases. An application in the DiHiggs search will be presented.



报告人简介: Ligang Xia, completed PhD project at BESIII experiment in Tsinghua University (2015), then moved to the ATLAS experiment and focus on the studies of the Higgs boson properties and new physics searches. A PostDoc in Tsinghua University (2015-2018) and research fellow in Warwick University (2018-2020). Now is a research faculty in Nanjing University (2021-now), with a strong interest in solving problems and have a number of publications in several areas (experimental/phenomenological physics, data analysis and machine learning).

时间: 6月8日 周三 19:00 ---19:30, 线上

会议ID: Meeting ID: 487 887 1035 (Zoom)

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Indico:<https://indico.ihep.ac.cn/event/16749/>

Meeting link: <https://cern.zoom.us/j/4878871035?pwd=SjJuekR3cnBueUx3Y1pvUzl6QkZNUt09>

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