SPeCial4Young

# SYSU-PKU Collider physics forum For Young scientists

## 中山-北大联合高能物理青年论坛第五十一期

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：Neutrinoless double beta decay – the physics that matters**

**摘要：** Neutrinoless double beta decay is a hypothesised process in which two beta decays happen simultaneously with no neutrino emission. The process violates the lepton number conservation; thus it is forbidden in the Standard Model and could provide one possible explanation of the matter–antimatter asymmetry. Observation of this decay would not only allow us to measure the absolute neutrino mass, but more importantly to establish the Dirac/Majorana nature of neutrinos. Many experiments using different techniques are designed and constructed all over the world aiming to search for this rare decay and provide the smoking gun evidence of the Majorana neutrino. I will give an overview of the neutrinoless double beta decay experiments, and then I will discuss the ultra-low background techniques that I have developed for neutrinoless double beta decay experiments

**报告人简介：** 谢芳， worked on SuperNEMO neutrinoless double beta decay experiments during my PhD at UCL. After graduation, I moved to the University of Sussex as an STFC postdoctoral research fellow. I am currently doing postdoctoral research on CUORE & CUPID at Fudan University. I also worked on other low-background experiments such as DUNE, and the dark matter hunting experiment LZ.

Indico: https://indico.ihep.ac.cn/event/20661/

**时间：** 10月25日 周三 17：30 ---18：00，线上

**会议ID：** 677 0508 2266（Zoom） Passcode：123456

Meeting link: https://cern.zoom.us/j/67705082266?pwd=RWx4RjBOUXZ0VFdZbVZvS2ZQcmJqQT09

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