



SpeCial4Young

SYSU-PKU Collider physics forum For Young scientists



中山-北大联合高能物理青年论坛第七期

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: Multi Calorimetry in Liquid Scintillator Neutrino Detector

摘要: Liquid scintillator detectors have played indispensable roles in neutrino physics, including neutrino discovery, reactor neutrino oscillation, solar neutrino, etc. To this day, liquid scintillator remains one of the most widely used neutrino detection technology along various developments. With decades of accumulation of neutrino oscillation knowledge, the neutrino oscillation measurement has entered into a high precision era, thus huge detector with precise systematics control is required, e.g. JUNO detector. The calorimetric aspect, i.e. energy measurement, is of great importance for achieving high measurement. From the most direct calorimetric observable, i.e. readout charge, point of view, previous liquid scintillator detectors are single calorimetry, either “charge integration” calorimetry or “light counting” calorimetry. Integration calorimetry is dominant for large scale detectors, however its systematics control is challenging, particularly for future huge detectors like JUNO. The multi calorimetry design enables both integration calorimetry and robust counting calorimetry. The synergy between the two calorimetries enables the breakdown and high precision control of systematic effects, thus helping achieving high precision neutrino oscillation measurement. This talk will cover the basic concept and principle of multi calorimetry.



报告人简介: 韩阳，2020年博士毕业于巴黎大学(University of Paris, IJCLab 和 APC实验室)。博士论文获江门中微子实验最佳博士论文奖。2021年通过博士后国际引进计划，在中山大学从事博士后研究，主要研究领域为中微子振荡，参与江门和大亚湾中微子实验，研究内容包括中微子振荡参数的精确测量、探测器响应刻度和事例重建等。

时间: 6月29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/16916/>

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

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