

## Lumical Detector Design and Reconstruction Algorithm

Lumical 是 CEPC 的亮度探测器 Y 用于探测朝前区小角度散射的正负电子 Y 在这个 poster 中我们将会介绍我们对 Lumical 探测器的几何设计方案 Y 以及通过 bhabha 事例的产生子模拟校正的重建算法设计同时 Y 对称的正负 z 轴探测器也可以进一步提高重建算法精度我们希望通过这样的设计 Y 使得 Lumical 的精度能够达到 0.01% 以上通过设计一款这样的高精度 Lumical 探测器 Y 希望能够有助于确定对撞机的综合光度准确的光度数据对于研究电弱过程测试标准模型和探索潜在的新物理至关重要 Y 使 Lumical 成为 CEPC 中电弱点精确物理研究的重要组成部分。

Lumical is a luminosity detector of CEPC Y used to detect positive and negative electrons scattered at small angles in the forward region. In this poster, we will introduce our geometric design scheme for Lumical detectors, as well as the reconstruction algorithm design based on simulating the generation of bhabha events as the correction. Meanwhile, symmetrical positive and negative z-axis detectors can further improve the accuracy of reconstruction algorithms. We hope that through this design, Lumical's accuracy can reach over 0.01%. By designing such a high-precision Lumical detector, it is hoped that it can help determine the comprehensive luminosity of the collider. Accurate luminosity data are critical for studying electroweak processes, testing the Standard Model, and exploring potential new physics, making Lumical an indispensable component for precise physics study of electrical weak points in CEPC.

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