Supplementary material for LHCb-PAPER-2021-001
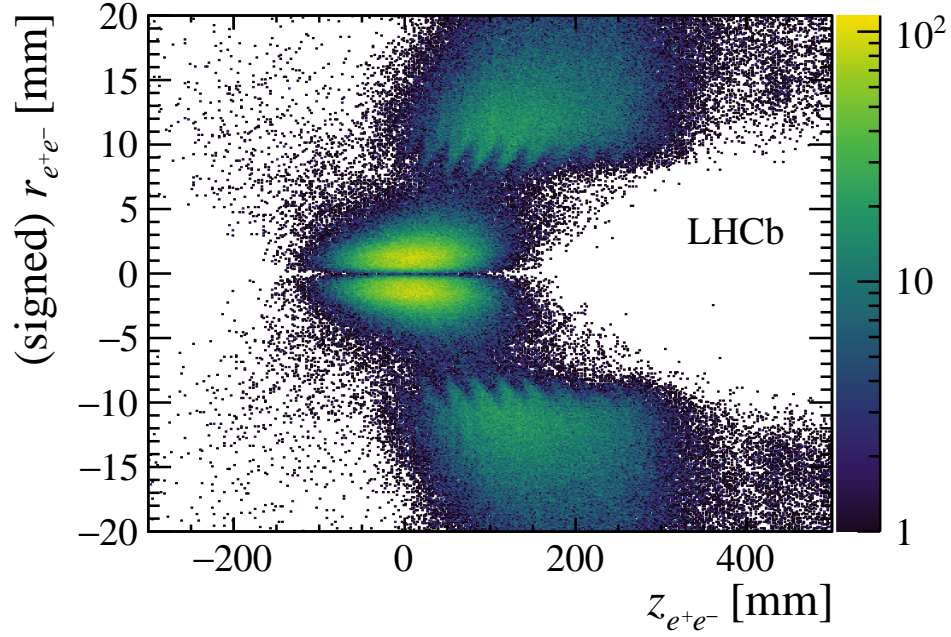

Figure 1: Distribution of e^+e^- vertices in $D^+ \to \pi^+\eta$ candidates in the rz plane integrated over the azimuthal angle, where a positive (negative) value of r denotes a vertex with $x > 0$ ($x < 0$). The coordinate system is defined such that z is along the beam axis, with positive z denoting the direction from the pp-interaction point into the LHCb detector; y is vertical upwards; and x is horizontal and defined such that the coordinate system is right handed. The contributions from three-body $\eta \to e^+e^-\gamma$ decays form the two regions in the centre, whilst $\eta \to \gamma\gamma$ decays followed by a photon conversion form regions at larger $|r_{e^+e^-}|$ where the material surrounding the pp interaction point is located.
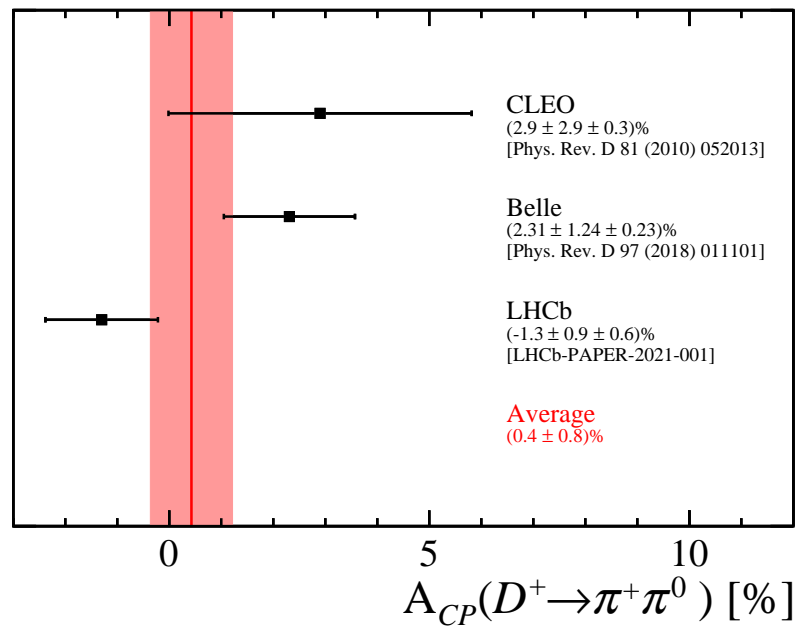
CLEO
(2.9 ± 2.9 ± 0.3)%
[Phys. Rev. D 81 (2010) 052013]

Belle
(2.31 ± 1.24 ± 0.23)%
[Phys. Rev. D 97 (2018) 011101]

LHCb
(-1.3 ± 0.9 ± 0.6)%
[LHCb-PAPER-2021-001]

Average
(0.4 ± 0.8)%

$A_{CP}(D^+ \to \pi^+ \pi^0)$ [%]

Figure 2: Compilation of different measurements of $\mathcal{A}_{CP}(D^+ \to \pi^+\pi^0)$, along with a weighted average of the listed results.