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To cite this article: I. Smiljanic *et al* 2022 *JINST* **17** E12001

View the article online for updates and enhancements.

Erratum: Systematic uncertainties in integrated luminosity measurement at CEPC

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ABSTRACT: The very forward region is one of the most challenging regions to instrument at a future e^+e^- collider. At CEPC, machine-detector interface includes, among others, a calorimeter dedicated for precision measurement of the integrated luminosity at a per mill level or better. Here we review a feasibility of such precision, from the point of view of systematic effects arising from luminometer mechanical precision and positioning, beam-related requirements and physics background from two-photon processes. The impact of the beam energy spread and its uncertainty on the integrated luminosity precision is also discussed, as well as the achievable beam energy spread precision with the post-CDR CEPC beams.

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During the manuscript preparation, figure 6 in section 4.1 is left with the wrong legend, as well as the caption. Please find the correction below.
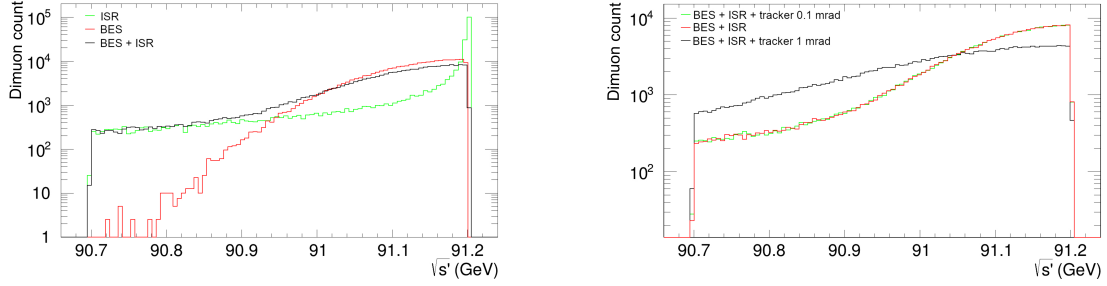
4.1 Method of the beam energy spread determination

Figure 6. Count of di-muon events versus the effective CM energy (top part of the spectrum) at the Z^0 pole. BES is the dominant effect to reduce the number of events at the maximal CM energy (left); $\sqrt{s'}$ sensitivity to the BES with finite central tracker resolution (right).