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Systematic uncertainties in integrated luminosity measurement at CEPC

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The very forward region is one of the most challenging regions to instrument at a future $e+e-$ collider. Machine-detector interface at CEPC will include a calorimeter dedicated for precision measurement of the integrated luminosity at a permill level or better. We discuss 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. Additionally, a method of the beam energy spread determination, initially proposed for FCC, is discussed for the CEPC beams, as well as the impact of beam energy spread on integrated luminosity determination and the precision of electroweak observables measurement at the Z^0 pole.

Primary author: SMILJANIĆ, Ivan (Vinča Institute of Nuclear Sciences, University of Belgrade)

Co-authors: Dr BOZOVIĆ JELISAVČIĆ, Ivanka (Vinča Institute of Nuclear Sciences, University of Belgrade); KACAREVIC, Goran (Vinča Institute of Nuclear Sciences, University of Belgrade); VIDA KOVIĆ, Ivana (Vinča Institute of Nuclear Sciences, University of Belgrade); Dr REKOVIĆ, Vladimir (Vinča Institute of Nuclear Sciences, University of Belgrade)

Presenter: SMILJANIĆ, Ivan (Vinča Institute of Nuclear Sciences, University of Belgrade)

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