

XXVIII International Workshop on Deep-Inelastic Scattering and Related Subjects



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Extreme photon interactions – precise luminosity measurement and photoproduction tagging at the Electron-Ion Collider

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The electron-ion bremsstrahlung will serve for a fast and precise luminosity measurement at the EIC. This process however, due to its long-range nature, has very unique properties which need to be carefully studied [1]. In particular, at high energies it involves the so-called beam-size effect which will be significantly amplified at the EIC. In addition, large fluxes of the coherent bremsstrahlung will have to be dealt with. I will present the proposed technique to cope with these challenges, which involves both dedicated zero-degree photon detectors as well as very forward electron detectors [2]. The latter will serve also as the photoproduction taggers at the EIC. I will discuss experimental aspects of the tagging and its relation to the bremsstrahlung measurements.

[1] <https://journals.aps.org/prd/accepted/4b076Y23Le31d5653874983017e7499fdce5694d2> <https://arxiv.org/abs/2011.11591>

[2] K. Piotrkowski, a paper in writing.

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