

DIS2023: XXX International Workshop on Deep-Inelastic Scattering and Related Subjects



Contribution ID: 207

Type: **Parallel talk**

Problems with the Good-Walker paradigm for photoproduction of vector mesons

Thursday, 30 March 2023 14:20 (20 minutes)

The Good-Walker paradigm is widely used for studying ultra-peripheral collisions (UPCs) and underlies much of the exclusive photoproduction/electroproduction program at the future electron-ion collider (EIC). It relates the cross-section for coherent photoproduction, $d\sigma/dt$ to the transverse distribution of scattering centers in a target, and ties the incoherent cross-section to fluctuations of the target configuration, including gluonic hotspots. In this talk, I will present examples where the Good-Walker approach clearly fails, and compare the predictions with a semi-classical approach. I will explain why it fails, and show that the problem is general, including both UPCs and an EIC. I will discuss some possible expansions that will allow it to work in UPCs and at an EIC.

Submitted on behalf of a Collaboration?

No

Participate in poster competition?

Primary author: KLEIN, Spencer Robert (Lawrence Berkeley National Lab. (US))

Presenter: KLEIN, Spencer Robert (Lawrence Berkeley National Lab. (US))

Session Classification: WG2

Track Classification: WG2: Small-x, Diffraction and Vector Mesons