DDVCS Count rate

➤ Experimental observables

Cross Section

$E = 11$ GeV $x_B = 0.15$ $Q^2 = 2.5$ $(GeV/c^2)^2$
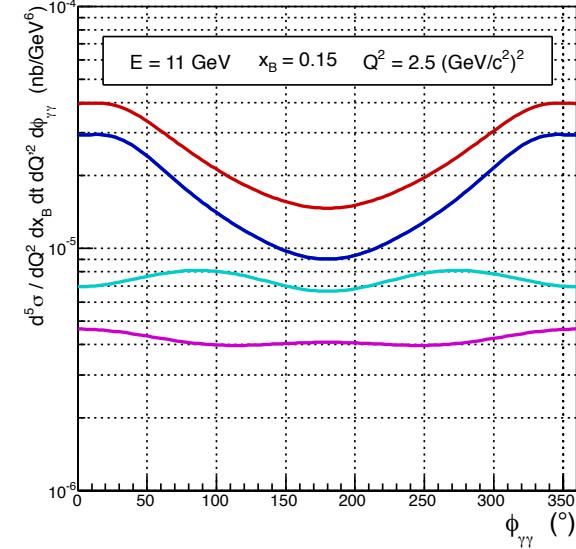
### Beam Spin Asymmetry

$Q'^2 = 1.5$ $(GeV/c^2)^2$ $t = -0.5$ $(GeV/c^2)^2$
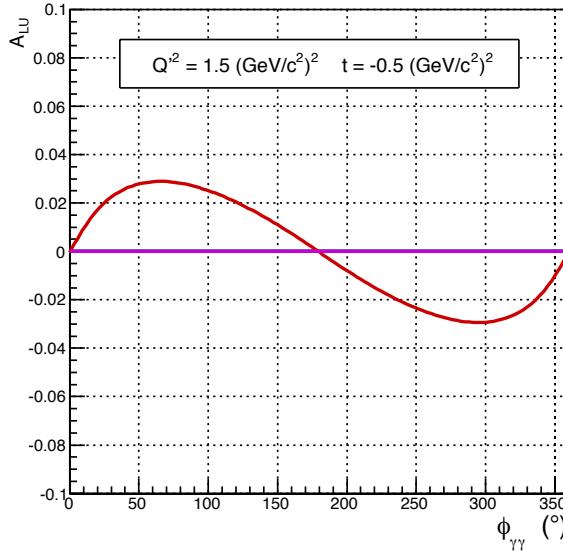
Target Spin Asymmetry

$|BH_1|^2$
$|BH_2|^2$
$|BH_1+BH_2|^2$
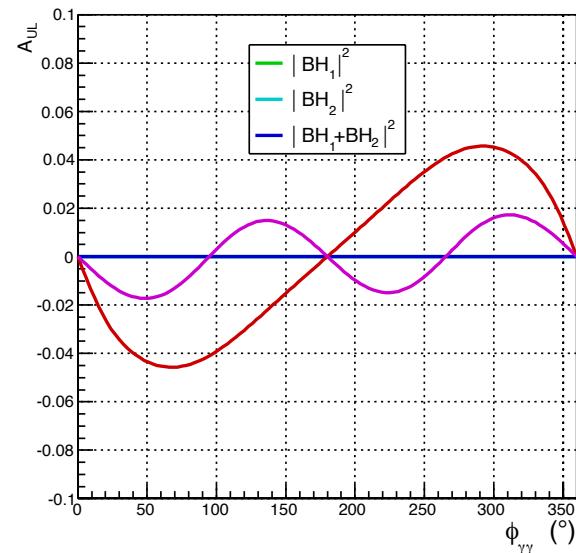
Double Spin Asymmetry

$|DDVCS|^2$
$|DDVCS+BH_1+BH_2|^2$
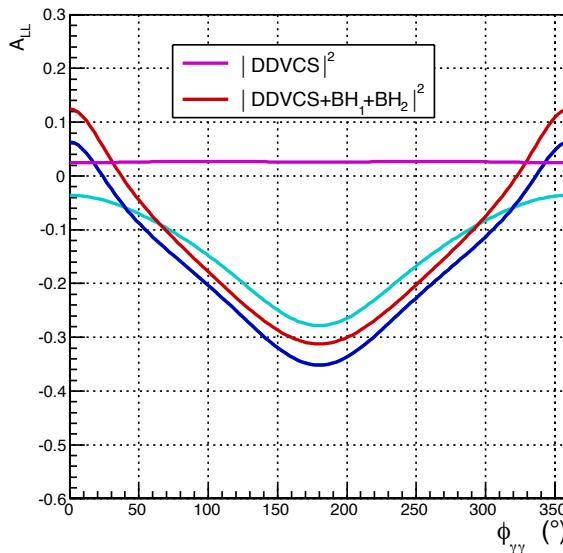
Within the **previous VGG** version, **invariant cross sections** are integrated over the electron azimuthal angle so should be weighted by **$1/2\pi$** to allow for detector acceptance integration.

➤ Count rate evaluation

$$N_{ep} = \mathcal{L} \cdot \frac{d^5\sigma}{dQ^2 \, dx_B \, dt \, dQ'^2 \, d\phi_{\gamma\gamma}} \cdot \Delta Q^2 \cdot \Delta x_B \cdot \Delta t \cdot \Delta Q'^2 \cdot \Delta \phi_{\gamma\gamma} \times \Delta\tau$$

$$\mathcal{L} = \frac{I}{e} \cdot \mathcal{N} \frac{\rho l}{A}$$

J/Ψ configuration: **50** days at **10^{37}** cm^{-2}·s^{-1}
Q^2=2.5 GeV^2 and ΔQ^2=±**0.5** GeV^2
x_B = 0.15 and Δx_B=±**0.025**
t = 0.5 GeV^2 and Δt=±**0.1** GeV^2
Q'^2 = 1.5 GeV^2 and $\Delta Q'^2$=±**0.5** GeV^2
$\Phi_{\gamma\gamma}$ = 180° and $\Delta\phi_{\gamma\gamma}$=±**15°**

$$N_{ep} = 541 \Rightarrow \delta A_{LU} = \pm 0.043$$

These numbers represent an **upper limit** of **the statistical reach** of the experiment, and should be compared to the **0.03** maximum amplitude of the **BSA** at this kinematics.