Goals:
- Scaling tests of DVCS cross-sections
- Separation of the $Re$ and $Im$ of the DVCS amplitude
- Large kinematic coverage in $Q^2$, $x_B$ and $t$

Angular decomposition of $d^4\sigma - |BH|^2$ provides access to different combinations of GPDs:
- $Re (C^l) + C_{DVCS}^{DVCS}$ : twist-2
- $Re (C^l + \Delta C^l) + C_{DVCS}^{DVCS}$ : twist-2
- $Re (C_{eff}^l)$ : twist-3

E07-007 & E08-025 DVCS experiments successfully ran in Fall 2010 with 12 GeV equipment
E12-06-114 : Projections and beamtime request

Luminosity: from $4 \cdot 10^{37}$ to $1 \cdot 10^{38}$ Hz/cm$^2$

$E_b = 8.8$ GeV, $Q^2 = 4.8$ GeV$^2$, $x_B = 0.50$

Helicity-independent cross sections (pb/GeV4)

Helicity-dependent cross sections (pb/GeV4)

Statistical uncertainty: from 3 % to 5 %

Systematic uncertainty: 4 %
- 2.5% : acceptance
- 3% : $\pi^0$ subtraction

Beamtime request (days)

<table>
<thead>
<tr>
<th>$Q^2$ (GeV)</th>
<th>$x_B = 0.36$</th>
<th>$x_B = 0.5$</th>
<th>$x_B = 0.6$</th>
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</table>

Total: 88 + 12 (overhead) = 100 days
1) **Accurate cross-section measurements**
   - **High luminosity** ($10^{38}$ cm$^{-2}$s$^{-1}$): 3-5 % statistical uncertainty
   - **Well-understood acceptance**: 4% systematic uncertainty

2) **High resolution** (HRS determines the virtual photon):
   *angular decomposition needed to extract physics*

3) **Scaling tests**: $Q^2$ dependence at several fixed values of $x_B$
   *Separate sin$(\phi)$ and sin$(2\phi)$ terms, and isolate leading twist from higher twist in the sin$(\phi)$ term.*

4) **Small bins**: Bethe-Heitler cross section varies very rapidly

5) **Equal statistics in every bin** (even at high $Q^2$)

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**Cross-section measurements is the only unambiguous way to separate higher twist contributions to DVCS**

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**All equipment ready**: able to take data as soon as beam is available, even at E<11 GeV