



Chapter 5 status: central exclusive production

LHC Working Group on Forward Physics and Diffraction

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Presentation of chapter 5

- Describes Central Exclusive Production (CEP)
“present results, incoming ones and prospects for higher luminosity/different beam conditions”
- Includes gluons and photon exchanges contributions

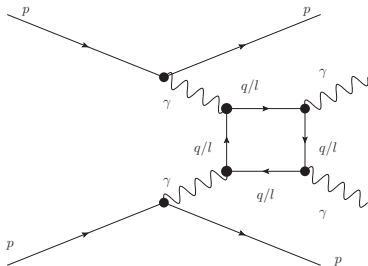


Figure: $\gamma\gamma$ production via γ exchanges

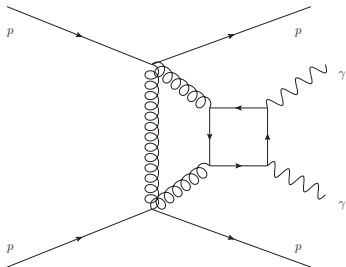


Figure: $\gamma\gamma$ production via gluon exchanges

Summary of Chapter 5 (1/2)



- Photon and exclusive QCD exchanges: present results
 - Short introduction to the chapter
(P. Collins, L. Harland-Lang, O. Kepka, M. Saimpert)
 - Central exclusive production with photon exchanges
(Krakow contribution?)
 - Central exclusive production with gluon exchanges
(Durham contribution)
 - LHCb published results
(photon/pomeron fusion J/ψ $\psi(2S)$ production, two-photon $\mu\mu$ production, two gluon single/double meson production)
 - Motivations for future measurements at low/medium luminosity
Krakow (to be finished) and Durham contributions
- Incoming results and prospects for rapidity gaps based analysis
 - Rapidity gaps definition in CEP events?
(O. Kepka?, M. Trzebinski?, T. Martin?)
 - CMS, on-going measurements?
 ϵ , vector mesons?
 - LHCb, on-going measurements and prospects
waiting for Paula's contribution

Summary of Chapter 5 (2/2)



- Incoming results and prospects for proton tagging based analysis at high and low β^* and low/medium luminosity
 - Benefits of tagging protons
proton azimuthal angular distribution as a probe of survival factors/spin of produced resonance, ... (L. Harland-Lang)
 - CMS/TOTEM prospects (focus at high β^* , before the end of June)
low mass state resonances, CEP jets. Answers from Ken.
 - ATLAS prospects (focus at low β^*)
dijet with single tag?, $\Pi\Pi$ pair (R. Staszewski, M. Trzebinski)

- Prospects for high luminosity measurements
 - CMS/TOTEM prospects (parts of PPS TDR, July)
 - ATLAS prospects (mid-July)
Exclusive dijet with double tag (R. Staszewski, M. Trzebinski), $\gamma\gamma ZZ$, γWW (O. Kepka, C. Royon)
 - $\gamma\gamma\gamma\gamma$ anomalous couplings
(S. Fichet, G. von Gersdorff, O. Kepka, C. Royon, M. Saimpert)

Conclusion

- Nice progress since last time
- First part almost completed
 - Introduction on two photon processes + update of the krakow contribution missing*
- **Second part → 0 contribution received for now**
 - LHCb? CMS? Contribution on rapidity gap definition?*
- Third part → nothing received but news
 - ATLAS?*

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