



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 lumi/different beam conditions
- Includes gluons and photon exchanges contributions

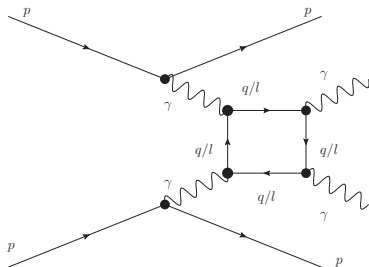


Figure : $\gamma\gamma$ production via γ exchanges

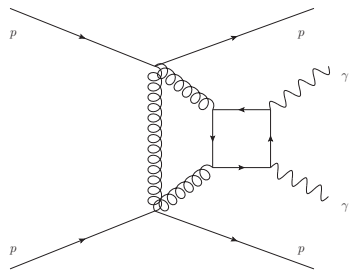



Figure : $\gamma\gamma$ production via gluon exchanges

Summary of the contributions (1/3)

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- Introduction on photon and exclusive QCD exchanges
(P. Collins, L. Harland-Lang, O. Kepka, M. Saimpert)
 - Rapidity gap measurements
(P. Collins, L. Harland-Lang, O. Kepka)
 - Short overview
P. Collins, L. Harland-Lang, O. Kepka
 - Exclusive dijet at low luminosity
Results from the new Dime MC (L. Harland-Lang, V. Khoze) and CMS results (A. Vilela)
 - $\gamma\gamma$ production at low p_T
(M. Albrow?)
 - Quarkonium : CEP + Photoproduction
 $\chi_c, \chi_b, J/\psi$ and Υ photoproduction, exotic $X(3872)$
(L. Harland-Lang, V. Khoze, M. Ryskin)
 - High lumi cross-section results from LHCb and prospects
*description of running conditions after LS2
results on CEP mesons, low-mass states, searches ... QED modes
as well (P. Collins and R. McNulty)*

Summary of the contributions (2/3)

- Proton tagging measurements at low/medium lumi and high/low β^* (L. Harland-Lang, A. Vilela?)
 - Short overview
Benefits of tagging protons, proton azimuthal angular distribution as a probe of survival factors/spin of produced resonance (L. Harland-Lang, A. Vilela?)
 - Exclusive dijet with single tag
ATLAS prospects (R. Staszewski, M. Trzebinski), Results from the new Dime MC (L. Harland-Lang, V. Khoze), CMS/TOTEM results (A. Vilela)
 - Exclusive $\Pi\Pi$ pair
ATLAS prospects with vertical pots at high β^ (R. Staszewski, M. Trzebinski), CMS/TOTEM results (?), Dime MC results (L. Harland-Lang, V. Khoze)*
 - Other low mass states resonances ($KK, \rho\rho, \eta\eta, \eta'\eta',$ glueballs?, $J/\Psi, \Psi'$)
CMS/TOTEM results (?), A. Szczurek, W. Schafer ($J/\Psi, \Psi'$), L. Harland-Lang, V. Khoze
 - Υ results from CMS (G. Silvera?)
 - "Invisible" searches, missing mass topologies with tagged protons (*prospects from CMS/TOTEM*)



- High luminosity measurements (*M. Saimpert, J. Heller?*)
 - Exclusive dijet with double tag
ATLAS prospects (R. Staszewski, M. Trzebinski)
 - $\gamma\gamma WW, \gamma\gamma ZZ, \gamma WW, \gamma\gamma\gamma\gamma$ anomalous couplings
arXiv:1312.5153 (*S. Fichet, G. von Gersdorff, O. Kepka, C. Royon, M. Saimpert*)
 - Technipions searches
A. Szczurek, R. Pasechnik

- Conclusion
(P. Collins, L. Harland-Lang, O. Kepka, M. Saimpert)



- Very preliminary summary
- Additional contributions are very welcome
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