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Study of Central Exclusive Production in proton-proton collisions with ALICE at LHC

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Central Exclusive Production (CEP) in hadron-hadron collisions is a diffractive process in which the scattered hadrons remain intact, but exchange sufficient energy to produce a state X at central rapidity. As predicted by Regge theory the diffractive cross section at LHC energies is dominated by the Double Pomeron (DP) exchange. Due to the nature of the DP interaction it can be expected that states coupling preferentially to gluons, like glueballs and hybrids, are produced. The CEP events are characterized by large rapidity gaps. Using a combination of subdetectors of ALICE this specific event topology can be exploited to extract a clean sample of CEP events. The centrally produced X eventually decay into hadrons which are detected and identified with the central-barrel trackers of ALICE.

In this talk we will further motivate these studies, discuss the experimental techniques applied, and present latest results of the two-pion and two-kaon invariant mass spectra observed in the selected CEP event sample, based on data taken during 2017 and 2018 at a center-of-mass energy of 13 TeV.

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