# Staus Report

## Study of triggers in the anaysis of $B_c^+ \rightarrow J/\psi D_s^+$ decay

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▶ To a first approximation, use the same list of triggers as for the $B_c(2S)$ run-2 analysis

Trigger list [1]

| data15_13TeV, physics_Main period A1–J6, runs 266904–284484 | data16_13TeV, physics_BphysDelayed period D4–L11, runs 302956–311481 |
|---|---|
| HLT_mu6_mu4_bJpsimumu_noL2 HLT_2mu4_bJpsimumu_noL2 | HLT_2mu6_bJpsimumu_delayed HLT_mu6_mu4_bJpsimumu_Lxy0_delayed HLT_mu6_nomucomb_2mu4_nomucomb_delayed_L1MU6_3MU4 HLT_3mu4_bJpsi_delayed |
| data16_13TeV, physics_Main period A1–D4, runs 296939–302925 | data17_13TeV, physics_BphysLS period B1–N4, runs 325713–341649 |
| HLT_mu6_mu4_bJpsimumu HLT_mu10_mu6_bJpsimumu HLT_2mu6_bJpsimumu HLT_mu20_2mu0noL1_JpsimumuFS HLT_mu6_2mu4_bJpsi | HLT_2mu6_bJpsimumu_L1BPH-2M9-2MU6_BPH-2DR15-2MU6 HLT_mu6_mu4_bJpsimumu_Lxy0_L1BPH-2M9-MU6MU4_BPH-0DR15-MU6MU4 HLT_mu11_mu6_bDimu HLT_3mu4_bJpsi HLT_mu11_2mu4noL1_bNocut_L1MU11_2MU6 |
| data16_13TeV, physics_Main period D4–L11, runs 302956–311481 | data18_13TeV, physics_BphysLS period A6–Q2, runs 348197–364292 |
| HLT_mu20_2mu0noL1_JpsimumuFS HLT_mu20_nomucomb_mu6noL1_nscan03 | HLT_2mu6_bJpsimumu_L1BPH-2M9-2MU6_BPH-2DR15-2MU6 HLT_mu6_mu4_bJpsimumu_Lxy0_L1BPH-2M9-MU6MU4_BPH-0DR15-MU6MU4 HLT_mu11_mu6_bDimu HLT_3mu4_bJpsi HLT_mu11_2mu4noL1_bNocut_L1MU11_2MU6 HLT_2mu4_bJpsimumu_Lxy0_L1BPH-2M9-2MU4_BPH-0DR15-2MU4 |

• Triggers selected maximum fraction of events are chosen one-by-one; > 90% events selected      3

▶ Apply MC weights to account for different prescales of these triggers

# Comparison of muon pT distributions

▶ The data-MC agreement gets much better after trigger reweighting.
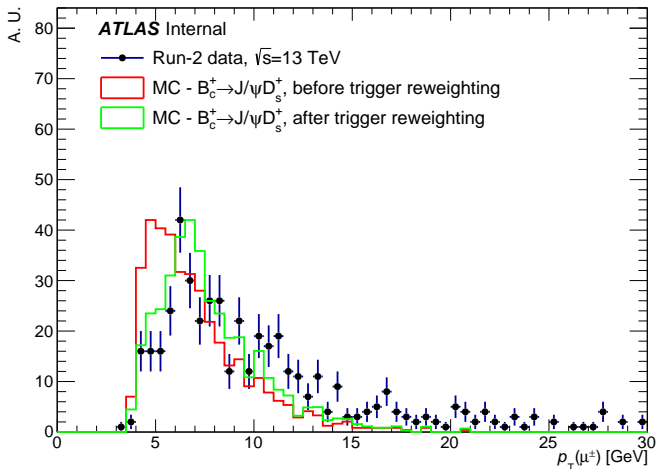


(The events in $6240 < m(J/\psi D_s^+) < 6330$ MeV are used.)

# Next to do

- ▶ The signal yield is significantly decreased after applying trigger requirements on data
- ▶ Dump all passed triggers and sort out the most efficient triggers