**INTRODUCTION**

Illustration of the readiness of CMS for data taking in Run 3 is shown with particular focus on the tracker, tracking, and vertexing performance at low transverse momenta. For this, the first distributions of a signal for charm production are given by reconstruction of D* meson on Minimum Bias data at the injection center-of-mass energy of 900 GeV in Run 3 [1].

**D* MESON RECONSTRUCTION**

Illustration of the performance of the CMS tracker and reconstruction on early Run 3 data, on the example of D* meson reconstruction

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Posters@CERN, 29 Nov 2022, Geneva

**DATA SAMPLES**

2021/22 Run 3 samples (√s = 900 GeV):
- 2021 prompt reconstruction – MinimumBias pilot with 1 nb⁻¹, promptly reconstructed within the first 2 days
- 2021 re-reconstruction – MinimumBias pilot with 1 nb⁻¹, updated software (mkFit) [2] and tracker calibration [3]
- 2022 prompt reconstruction – 900 GeV 2022 commissioning with 2.1 nb⁻¹ (MinimumBias)

**RESULT & CONCLUSION**

2021 prompt reconstruction
- p_T > 3.5 GeV: significant D* signal already
- p_T > 100 MeV: better mass resolution and S/B than 2021 PromptReco

2021 re-reconstruction
- p_T > 3.5 GeV: better mass resolution and S/B than 2021 PromptReco

2022 prompt reconstruction
- p_T > 3.5 GeV: similar mass resolution and S/B than 2021 ReReco

"tracker and reconstruction are ready for data taking at 13.6 TeV"

[1] CMS Public Note CMS DP-2022/024
[2] Performance of Run 3 track reconstruction with the mkFit algorithm, CMS Public Note CMS DP-2022/018