

Contribution submission to the conference SMuK 2023

Measurement of D^* meson cross sections in the full phase space for charm in CMS — •YEWON YANG¹, ACHIM GEISER¹, NUR ZULAIHA JOMHARI¹, VALENTINA MARIANI², JOSRY METWALLY¹, and MAX UETRECHT³ — ¹Deutsches Elektronen-Synchrotron DESY, Notkestraße 85, D-22607 Hamburg — ²Università degli Studi di Perugia, Piazza Università, 106123 Perugia — ³Technische Universität Dortmund, August-Schmidt-Straße 1, 44227 Dortmund

This is a summary talk about total, single- and double-differential cross sections for charm which are measured from the reconstruction of charm hadronic states in the CMS detector. Among all the hadronic states of charm, for this talk especially the reconstruction of D^* which decays into D^0 and a slow pion is introduced at proton-proton center-of-mass energies of 0.9, 5, 7, and 13 TeV. The measured cross sections for this final state show consistency compared to QCD theory and also to other LHC experiments. Then the D^* meson cross sections measured in the full phase space accessible with the CMS detector are extrapolated to extract the total charm cross section. For the first time, this extrapolation applies the p_T -dependent cross-section ratios between meson and baryon of charm, which are recently measured from LHC experiments.

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