
Contribution ID: **495** Type: **Experimental poster**

# Measurement of Bc(2S) and Bc(2S)* cross section ratios in proton-proton collisions at 13 TeV

*Thursday 10 June 2021 18:45 (1 hour)*

The ratios of the Bc(2S) to Bc, Bc(2S)*to Bc, and Bc(2S)* to Bc(2S) production cross sections are measured in proton-proton collisions at 13 TeV, using a data sample collected by the CMS experiment at the LHC, corresponding to an integrated luminosity of 143 fb−1. The three measurements are made in the Bc meson phase space region defined by the transverse momentum pT > 15 GeV and absolute rapidity |y| < 2.4, with the excited Bc(2S)*states reconstructed through the Bc* π+π−, followed by the Bc ⟶ J/ψπ+ and J/ψ ⟶ μ+μ− decays. The Bc(2S) to Bc, Bc(2S)*to Bc, and Bc(2S)* to Bc(2S) cross section ratios, including the unknown Bc(2S)⟶ *Bc*π+π− branching fractions, are (3.47 ± 0.63 (stat) ± 0.33 (syst))%, (4.69 ± 0.71 (stat) ± 0.56 (syst))%, and 1.35 ± 0.32 (stat) ± 0.09 (syst), respectively. None of these ratios shows a significant dependence on the pT or |y| of the Bc meson. The normalized dipion invariant mass distributions from the decays Bc(2S)⟶ *Bc* π+π− are also reported.

**Authors:** RODRIGUEZ GIRALDO, Manuel Alejandro (Universidad de Antioquia (CO)); MEJIA GUISAO, Jhovanny Andres (Universidad de Antioquia (CO))

**Presenter:** RODRIGUEZ GIRALDO, Manuel Alejandro (Universidad de Antioquia (CO))

**Session Classification:** Poster Session

**Track Classification:** Flavour physics