

Contributions to last three CMS publications

I, Suman Chatterjee, summarize my contribution to latest three CMS publications below.

1: Search for a W' boson decaying to a top and a bottom quark at $\sqrt{s} = 13$ TeV

CMS Collaboration

[Phys. Lett. B 820 \(2021\) 136535](#)

I was the principal analyzer in this work. All the technical work and most of the documentation, including the paper writing, were performed by myself. I got help from Dr. Alberto Orso Maria Iorio (INFN Naples) during the initial part of documentation. I presented all the updates of this work in CMS internal meetings, including some major ones required before the release of the results.

2: Dependence of inclusive jet production on the anti- k_T distance parameter in pp collisions at $\sqrt{s} = 13$ TeV

CMS Collaboration

[JHEP 12 \(2020\) 082](#)

I was the main analyzer in this work too. I performed all the technical work and documentation, including the paper writing. The updates were presented regularly in CMS internal meetings by myself. I had presented the work before the CMS Collaboration in person at CERN for the public release of results. The work was supervised by my PhD advisor Prof. Gobinda Majumder (TIFR Mumbai).

3: Calibration of the CMS hadron calorimeters using proton-proton collision data at $\sqrt{s} = 13$ TeV

CMS Collaboration

[JINST 15 \(2020\) P05002](#)

This is a detailed paper on the calibration of different subsystems of the hadronic calorimeter in the CMS experiment. My contribution was the absolute calibration of one subsystem, the outer hadron calorimeter. This work is reported in Sec. 8.2 of the paper. This portion of work was done entirely by myself under the supervision of my PhD advisor Prof. Gobinda Majumder (TIFR Mumbai).

All three works mentioned above are included in my PhD thesis.