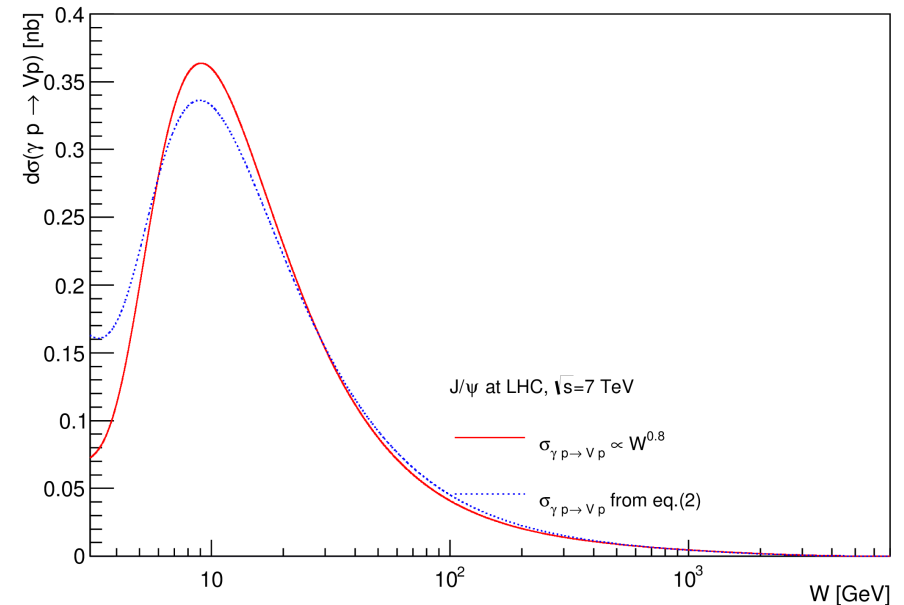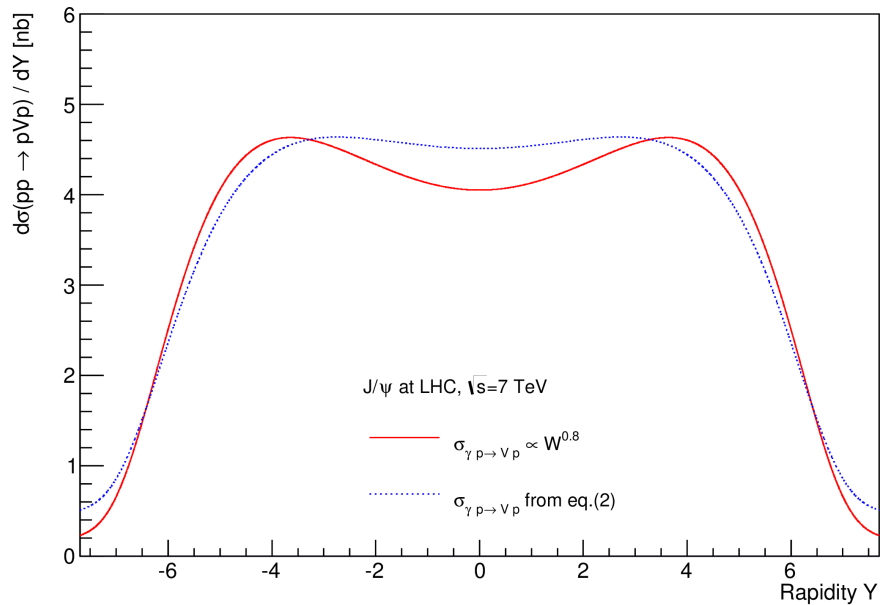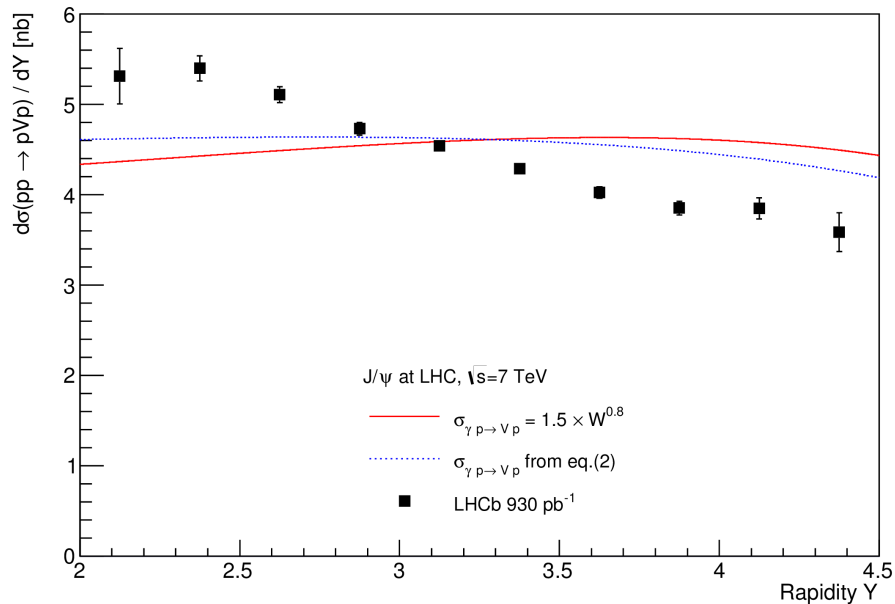# Power law vs geometric model at LHC
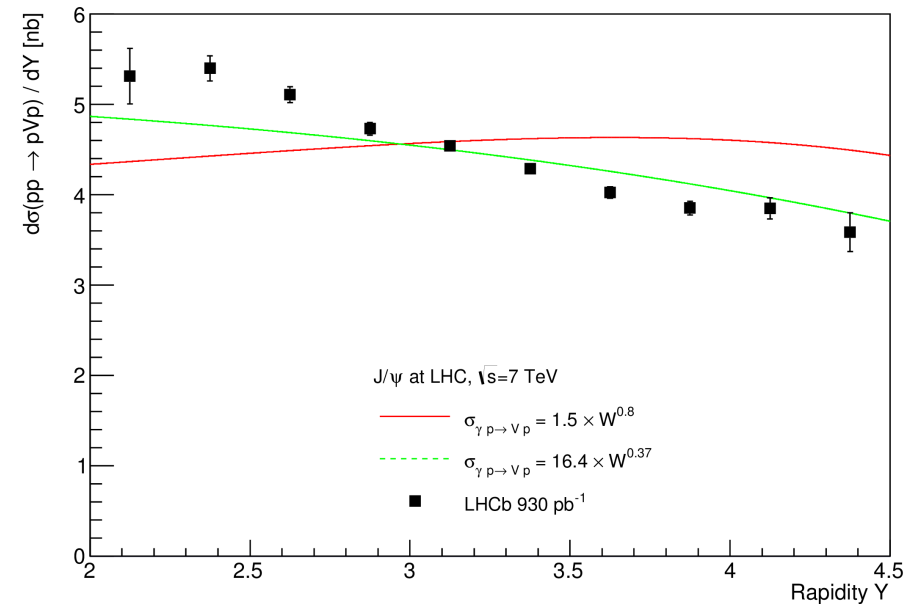

Generally similar behaviour

Power law is somewhat steeper in W → a more distinct bell-like structure in y

# Adding LHCb rapidity cross section

Both power law and geometric model are much flatter than the data

By fitting the power (and normalization) a much better description of data can be obtained (green curve)
However, power tends to be very small ($\delta=0.37$) which contradicts HERA (page 4)
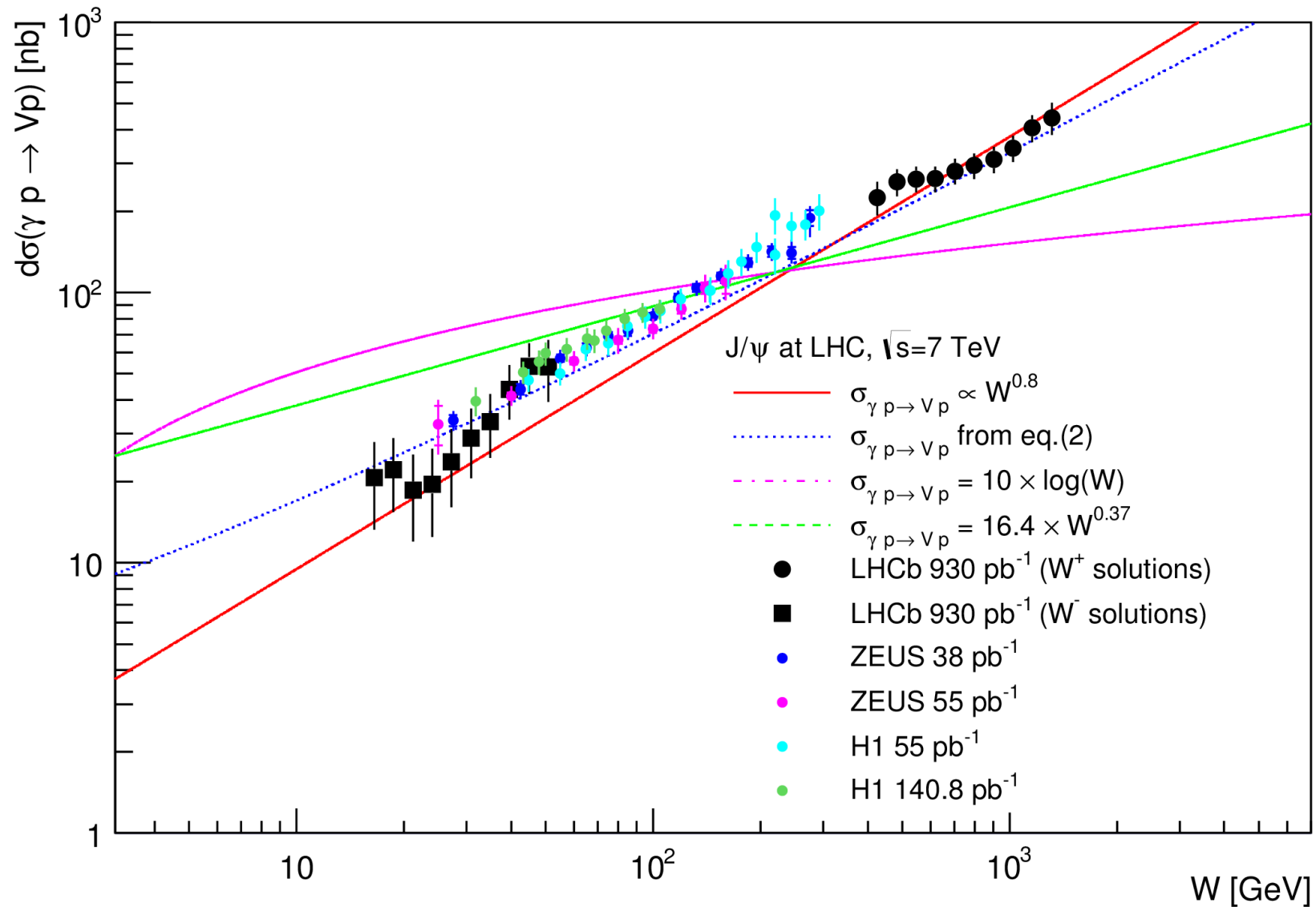
Grand comparison

Here all available curves are summarized, also the result using the logarithmic growth of the photon-proton cross section is shown
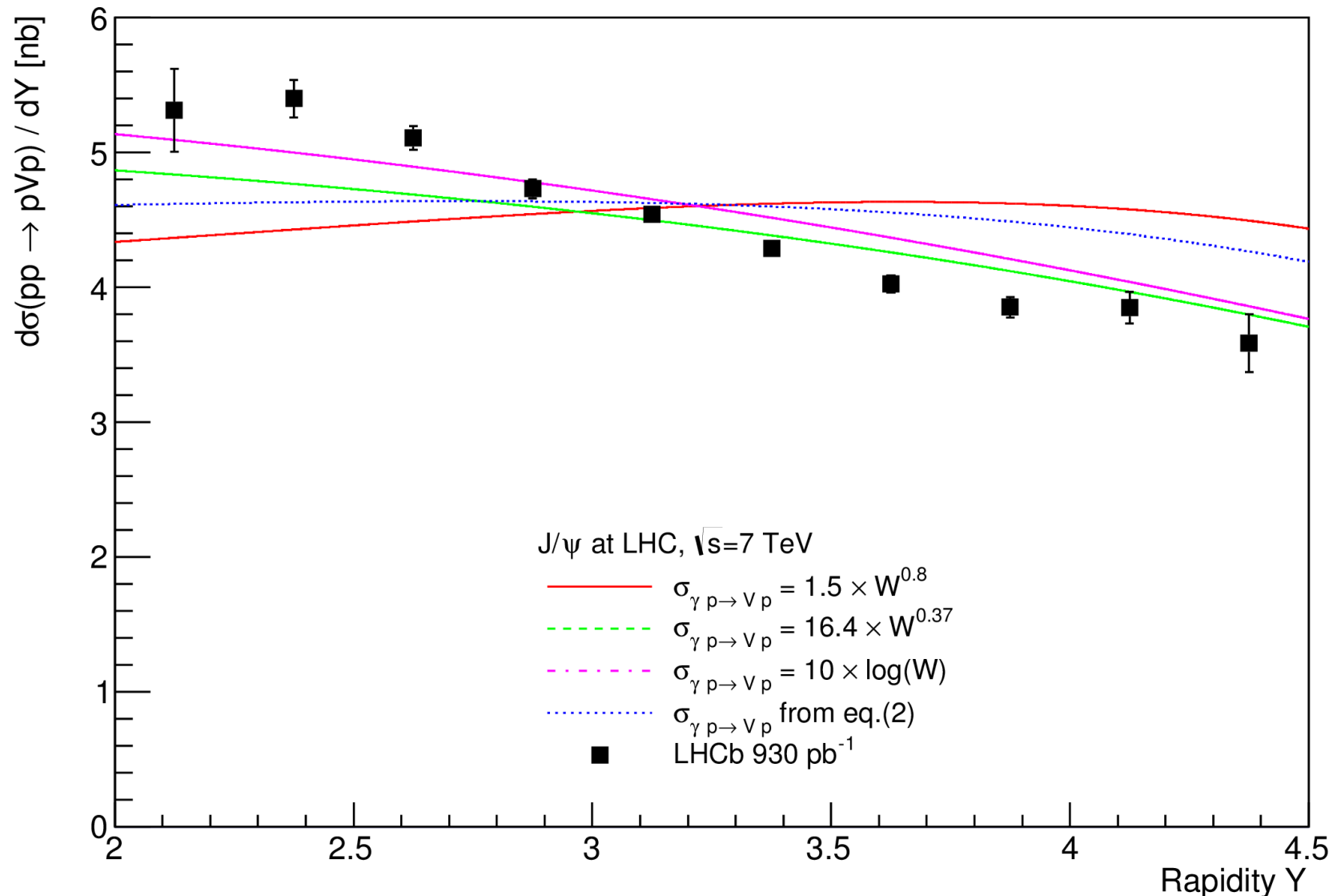
Logarithm describes data best

γp cross section

However, the fitted power law and logarithm contradict data on the γp cross section

Geometric model gives the best description!

Note, however, that the power law with δ=0.8 might be not the best fit!

γp cross section