

## Charmonium production in high multiplicity pp collisions and the structure of the proton

In this work we study charmonium production in high multiplicity proton-proton collisions. We investigate the role of the spatial distribution of partons in the protons and assume that the proton has a Y shape. In this configuration quarks are more at the surface and gluons in the inner part of the proton. Going from peripheral to more central and then to ultra-central proton-proton collisions, we go from quark-quark collisions to gluon-gluon collisions. Since gluons are much more abundant, the cross sections grow. In the case of charm production this growth is enhanced by the fact that,  $\sigma(g + g \rightarrow c + \bar{c}) \gg \sigma(q + \bar{q} \rightarrow c + \bar{c})$ . These effects can explain the growth seen in the data.

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