



Contribution ID: 7

Type: **not specified**

## Production of two heavy quark pairs in double parton scattering at LHC

*Friday, 13 September 2013 15:50 (20 minutes)*

The production of  $c\bar{c}c\bar{c}$ ,  $b\bar{b}b\bar{b}$  and  $c\bar{c}b\bar{b}$  pairs in double parton scattering at LHC energies is investigated. We estimate the contribution of saturation effects to the different final states and predict the energy dependence of the cross sections. Moreover, we estimate the ratio between the double and single parton scattering cross sections for the full rapidity range of the LHC and for the rapidity range of the LHCb experiment. For the full rapidity range we confirm a previous prediction, namely that for charm production the double parton scattering contribution becomes comparable to the single parton scattering one at LHC energies. We also demonstrate that this result remains valid when one considers saturation effects in the calculations. We also show that the production of  $c\bar{c}b\bar{b}$  contributes significantly to bottom production. For the LHCb kinematical range the ratio is strongly reduced.

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**Session Classification:** Parallel talks - Session 3B