

## Modelling pion and proton total cross-sections at LHC}

To settle the question whether the growth with energy is universal for different hadronic total cross-sections, we present results from theoretical models for  $\pi p$  and  $(pp, p\bar{p})$  total cross-sections obtained with the same input. We show that present and planned experiments at LHC can differentiate between different models, all of which are consistent with presently available (lower energy) data. This study is also relevant for the analysis of those very high energy cosmic ray data which require reliable  $\pi p$  total cross-sections as seeds. A preliminary study of the total  $\pi\pi$  cross-sections is also made.

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