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Updating an empirical analysis on the proton's central opacity and asymptotia

We present an updated empirical analysis on the ratio of the elastic (integrated) to the total cross section in the c.m. energy interval from 5 GeV to 8 TeV. As in a previous work, we use a suitable analytical parametrization for that ratio (depending on only four free fit parameters) and investigate three asymptotic scenarios: either the black disk limit or scenarios above or below that limit. The dataset includes now the datum at 7 TeV, recently reported by the ATLAS Collaboration, which plays an important role in the data reductions. Our analysis favors, once more, a scenario below the black disk, providing now an asymptotic ratio consistent with the rational value $1/3$, namely a gray disk limit. Upper bounds for the ratio of the diffractive (dissociative) to the inelastic cross section are also presented and discussed.

Authors: Dr FAGUNDES, Daniel A. (Institute for Theoretical Physics - UNESP); Prof. MENON, Marcio J. (UNICAMP); Mr SILVA, Paulo V. R. G. (UNICAMP)

Presenter: Mr SILVA, Paulo V. R. G. (UNICAMP)

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