Total Cross Section Models

Torbjörn Sjöstrand

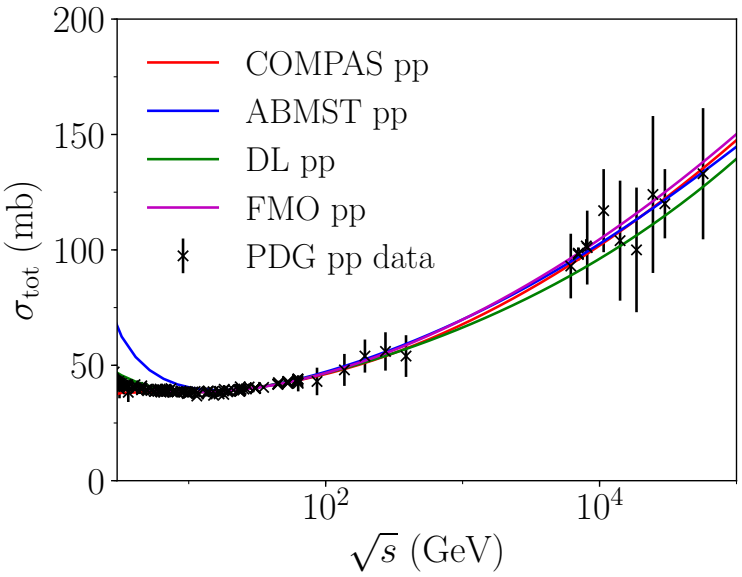
Department of Astronomy and Theoretical Physics,
Lund University

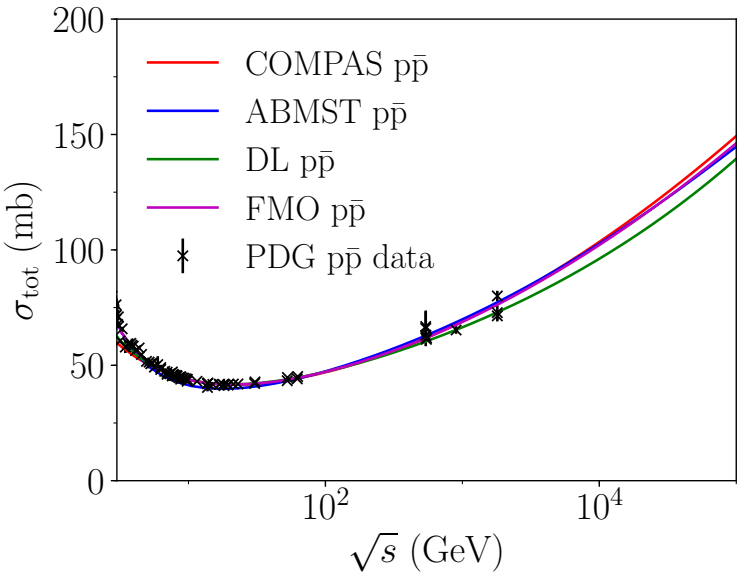
based on
"Models for Total, Elastic and Diffractive Cross Sections"
Christine Rasmussen & TS, EPJC78 (2018) 461

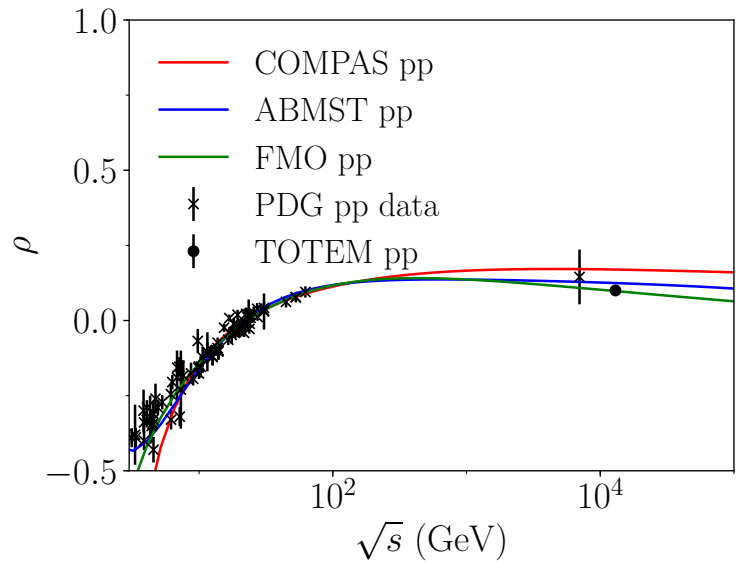
Models

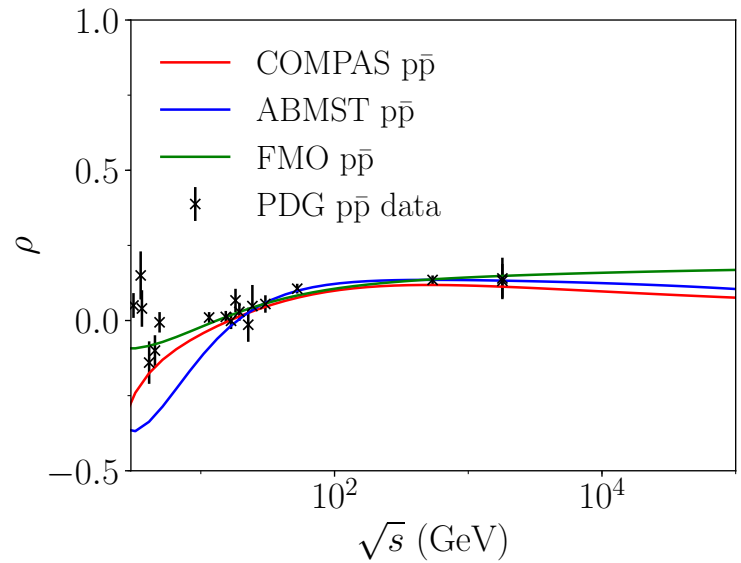
- DL (Donnachie–Landshoff): single Pomeron + Reggeon ansatz for total cross sections.
- SaS (Schuler–Sjöstrand): extension of DL to elastic and single and double diffraction, with damping to avoid too steep rise.
- ABMST: extension of DL to multiple Pomerons and Reggeons, for total, elastic and single diffractive, with implicit extension to double and central diffraction; with special emphasis on lower energies.
- COMPAS/RPP: again multiple-term ansatz for total and elastic cross sections, but no diffraction.
- FMO: extension of COMPAS with odderon, but not differential elastic.
- MBR (Goulianos): mainly interesting for diffraction; used bý CMS.

Total cross sections and the ρ parameter

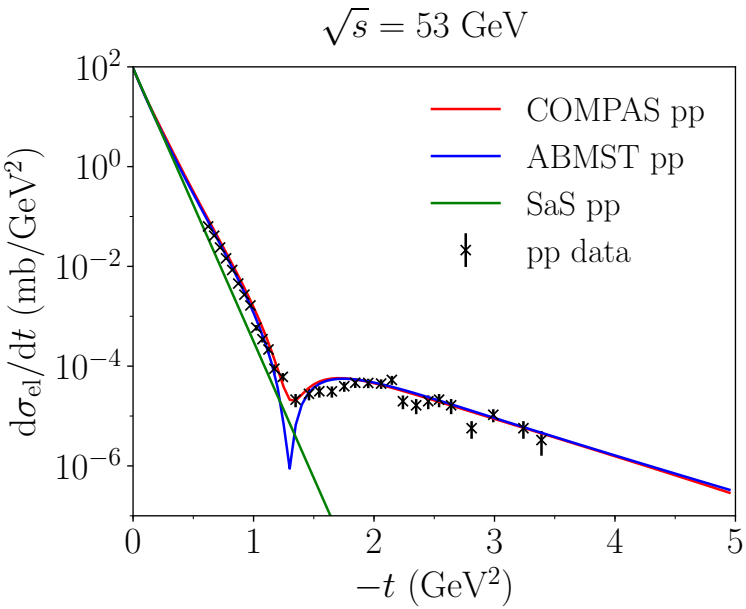


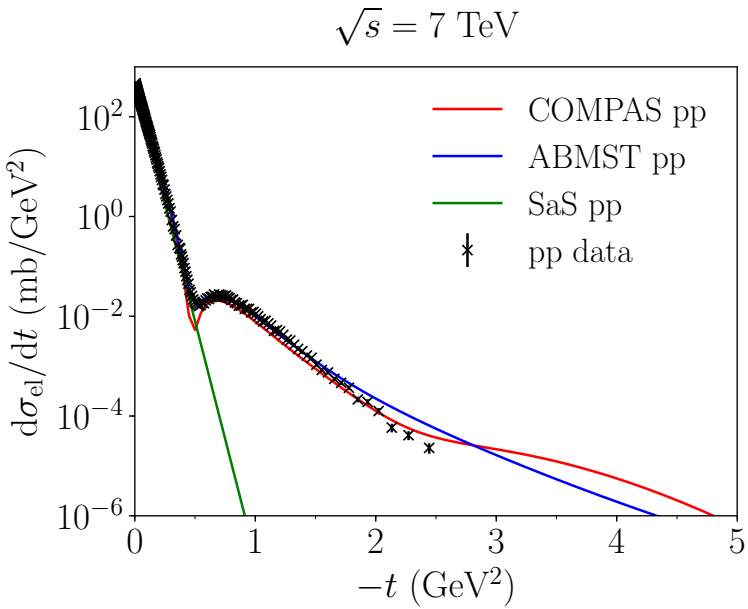


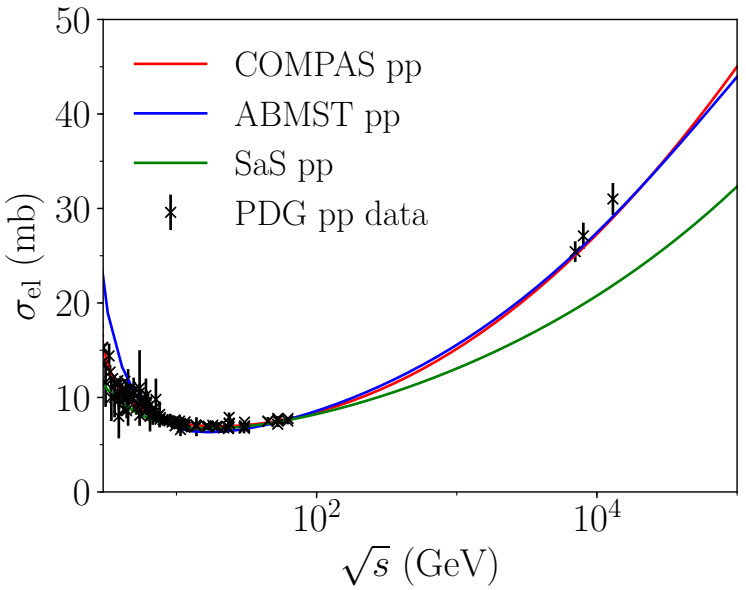


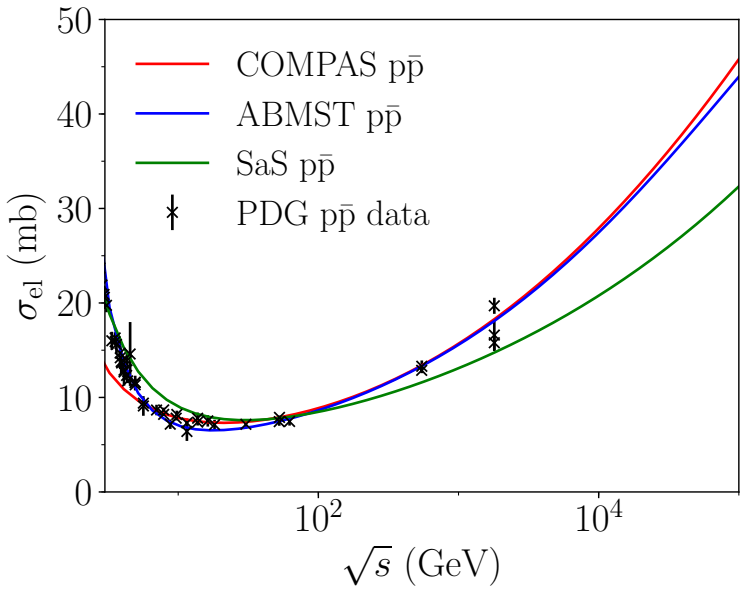


Elastic cross sections

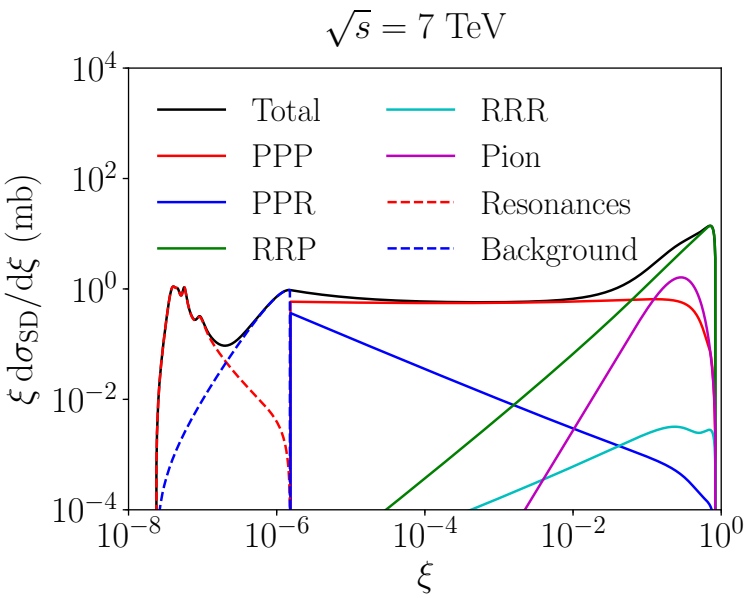


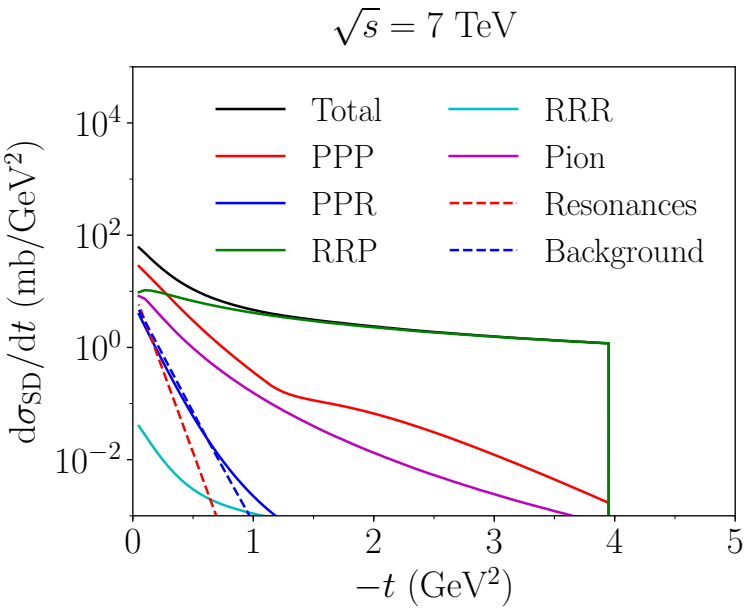


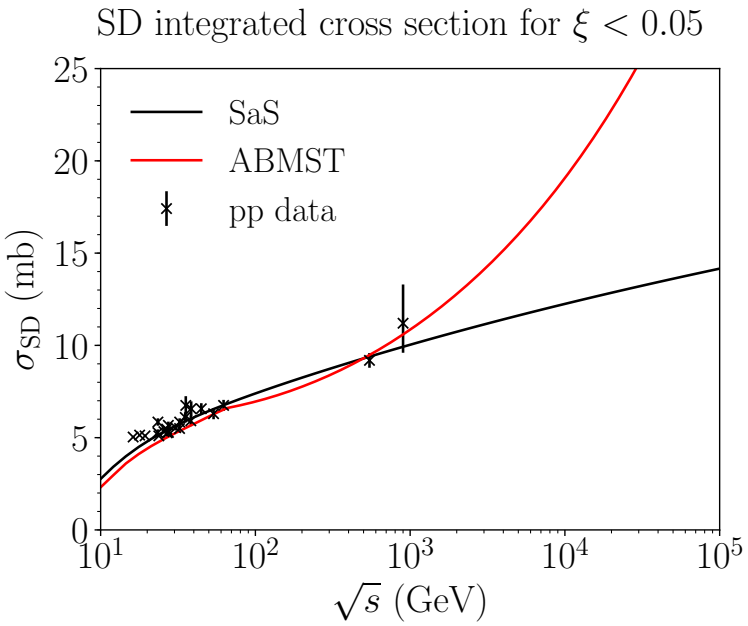


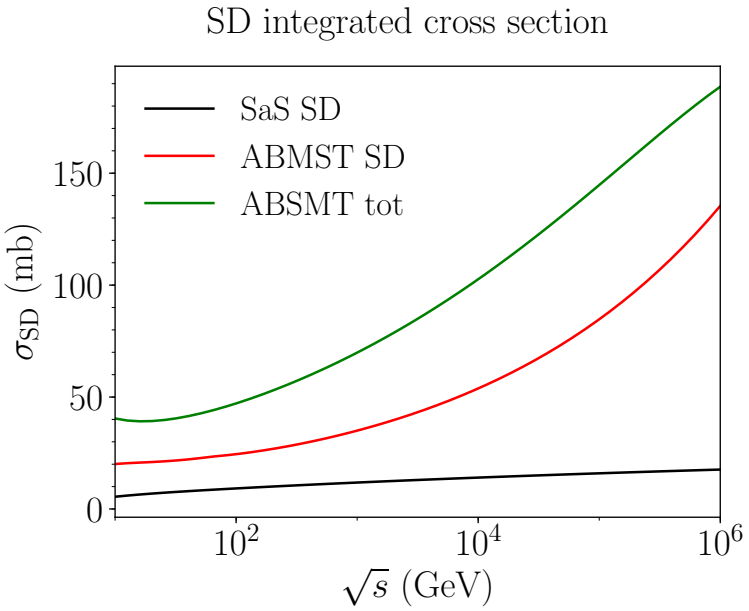


Single diffractive cross sections in original ABMST

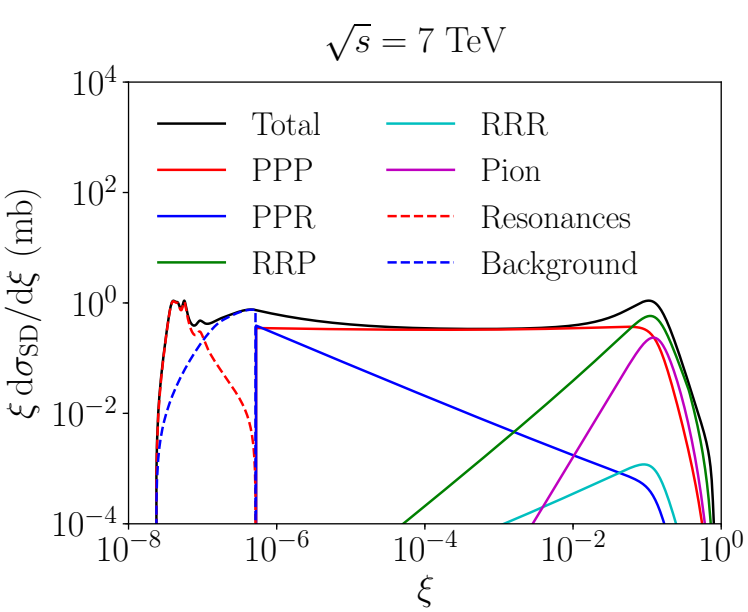


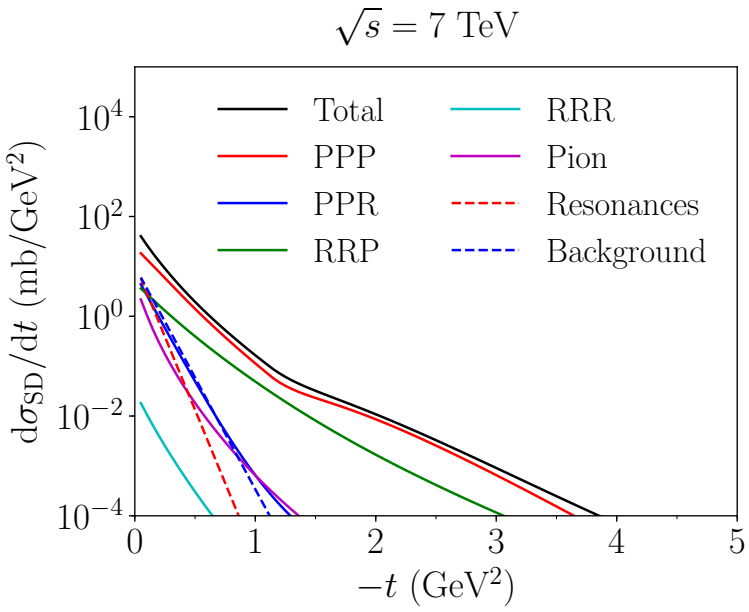


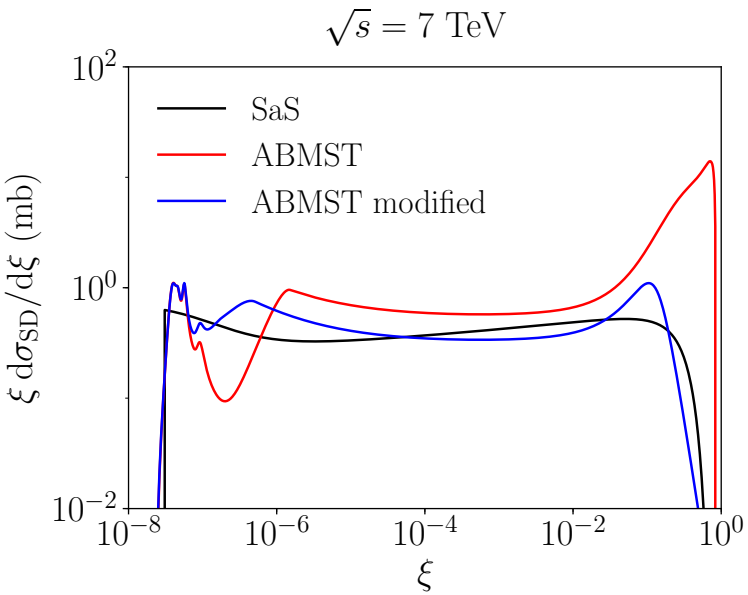


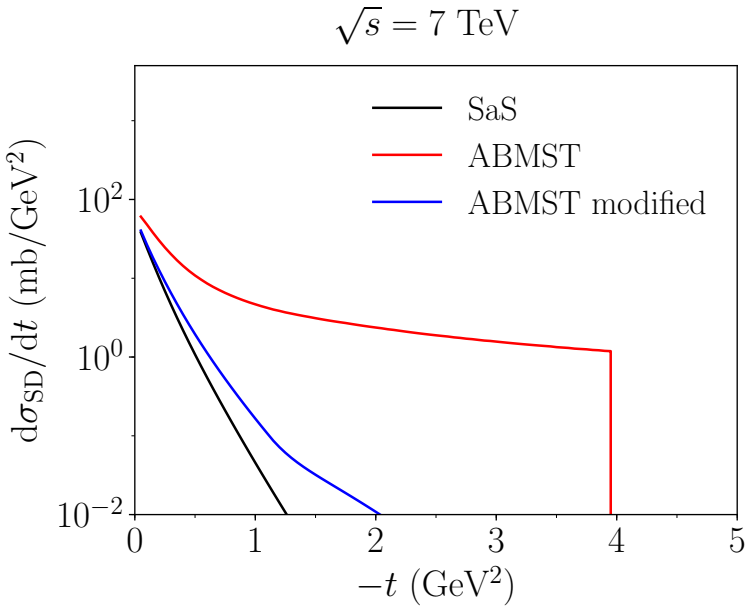


Single diffractive cross sections in modified ABMST

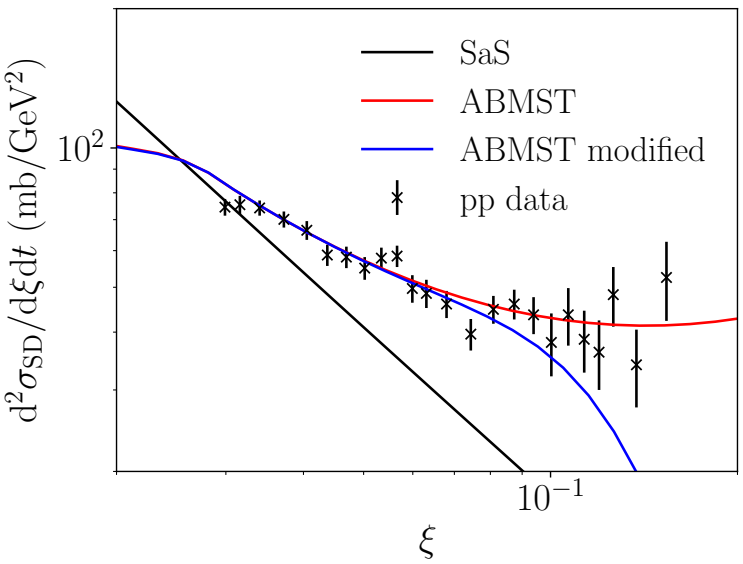


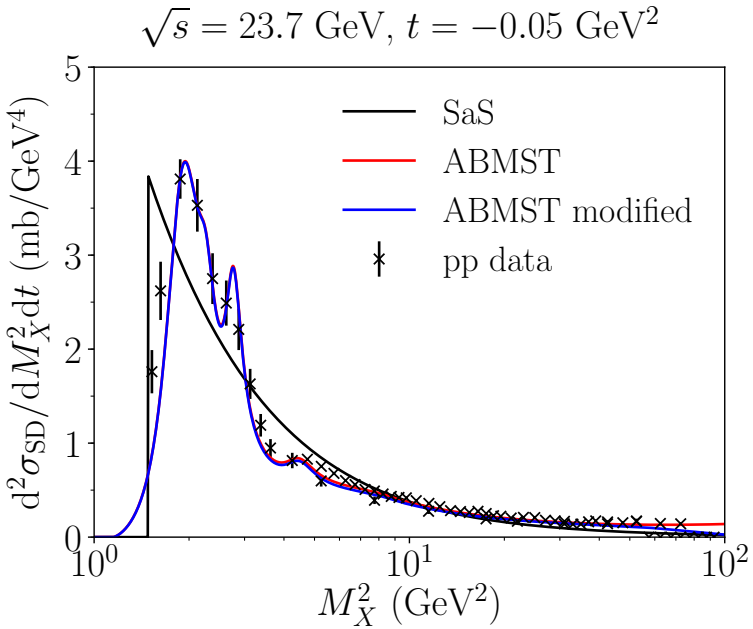


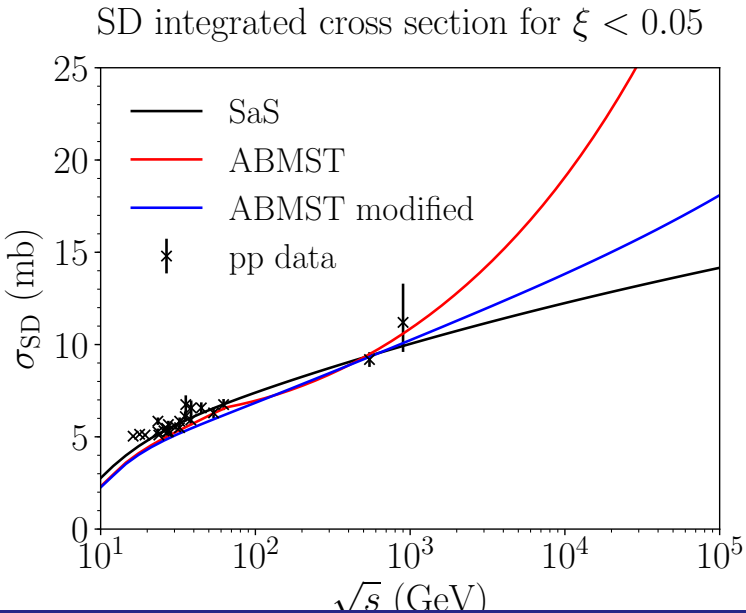


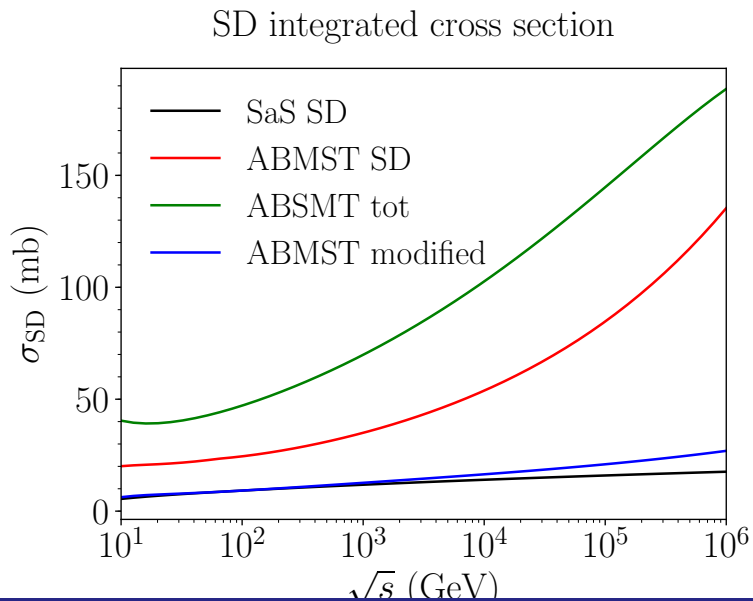


Single diffractive cross sections in modified ABMST

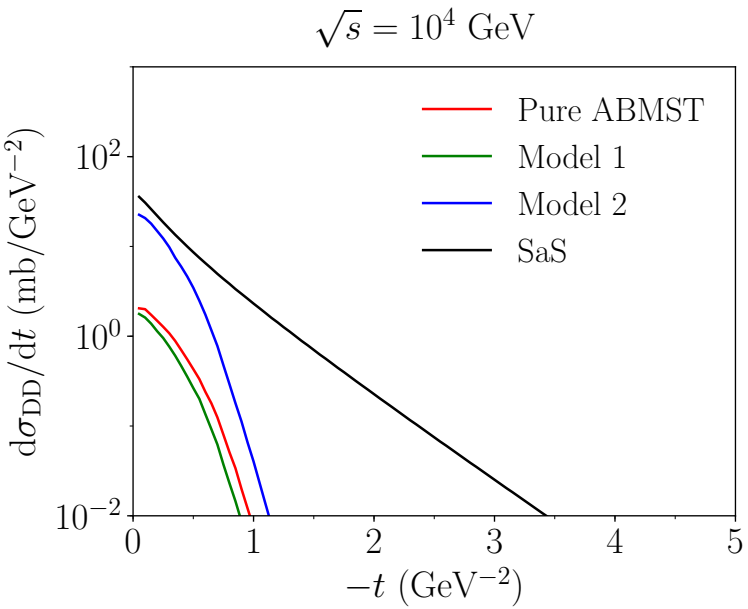


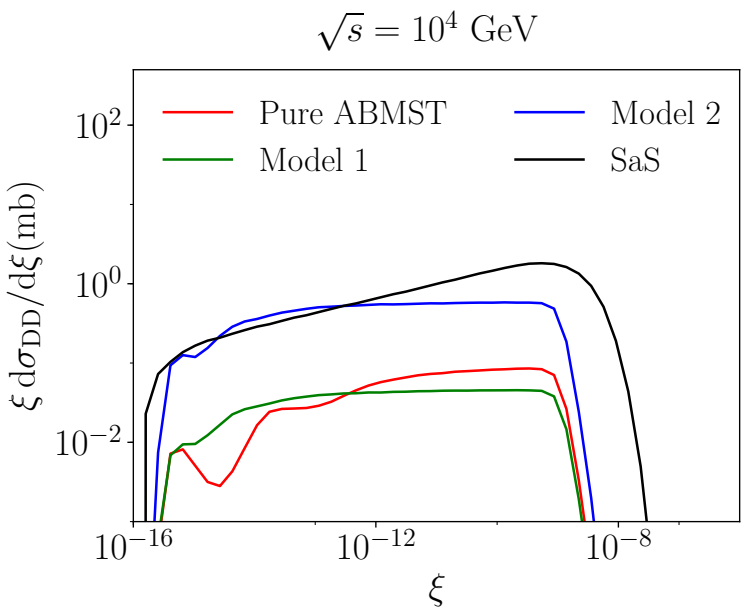


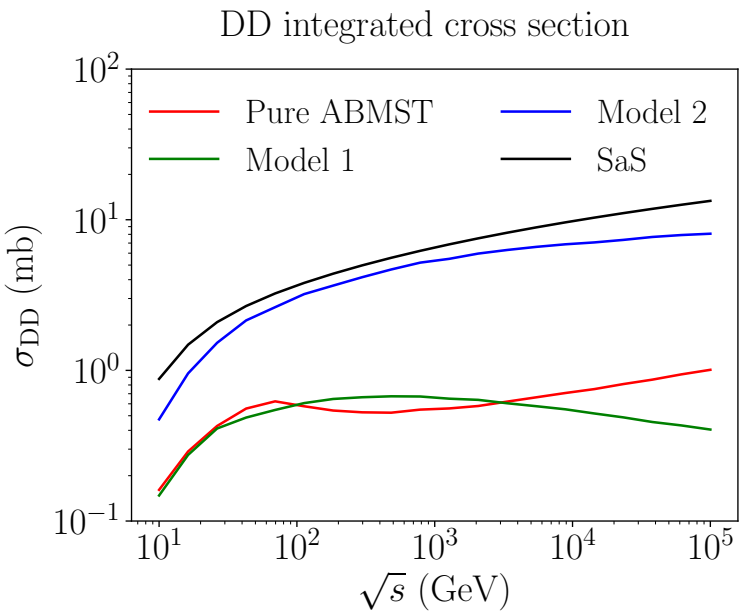


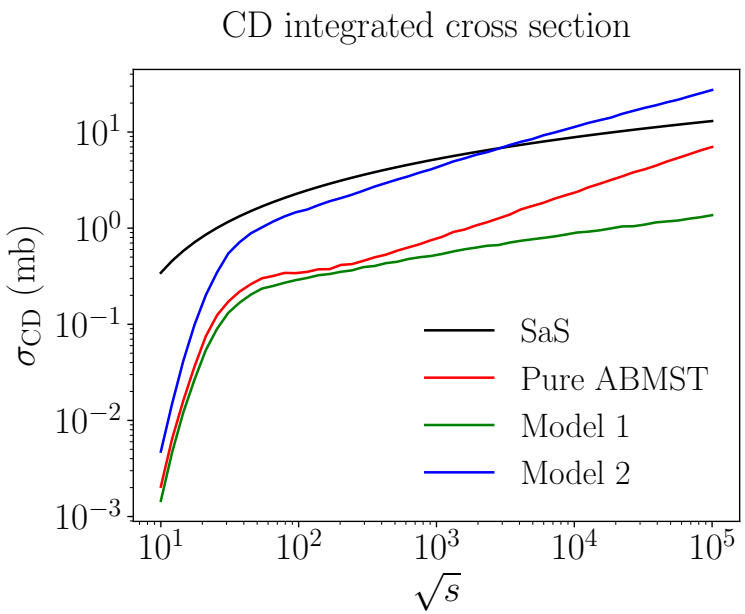


Other diffractive cross sections in modified ABMST

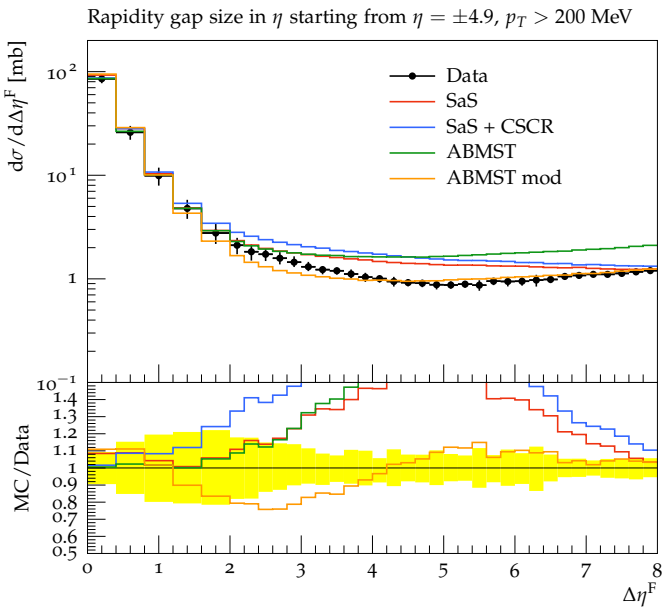


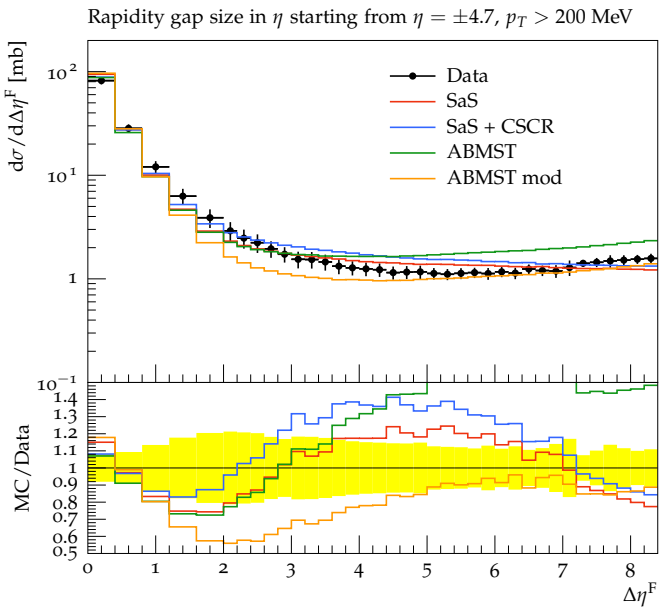


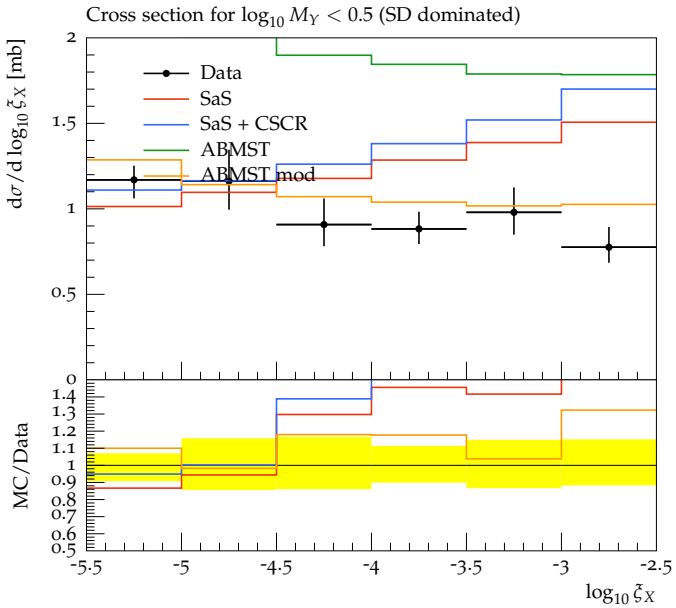


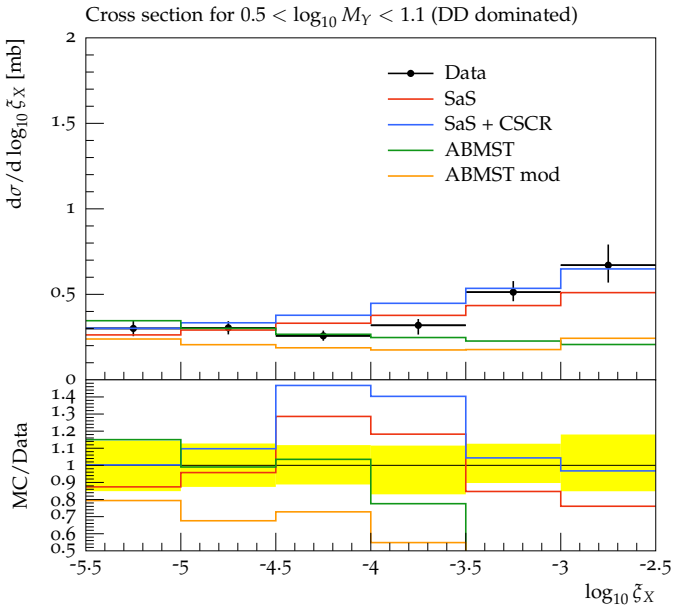


Rapidity gaps (1)









Rapidity gaps (2)