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Sartre, a dipole model generator for the Electron Ion Collider

Thursday, 14 December 2017 15:00 (15 minutes)

I will present the Sartre event generator. It is using the bSat Dipole Model at its core and can simulate exclusive diffraction in ep and eA as well as ultra peripheral collisions in pp, pA, and AA collisions. It has a mechanism for varying the nuclear configurations thereby providing both coherent and incoherent cross-sections for photon-nucleus interactions, and in the latter case uses FLUKA to simulate nuclear breakup.

As new combined data has been made available from the HERA II run, the values of the parameters of the bSat dipole model can be improved. I will also discuss the ongoing work on making a new fit of the dipole model parameters to the latest combined HERA I&II data for inclusive DIS and inclusive diffraction. The new data provides an opportunity to restrict the proton's gluonic size and shape in an unprecedented manner which we aim to take advantage of, aiming to make a consistent fit for inclusive DIS, inclsive diffraction and exclusive diffraction. Also, we investigate a consistent way to handle light quark flavours in the fit, which are strongly related to confinement effects important for large dipoles.

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