



Contribution ID: 553

Type: Parallel talk

## Dissociative production of vector mesons as a new tool to study gluon saturation at electron-ion colliders

*Saturday 13 July 2019 12:30 (15 minutes)*

We present a model with which we predict the cross sections for exclusive and dissociative photo and electroproduction of light and heavy vector mesons off protons; the model describes correctly available experimental data. The model is based on the color-dipole approach and incorporates geometric fluctuations of the target-proton partonic structure. The fluctuations are generated as randomly placed areas of high gluonic density, so-called hot spots, in the proton impact-parameter plane, with the number of hot spots being energy-dependent. A striking feature of the model is the prediction of a maximum of the dissociative cross section as a function of the centre-of-mass energy  $W_{\{\gamma\}}$ , followed by a steep decrease as the hot spots start to overlap with increasing energy. We use these maxima to define a geometrical saturation scale and find that it grows linearly with energy as a function of the scale of the process. This phenomenon can be studied at the proposed electron-ion colliders, JLEIC, eRHIC, and LHeC. We present a comparison of their envisioned kinematic reach with the geometrical saturation scale.

**Author:** BENDOVA, Dagmar (Czech Technical University in Prague (FNSPE))

**Co-authors:** CONTRERAS NUNO, Jesus Guillermo (Czech Technical University (CZ)); CEPILA, Jan (Czech Technical University (CZ))

**Presenter:** BENDOVA, Dagmar (Czech Technical University in Prague (FNSPE))

**Session Classification:** QCD and Hadronic Physics

**Track Classification:** QCD and Hadronic Physics