

Chapter 8: current status

“BFKL and Saturation”

Authors:

JB: Introduction, BFKL part

Hannes Jung: Introduction, BFKL part, Forward di-jets

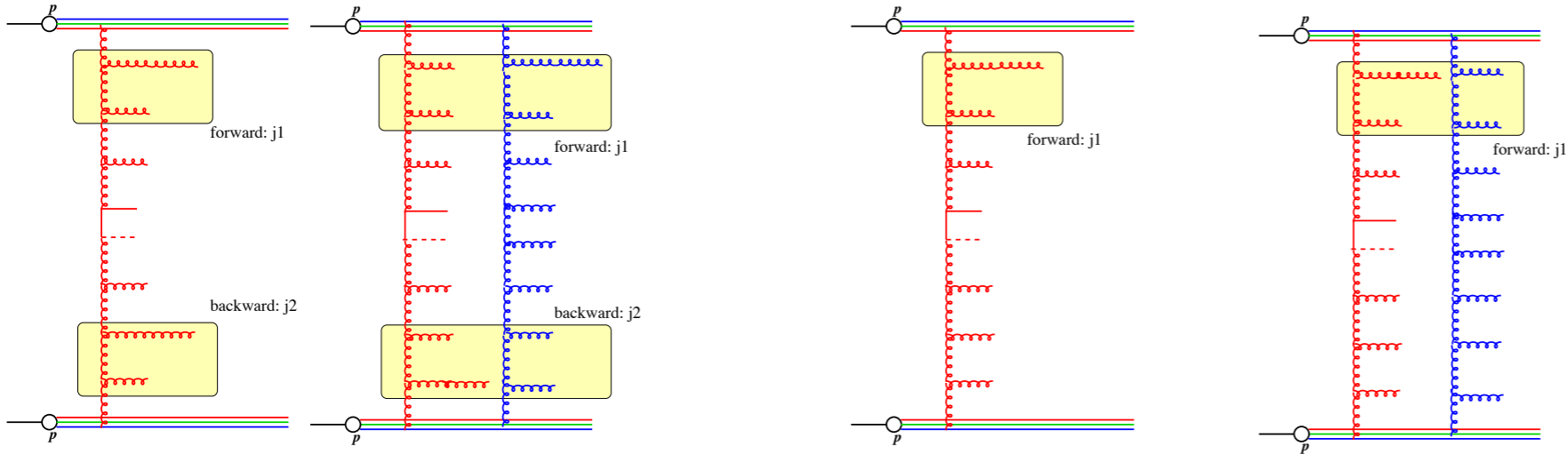
Cyrille Marquet: Drell Yan and saturation

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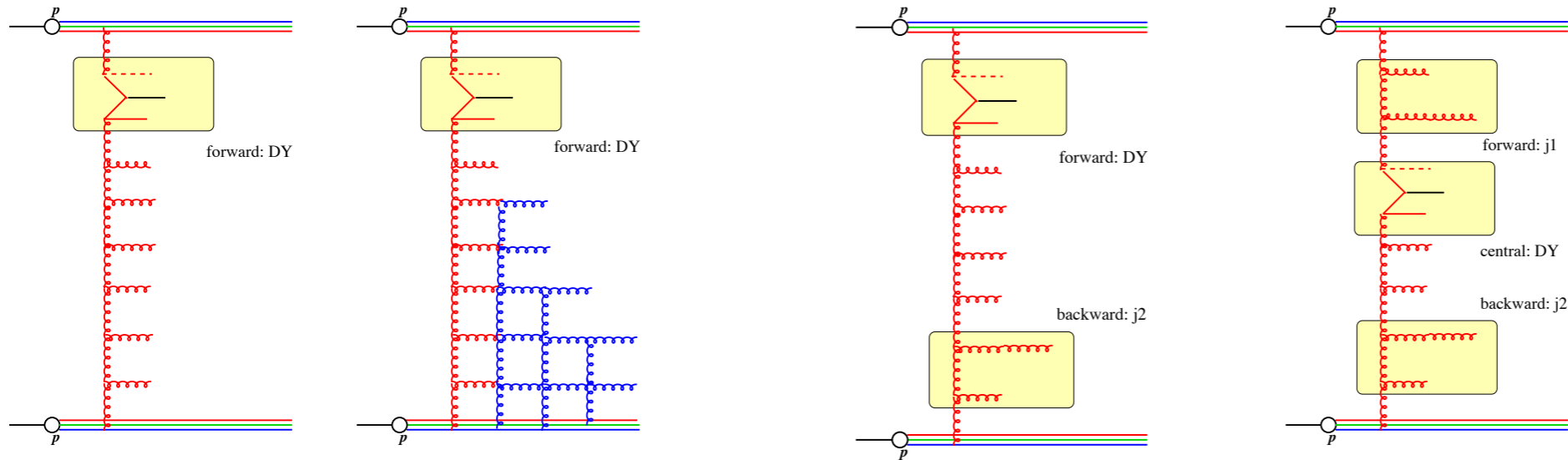
Introduction:

text for each topic and schematic overview



BFKL

forward jets



Drell-Yan and saturation

BFKL - part:

Motivation:

reggeized gluon as new d.o.f.,

BFKL also in electroweak (unitarity problem in WW) and gravity

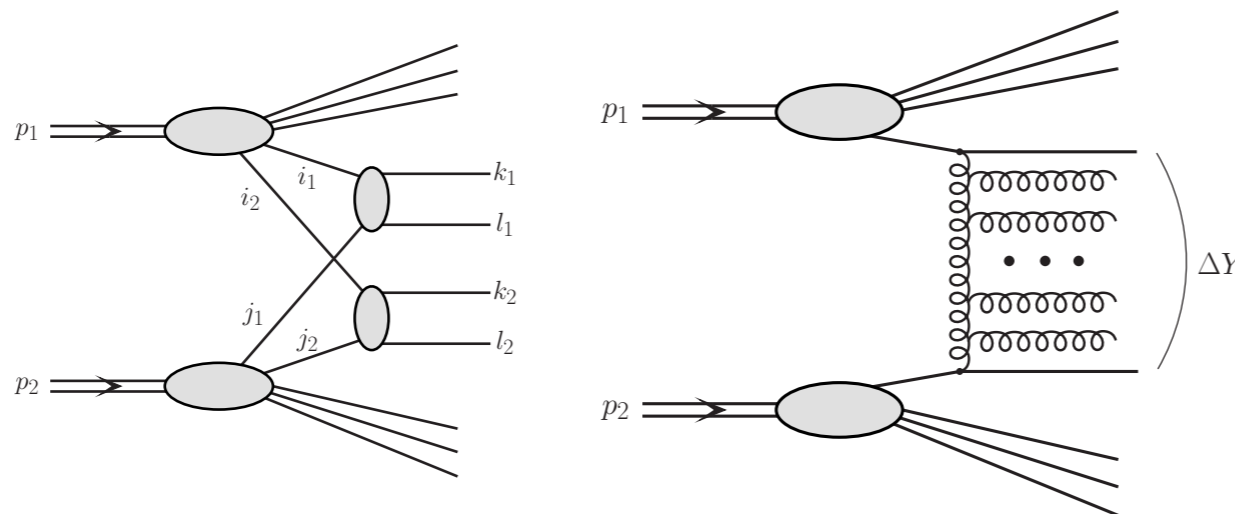
BFKL - signals based upon all-order summation:

importance of scales (small-x in DIS, MN-Jets),

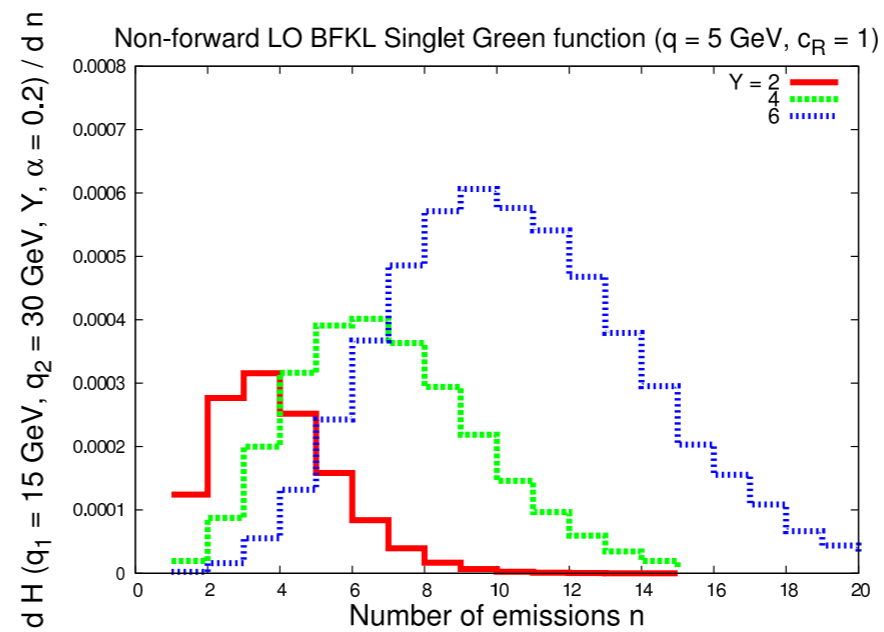
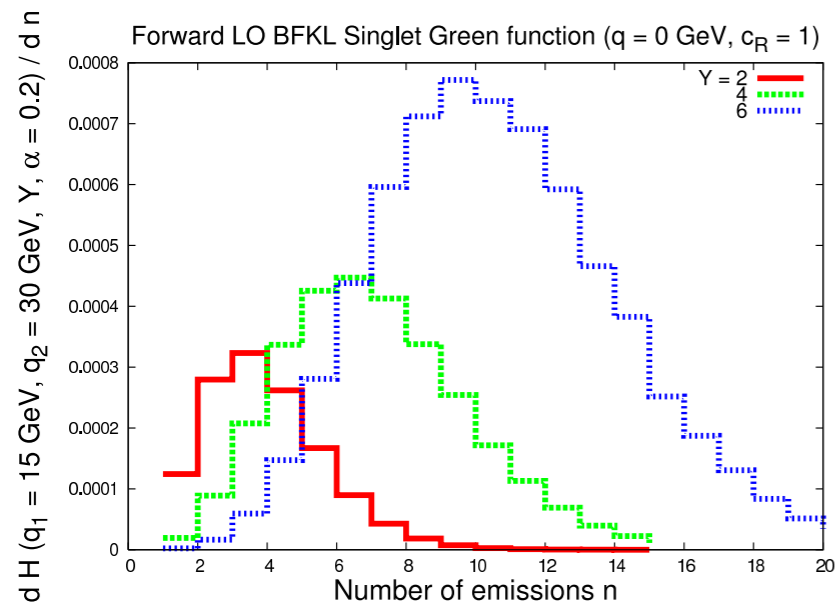
energy dependence (intercept)

angular decorrelations (C_0 and C_2/C_1 vs Y)

DPS-contributions (7 TeV, 14 TeV, E-jet 35, E-jet=10)



BFKL - exclusive: Comparison moments CCFM - BFKL BFKL Monte Carlo



Comparison fixed-order vs. BFKL

Previous measurements, experimental aspects:

D0

CMS (inclusive to exclusive dijet ratio; azimuthal decorrelation)

ATLAS (azimuthal decorrelation)

RUNII expectations, note on experimental techniques

Part on Forward jets:

Key questions:

high energy factorization, unintegrated pdfs, saturation.

Di-jets (nuclear modification factor, saturation; Castor)

Tri-jets

Measurements at very large rapidities (Castor)

Drell-Yan and saturation:

Should have short introductory paragraph on motivation?

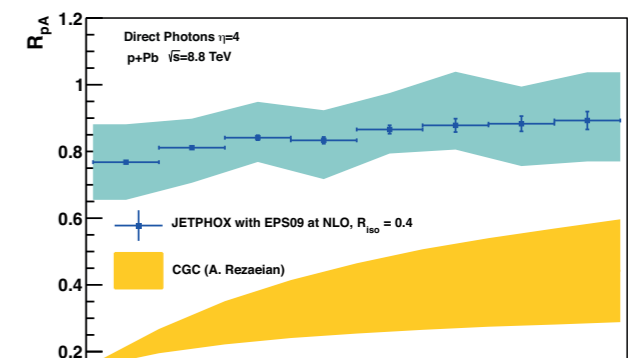
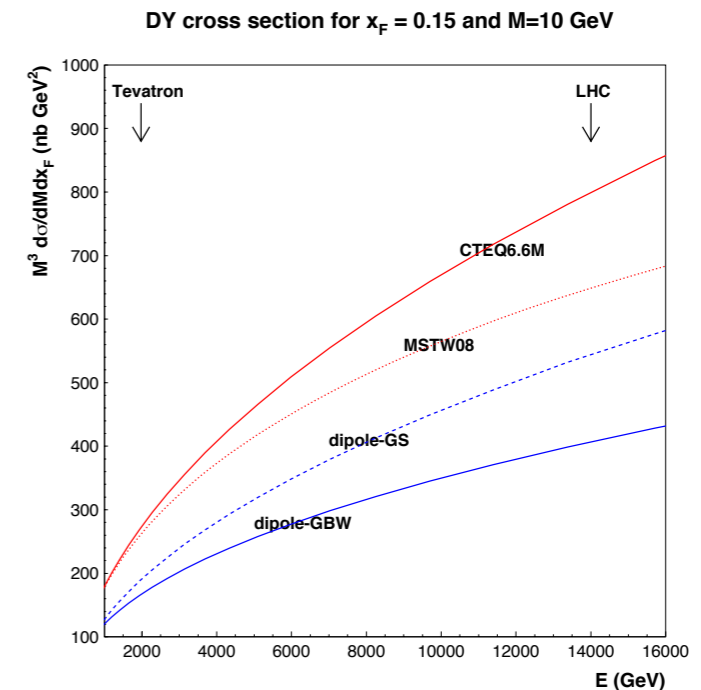
collinear approach,
formalism for color dipole

Compare both approaches for $M^2 d\sigma/dM dx_f$
(results for E772 data, predictions for LHC):
can discriminate.

Prospects in collinear approach:
determination of parton densities (scale uncertainties, higher twist,
nuclear parton densities in pA)

Further prospects in small-x approach:
different saturation models (GBW, CGC),
spectra in p_T . Comparison with E866, Atlas.

Forward photoproduction and saturation:
nuclear modification factor with photons (FoCal at Alice)



Large $-x$ region:

High x_F measurements allow studies of intrinsic heavy quarks

Still to be done:

Introductions (overall, partial)
conclusions (overall)
references, typos

Recent corrected version by Hannes, to be read