

WORKING GROUP I

PARTON DENSITY FUNCTIONS

CONVENORS:

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A. GLAZOV (H1), S.-O. MOCH (ZEUTHEN)

GOALS

- NEED TOOL FOR ERROR PROPAGATION
- NEED TO UNDERSTAND DEPENDENCE ON RAPIDITY AND p_T SPECTRUM → ACCEPTANCE CUTS
- NEED A LIST OF 'GOLD-PLATED' PROCESSES
- ASSESS RELATIVE SIZE OF EXPT. AND TH. UNCERTAINTIES @ LHC
- NEED TO UNDERSTAND INTERPLAY OF PDF ERRORS WITH MONTECARLOS/EVENT GENERATORS
- NEED TOOLS TO ASSESS IMPACT OF RESUMMATIONS OR NON-GLAP EFFECTS

SUGGESTIONS

- REFERENCE PROCESSES AT LHC:

- W, Z production as luminosity monitor
- W, Z rapidity and p_t distn. constrain PDF shape
- W^+ / W^- constrain flavor decomposition
- use $\gamma (W, Z) + \text{jet}$ to constrain the gluon (use also high mass DY?)

- REFERENCE PROCESSES AT HERA:

- high precision F_2
- F_L as probe of gluon & non-GLAP effects
- lower proton energy \rightarrow intermediate-large x
- deuteron running \rightarrow flavor decomposition

TASKS

- LIST OF INTERESTING LHC REACTIONS AND ASSESSMENT OF THEIR EXPERIMENTAL AND THEORETICAL ACCURACY
- CORRELATION OF PDF UNCERTAINTY AND DETERMINATION OF “STANDARD CANDLES”
- IMPACT OF DETERMINATION OF F_L ON THEORETICAL PDF UNCERTAINTIES
- QUANTITATIVE IMPACT OF SMALL x AND LARGE x RESUMMATIONS ON INDIVIDUAL LHC OBSERVABLES

SUBGROUPS & TOPICS

REFERENCE LHC PROCESSES **M. Dittmar**

- LIST OF INTERESTING LHC REACTIONS AND ASSESSMENT OF THEIR EXPERIMENTAL AND THEORETICAL ACCURACY
- RATIOS FOR INCLUSIVE AND (y, p_t) DIFFERENTIAL CROSS SECTIONS

STRUCTURE FUNCTIONS **A. Glazov and S. Moch**

- PDF UNCERTAINTIES, THEIR CORRELATIONS AND THEIR IMPACT ON THE DETERMINATION OF “STANDARD CANDLES” AT THE LHC
- IMPACT OF FUTURE PRECISION MEASUREMENTS OF F_2 ON PDF DETERMINATIONS
- THE PROSPECTS FOR PDFs FROM HERA ONLY AND LHC ONLY
- PDF UNCERTAINTIES FOR DIFFERENTIAL CROSS SECTIONS (y AND p_t -RANGE)
- IMPACT OF F_L MEASUREMENTS AND $\frac{dF_2}{dQ^2}$

RESUMMATIONS AND NON-GLAP EFFECTS **S. Forte**

- SMALL x RESUMMATION
- LARGE x RESUMMATION
- SATURATION