


Notes: Wednesday 29 March 2017

PDFs and Low x at LHeC

Wednesday 29 Mar 2017, 17:00 → 18:00 Europe/Zurich

Description Meeting of the PDFs and Low x at LHeC on a bi-weekly base.
Only by Vidyo, a link will be set.
Time 17:00 CERN Time

Videoconference Rooms  HERAFitter_Users_meeting [Join](#)

AGENDA

Brief Discussion looking toward DIS2017

DIS: speakers:

- Mandy for PDFs
- Claire for alphas
- Daniel B for EW
- Hannu for Nuclear PDFs

NOTES:

DIS: speakers:

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- * New xFitter 2.0.0 released.

Includes simulated data from CDR arXiv:1206.2913

To do: include updated data including Fcc-eh

- * Michael Klasen et. al.,
looked at nPDFs at EIC. Willing to re-run for LHeC

Nuclear parton density functions from jet production in DIS at the EIC

M. Klasen, K. Kovarik, J. Potthoff

arXiv:1703.02864 [hep-ph]

- * Daniel Britzger: presenting today at Moriond.
will present prospects on PDF+EW fits using simulated LHeC and FCC data.
will exploit the new FCC data from max.

- * Stefano Camarda: updates on MW
(~2 MeV PDF uncertainty on W mass)

- * Hannu Paukkunen: nPDF at the LHeC.
(also see Nestor's overview from last week)

FROM LAST WEEK

List of Meetings / Goals

5

from last week

- Open LHeC PDF and low x meetings on bi-weekly basis:

- <https://indico.cern.ch/category/1874/>

- Near term goals and tentative talk plans:

- DIS17 Birmingham 3.-7.4.17 → assign speakers

- future DIS WG, convenor: Max and Rik Yoshida: possible contributions drafted with Rik:

- PDFs from the LHeC
 - alphas from the LHeC and the FCC-eh
 - precision electroweak physics at the LHeC
 - nuclear PDFs at the LHeC

- People at DIS: Max, Fred, Mandy,...

- FCCweek in Berlin 28.5.-2.6:

- there will be one parallel session 1.5 h on FCC-eh physics

- draft program [comments very welcome!]

- Measurement of Parton Distributions and the Strong Coupling Constant
 - Precision Higgs and Top Physics Measurements
 - BSM Higgs
 - Heavy Neutrino Searches with FCC-eh
 - ep BSM Physics
 - High Density QCD and eA Physics
 - The Physics Interest in ep from the pp Perspective

- CTEQ summer school: EIC+LHeC synergy?

- Longer term goals

- LHeC Workshop in September

- Possible "Precision at LHC" Workshop which would be joint with LHeC and continue for 2017 (fall) +18.

- CDR/TDR LHeC / FCCeh

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Next meeting:

Tuesday 28 March
Prep for DIS

Simulated data

- Inclusive deep inelastic scattering
- Cross sections and structure functions simulation and uncertainties
 - Neutral current
 - Charged current
 - Strange
 - Charm and beauty production
 - top?
 - jet data?

Max
new simulated
data for FCCeh

Determination of parton distributions

- QCD fit ansatz
- Valence quarks
- sea quark decomposing
- top quarks
- gluon PDF

*Voica,
Claire,
Mandy,
A. Guffanti*
request to get
LHeC grid from
lhpdf5 to lhpdf6

α_s uncertainty determination

Determination of the charm mass parameter in VFN schemes studies

- study of the HVFNS differences
- Intrinsic heavy flavour

Ringaile ...

Electroweak physics:

- sin theta
- quark couplings
- W mass?

*Claire
Daniel B*
get jet simulated data

direct Z & W-boson
production

Physics at small x

Anna & Nestor

- Low-x physics perspectives at the LHC:
 - saturation models
 - TMDs

Nuclear targets

- EPPS16, nCTEQ15

*Nestor
Fred & A. Kusina
...*

Synergy LHC/EIC/ neutrinos

Tools:

- xFitter
- Alpos
- Oxford fit
- low x/nuclear tools

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