

PROSA ideas including HERA data

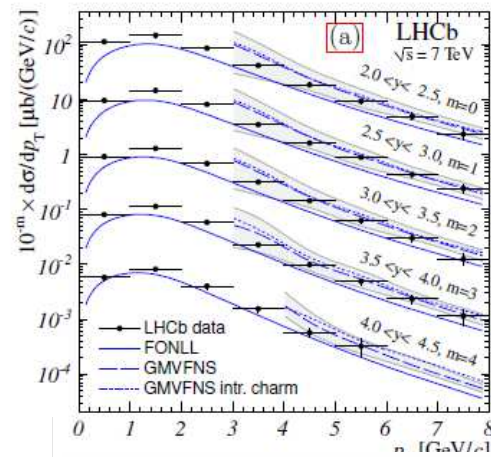
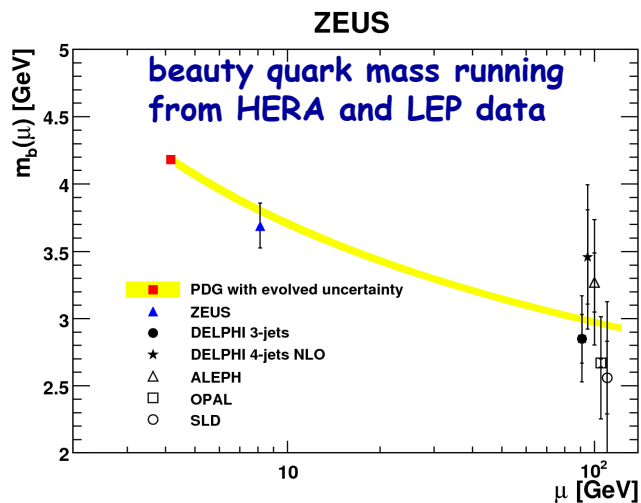
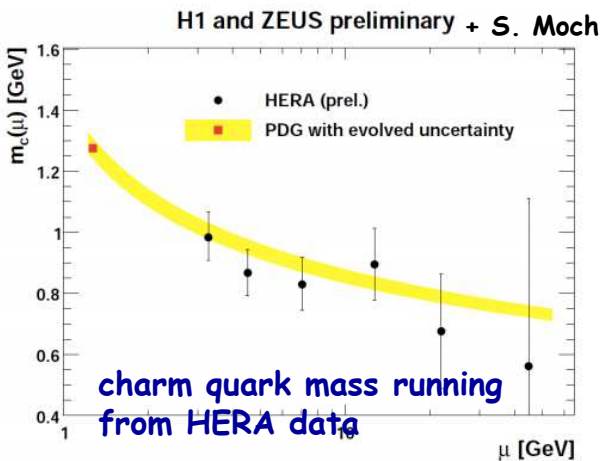
A. Geiser, personal view in the context of the PROSA collaboration
(PROton Structure Analysis, mainly LHC), not an official collaboration report

Measurement of
 α_s , m_c , m_b , m_t ,
their running and
their interplay
in a simultaneous fit of
LHC, Tevatron, and HERA
data



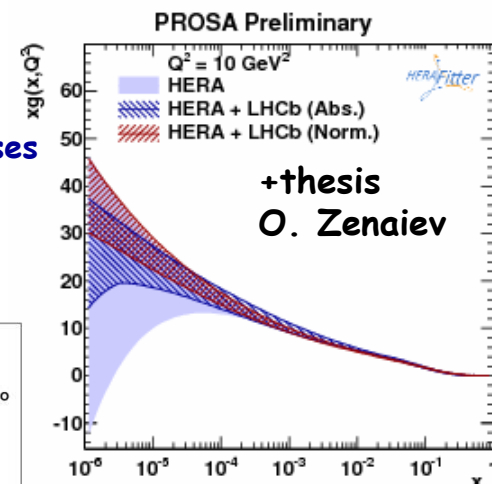
Future HERA analysis workshop, 13.11.14

many ingredients ready

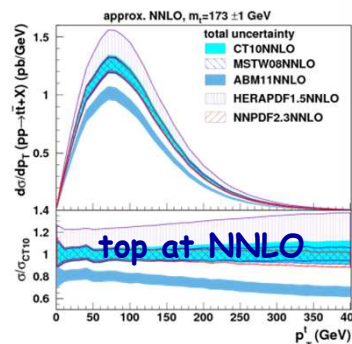
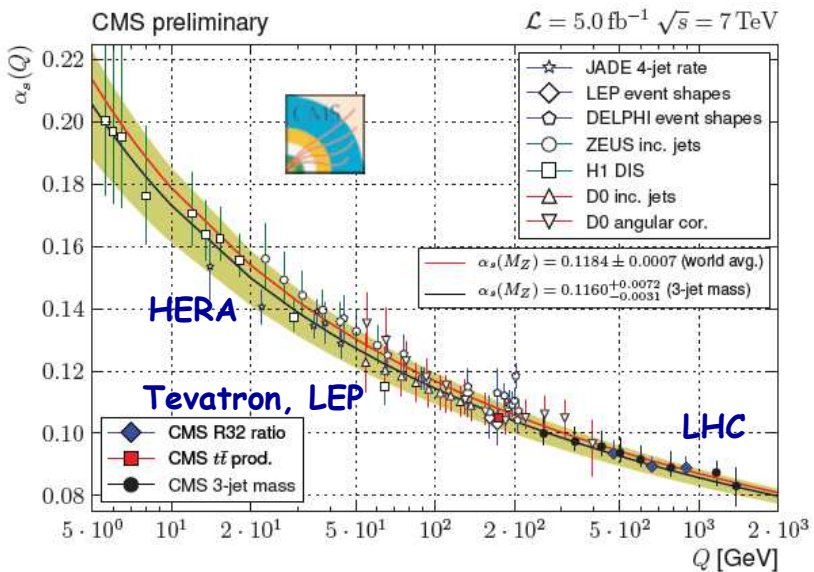
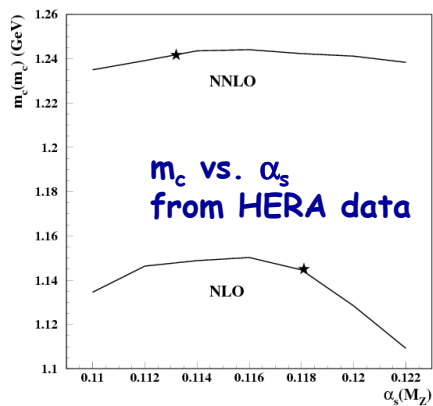


HERAFitter

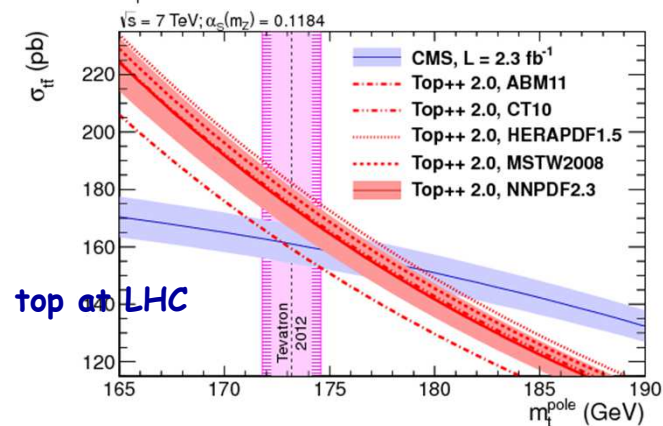
constrain masses and gluon PDF simultaneously



S. Alekhin, J. Blümlein, S. Moch



M. Guzzi, K. Lipka, S. Moch



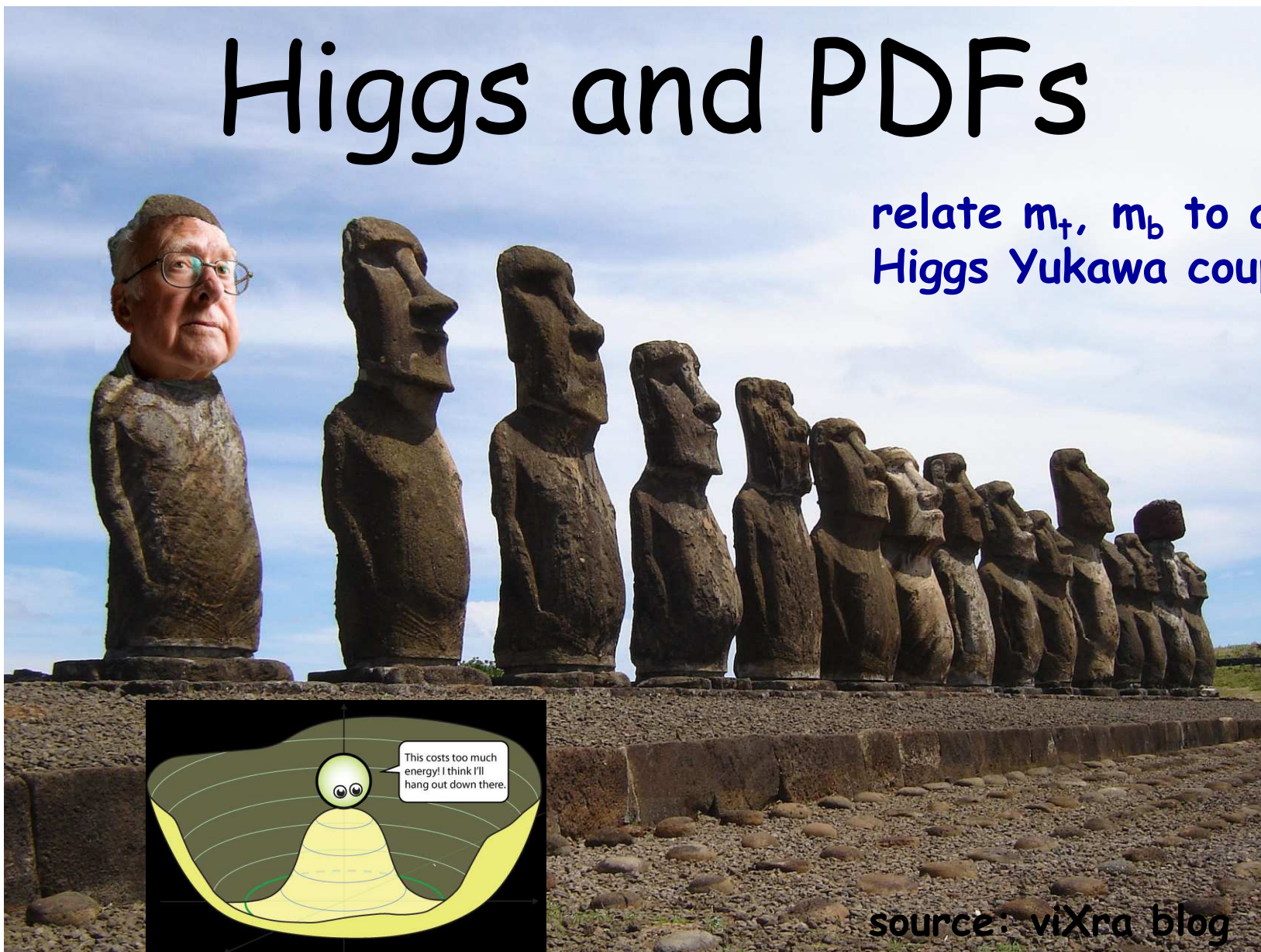
-> put it all together !

13. 11. 14

A. Geiser, Future HERA workshop

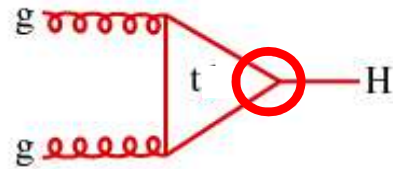
Higgs and PDFs

relate m_t , m_b to associated Higgs Yukawa couplings



source: viXra blog

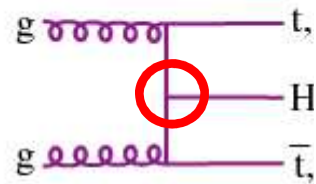
Higgs production and gluon PDF



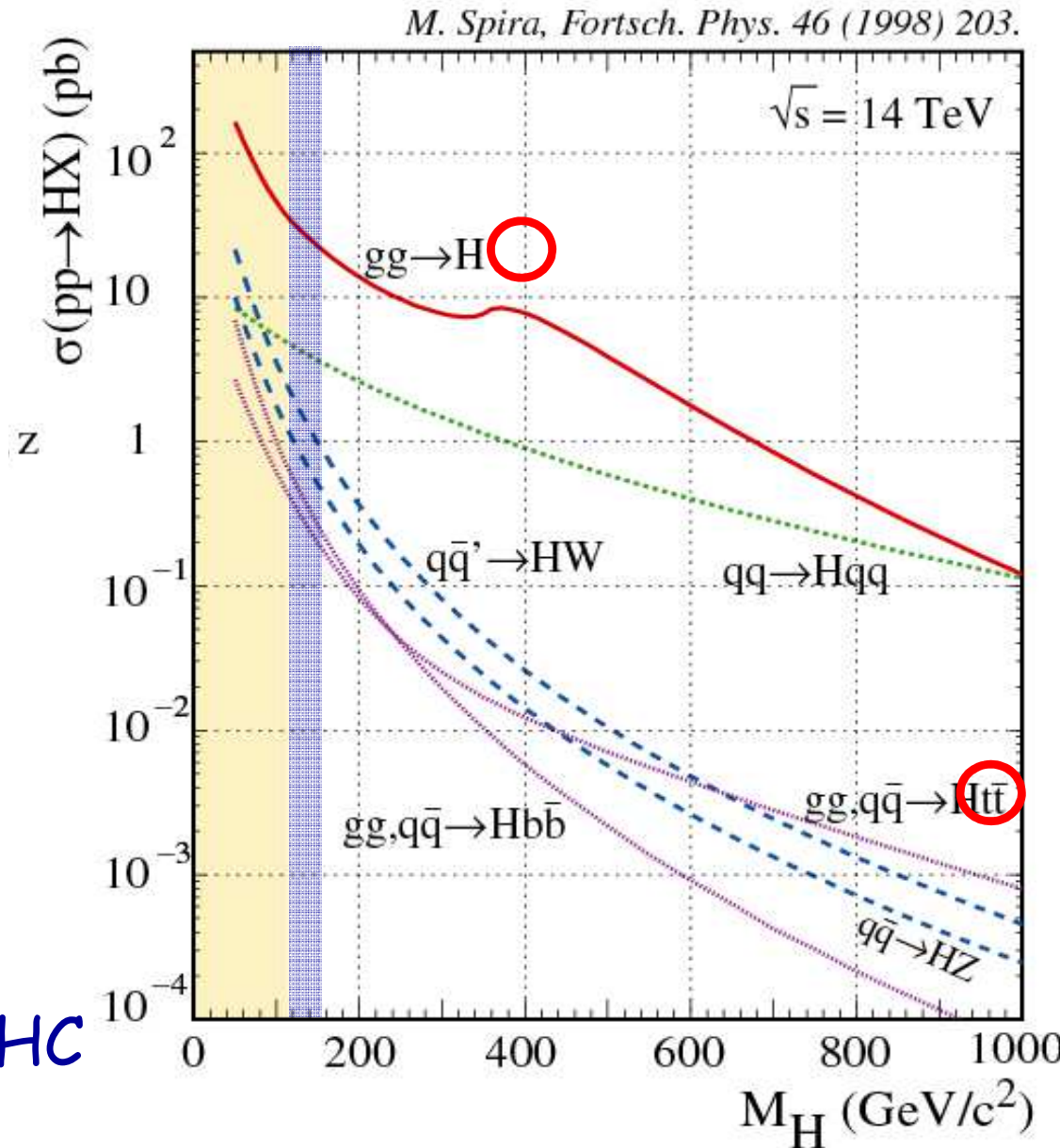
knowledge of gluon PDF essential for measurement of H - t Yukawa coupling

input:

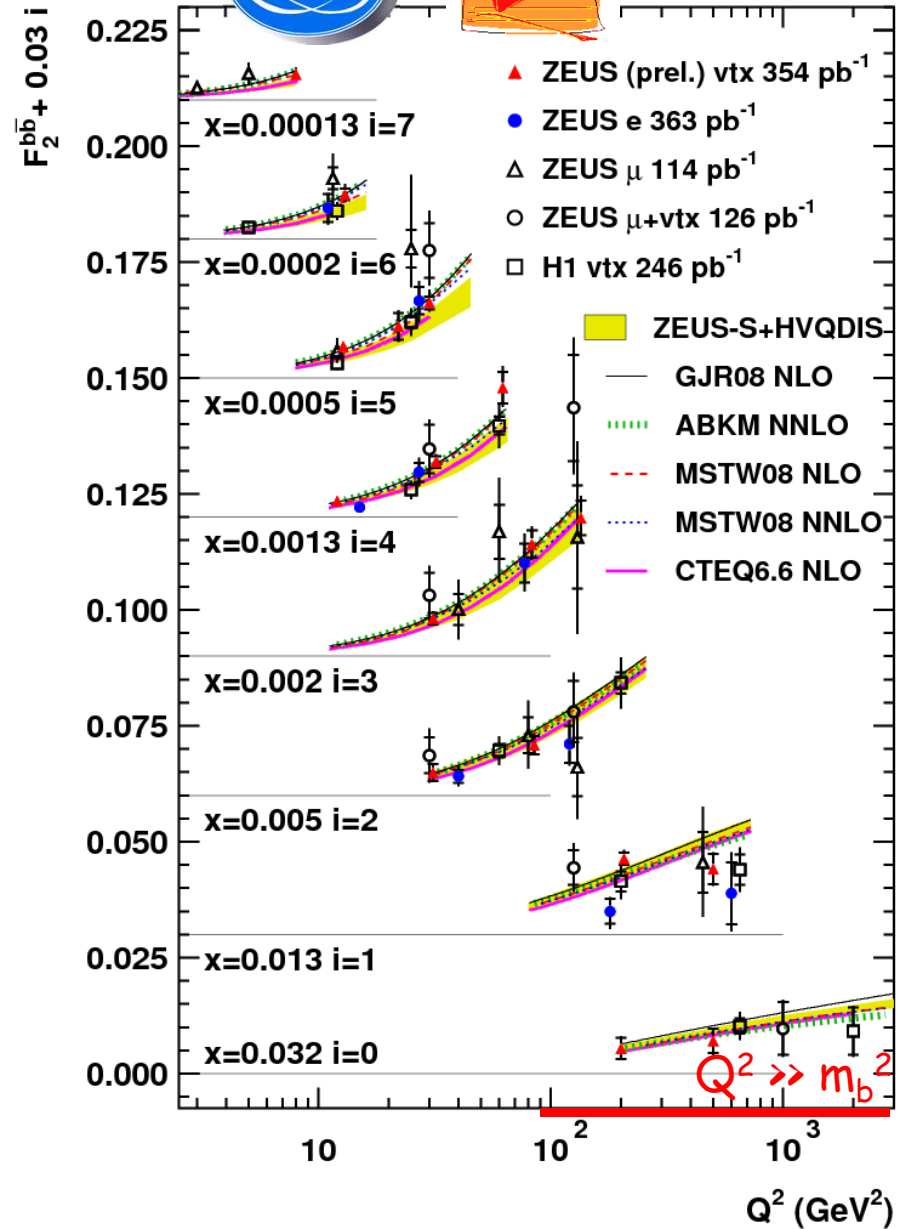
HERA F_2 (scaling), F_2^c
 Jets at HERA, Tevatron, LHC



13. 11. 14 $t\bar{t}$ at LHC



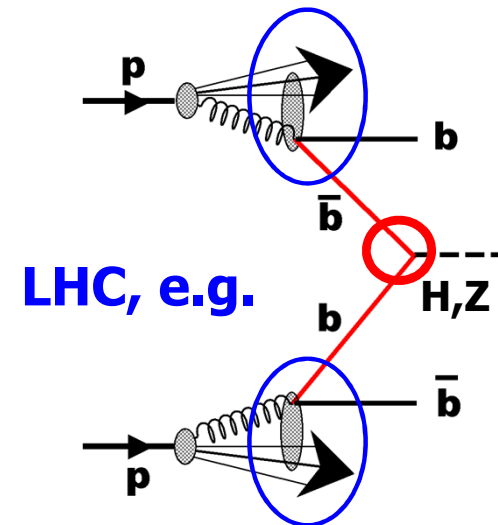
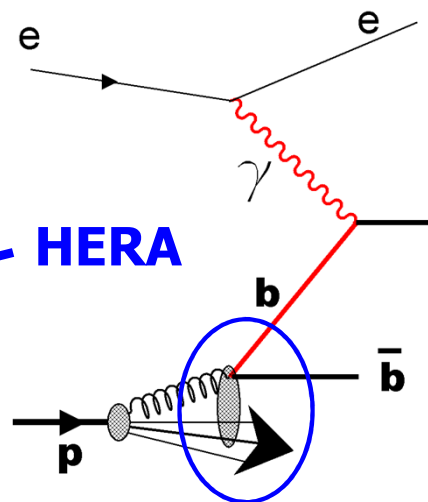
Higgs and b PDF: b contrib. to F_2



need b PDF to
measure **H-b** Yukawa coupling

input: F_2^b (HERA)
 $Zb(b)$ (LHC)

check b PDF for LHC:



Conclusion

For precision measurements of α_s , m_c , m_b , m_t
from HERA and LHC data
and precision measurements of Higgs
properties (Yukawa couplings) at LHC
best possible knowledge of PDFs is essential !

evaluation of fundamental parameters, plus
PDF-related precision and uncertainties
= goal in the context of the ProSA collaboration