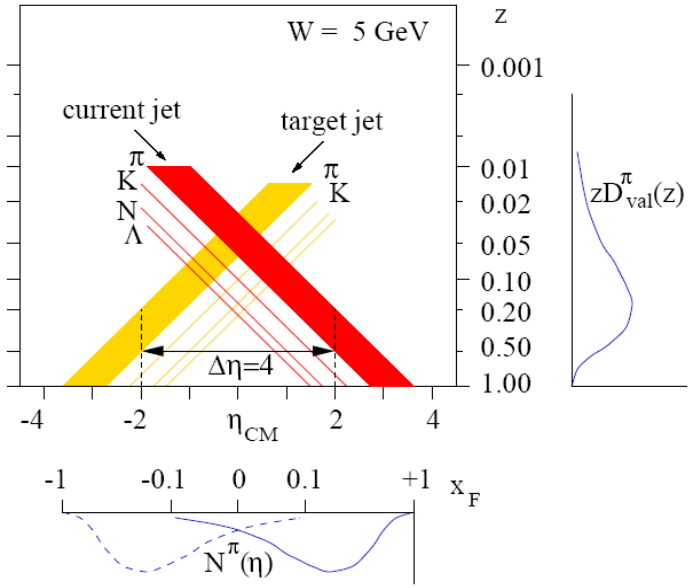
# Discussion/Questions
## (muon beam, SIDIS and GPDs)

- Longitudinal target polarisation
  - Is the longitudinal spin program indeed over?
- Transverse target polarisation
  - more deuteron data (1 year)
  - TMD evolution, different energies (intensity?), multi-D
- TFR Fracture functions
- How to interpret future JLab12 data
  - Berger criterion
- Muon beam intensity – are we at the limit?
  - crazy ideas…?

# Ed. Berger criterion (separation of CFR &TFR)

The typical hadronic correlation length in rapidity is

$$\Delta y_h \simeq 2$$




hep-ph/0010199

if the dynamics of quark fragmentation is to be studied independently of "contamination" from target fragmentation, it is necessary that $Y \gtrsim 4$, or, equivalently, that

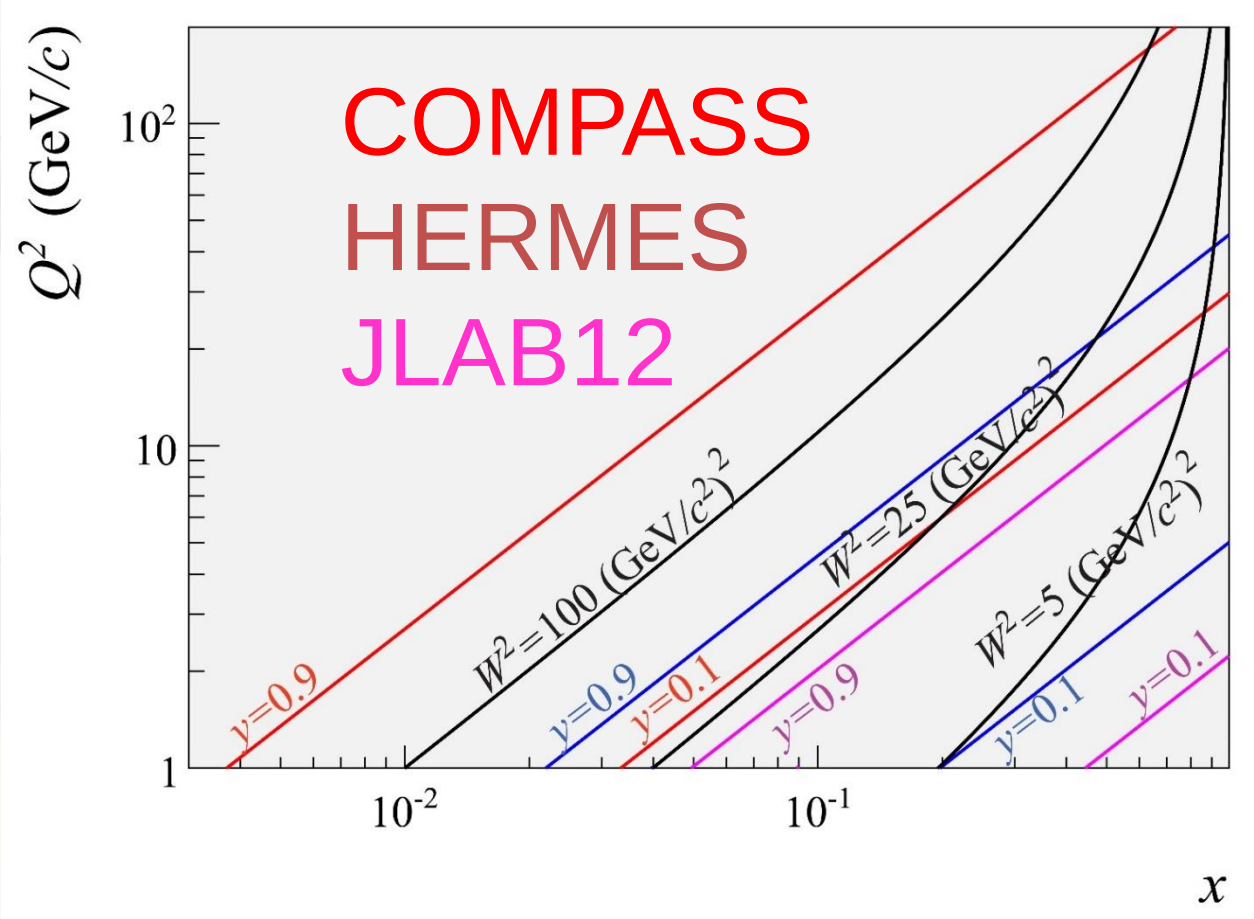
$$W_X = \left[\frac{Q^2(1-x)}{x}\right]^{1/2} \gtrsim 7.4\text{GeV}. \qquad (17)$$

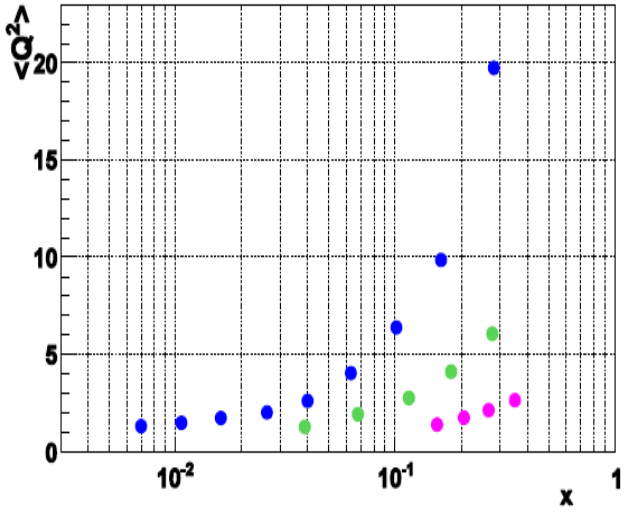
If the inequality Eq. (17) is satisfied, it should be possible to measure fragmentation functions $D(z, Q^2)$ over essentially the full range of $z$, $0 < z < 1$. Somewhat smaller values of $W_X$ may be adequate if attention is restricted to the large $z$ region. As $Y$ is increased above 2, or

$$W_X \gtrsim 3 \text{ GeV}, \qquad (18)$$

the quark and target fragmentation regions begin to separate. As long as $Y \gtrsim 2$, the hadrons with the largest values of $z$ are most likely quark fragments. Data[14] from $e^+e^- \to h\,X$ show that a distinct function $D(z)$ may have developed for $z \gtrsim 0.5$ at $W = 3$ GeV. The region extends to $z \simeq 0.2$ for $W = 4.8$ GeV, and to $z \simeq 0.1$ for $W = 7.4$ GeV. For $z > 0.3$, fragmentation functions have been obtained from data[15] on $ep \to e'\pi^{\pm} X$ at $E = 11.5$ GeV, with $3 < W_X < 4$ GeV.

# Kinematic coverage



- GPDs
  - quest for GPD *E,* PT with recoil detector
  - double DVCS, suppressed $\alpha_{em}$, any chance?
  - COMPASS & JLAB complementary
  - meson beams, GPDs in Drell-Yan
- Future facilities
  - EIC, NICA, CEIC