Multiplicities

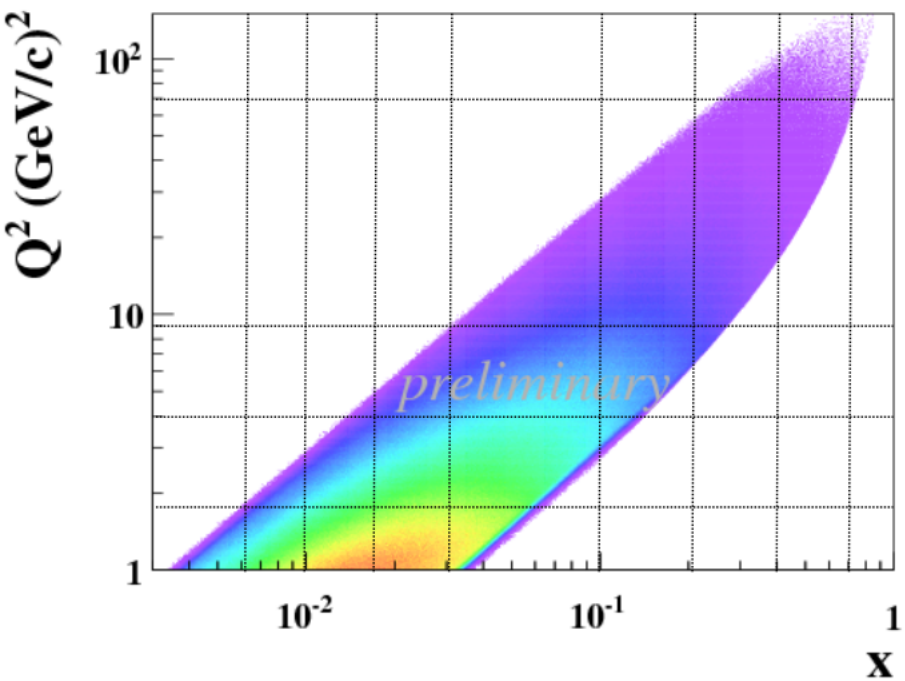
TMDe2015

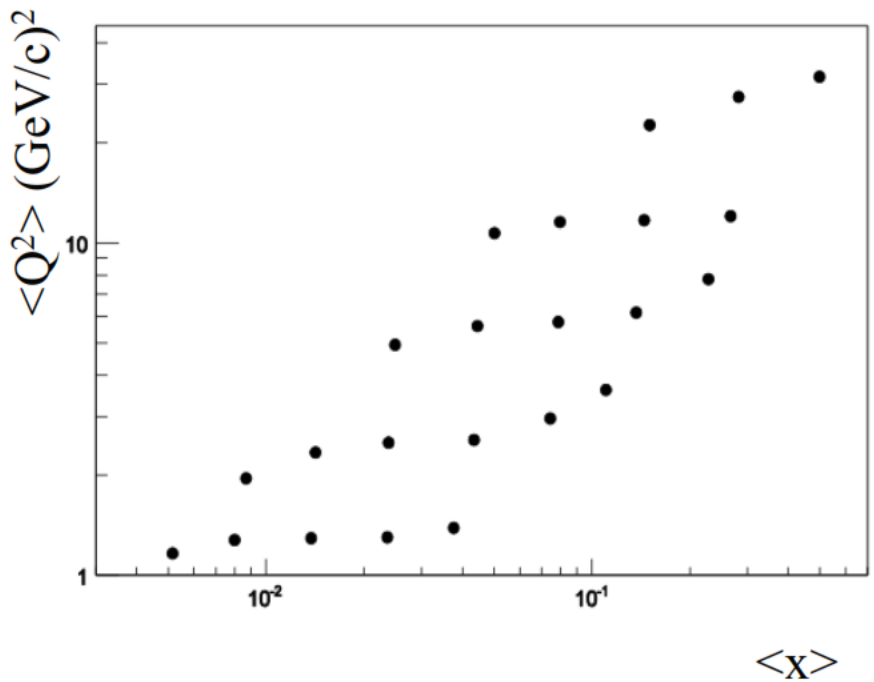
Data set & Multi-dimensional analysis

SIDIS data sample collected in 2006

$$M_N^h(x, z, p_T^2, Q^2)$$

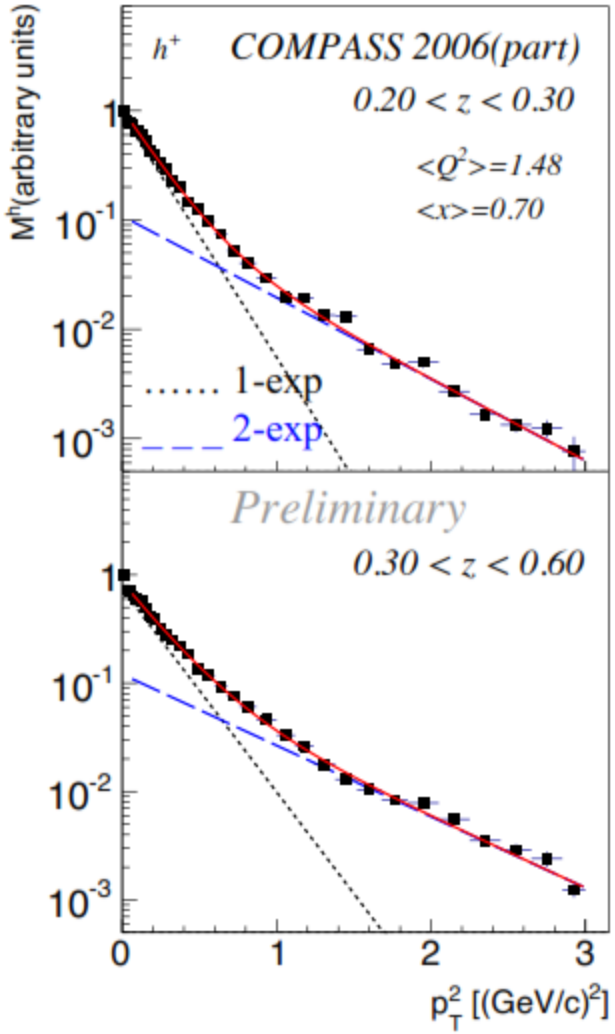
Multi dimensional analysis in x, Q^2, z, p_T^2 bins



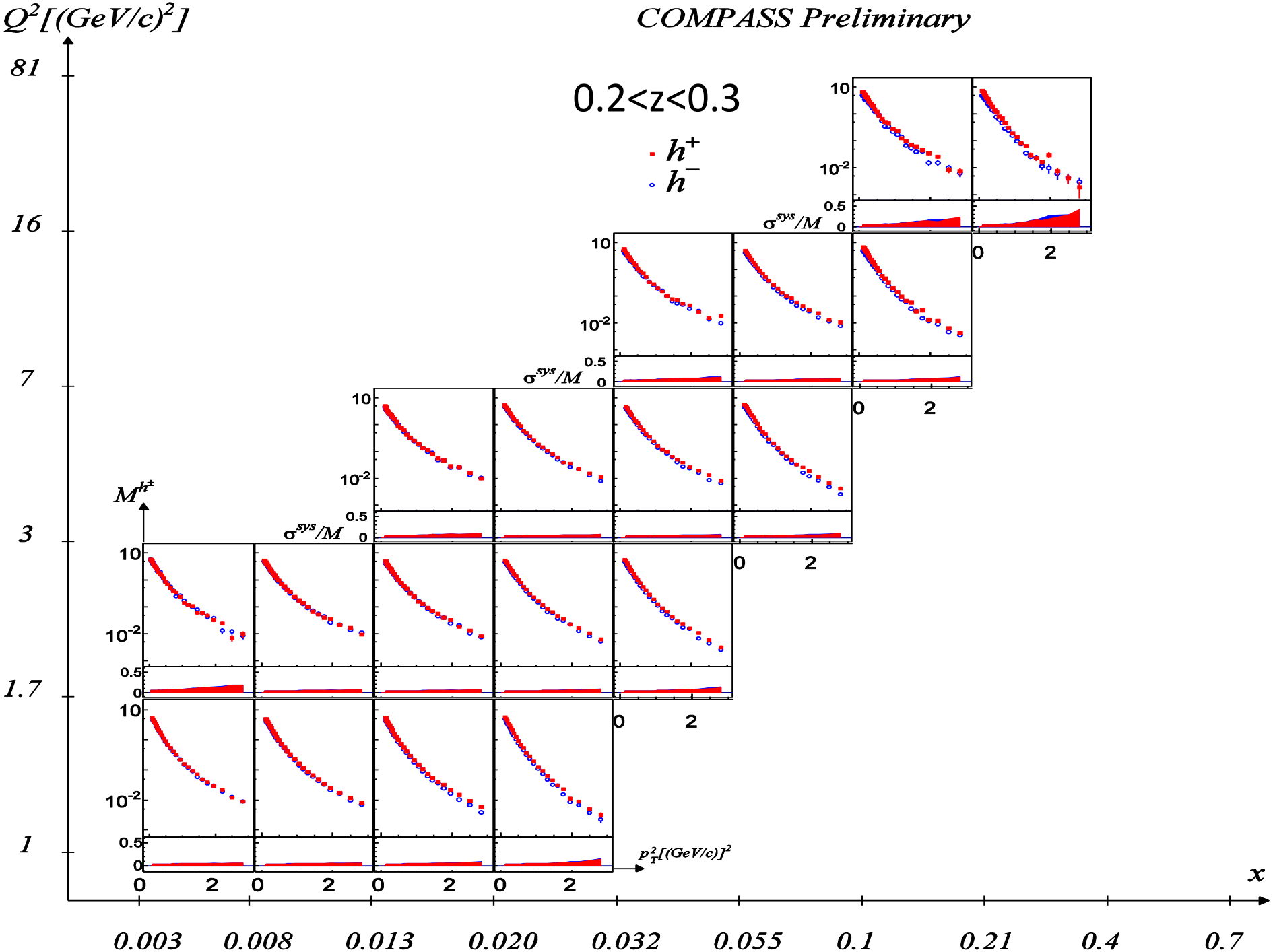


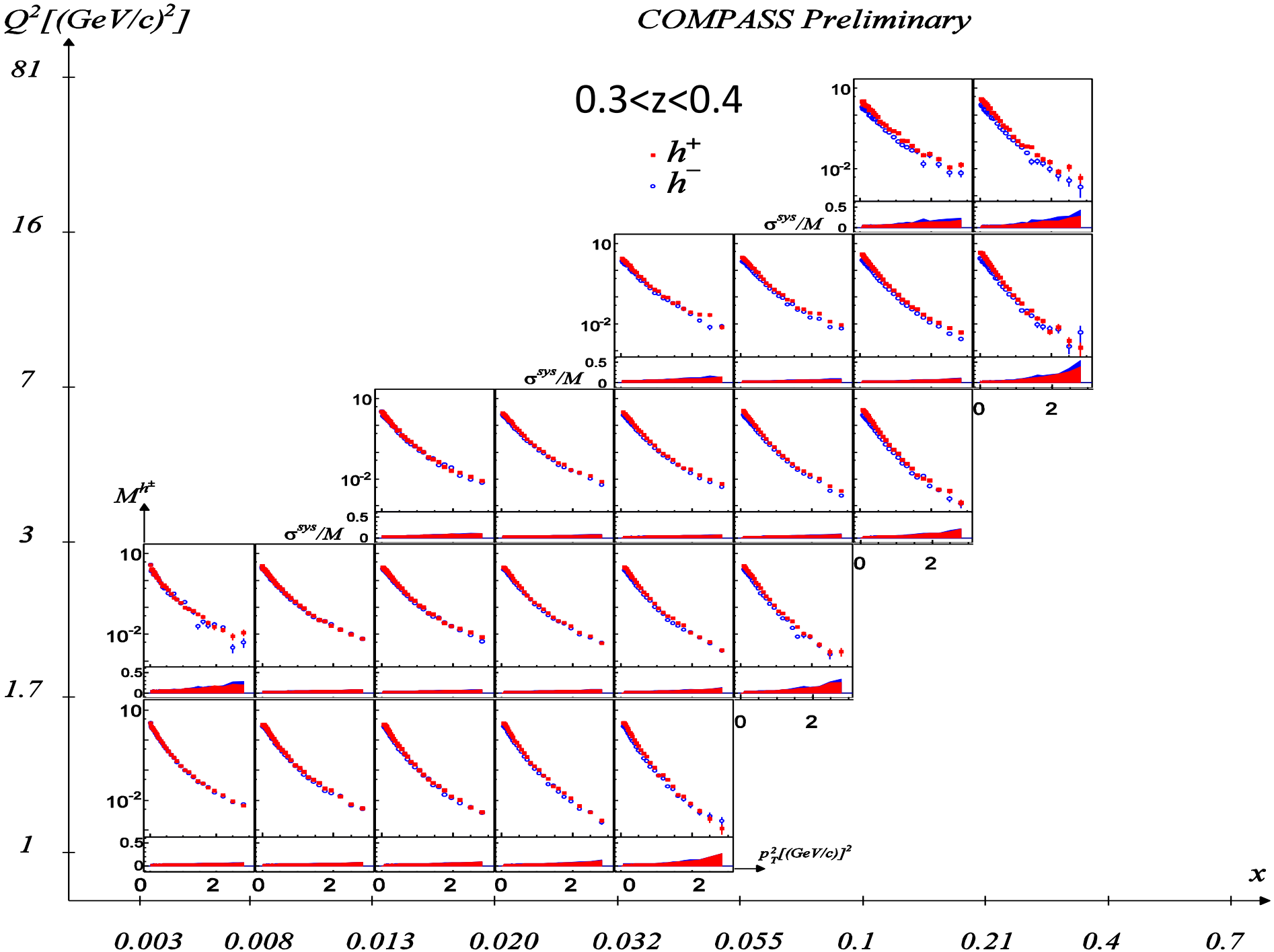
slide from Nour Makke SPIN2014

Transversity, June 2014



- Precise measurement using 2006 data with larger angular acceptance
- p_T^2 range extended to 3 (GeV/c)^2
- Very promising to extract physics on transverse momentum dependent PDFs and FFs
- Fit multiplicities with
  - 1-exponential for $p_T^2 \in [0.05, 0.68]$
  - 2-exponentials for $p_T^2 \in [0.05, 3]$
  - $\Rightarrow$ Need 2-exponentials to describe p_T^2 shape of COMPASS data
- Ongoing analysis to extract complete set of multiplicities in full kinematic domain


COMPASS Preliminary
0.2<z<0.3
h^+
h^-
$Q^2[(GeV/c)^2]$
81
16
7
3
1.7
1
$M^{h^\pm}$
σ^{sys}/M
$p_T^2[(GeV/c)]^2$
x
0.003
0.008
0.013
0.020
0.032
0.055
0.1
0.21
0.4
0.7


COMPASS Preliminary
0.3<z<0.4
h^+
h^-
$Q^2[(GeV/c)^2]$
81
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$M^{h^\pm}$
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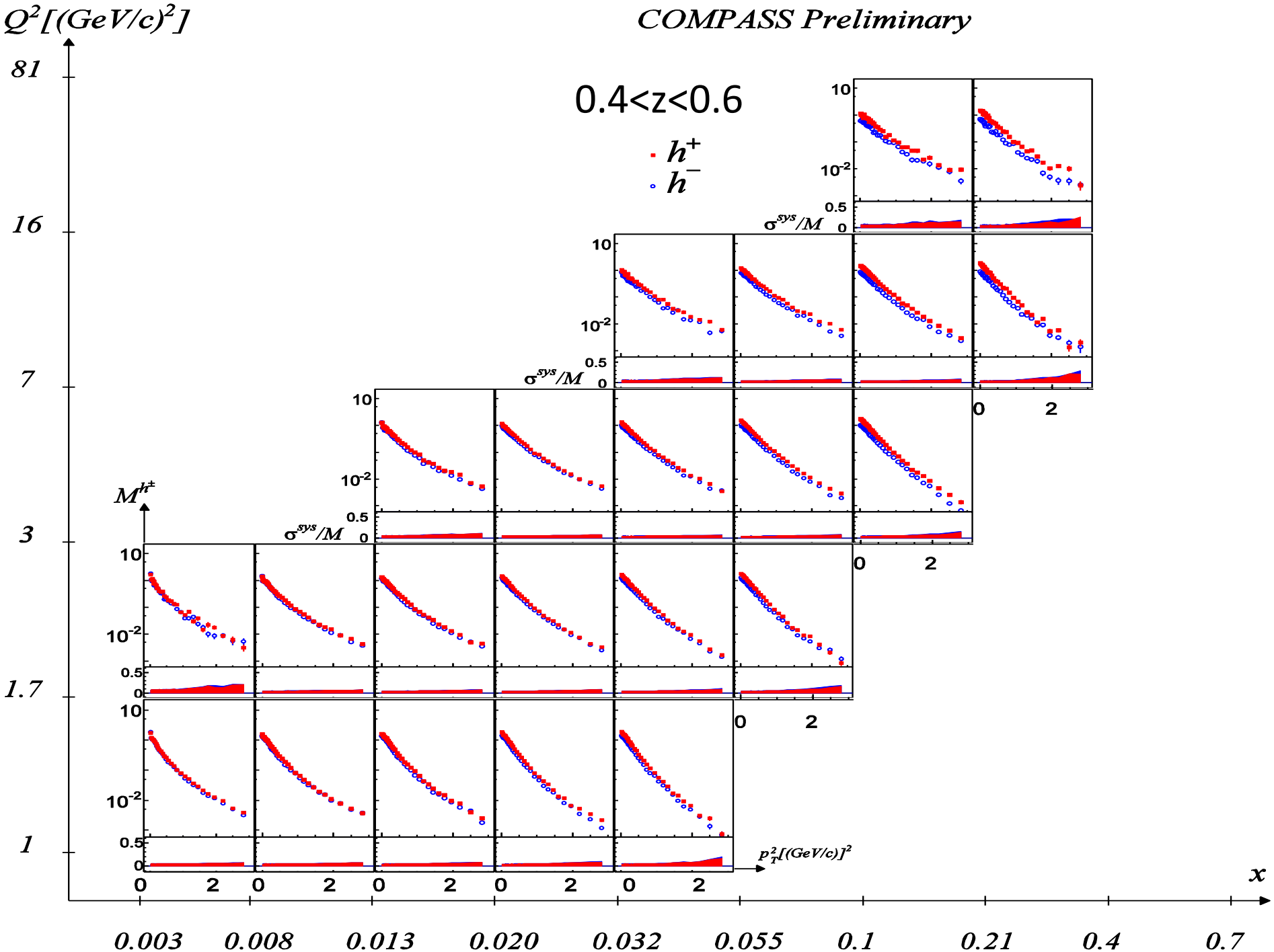
COMPASS Preliminary
0.4<z<0.6
h^+
h^-
$Q^2[(GeV/c)^2]$
81
16
7
3
1.7
1
$M^{h^\pm}$
σ^{sys}/M
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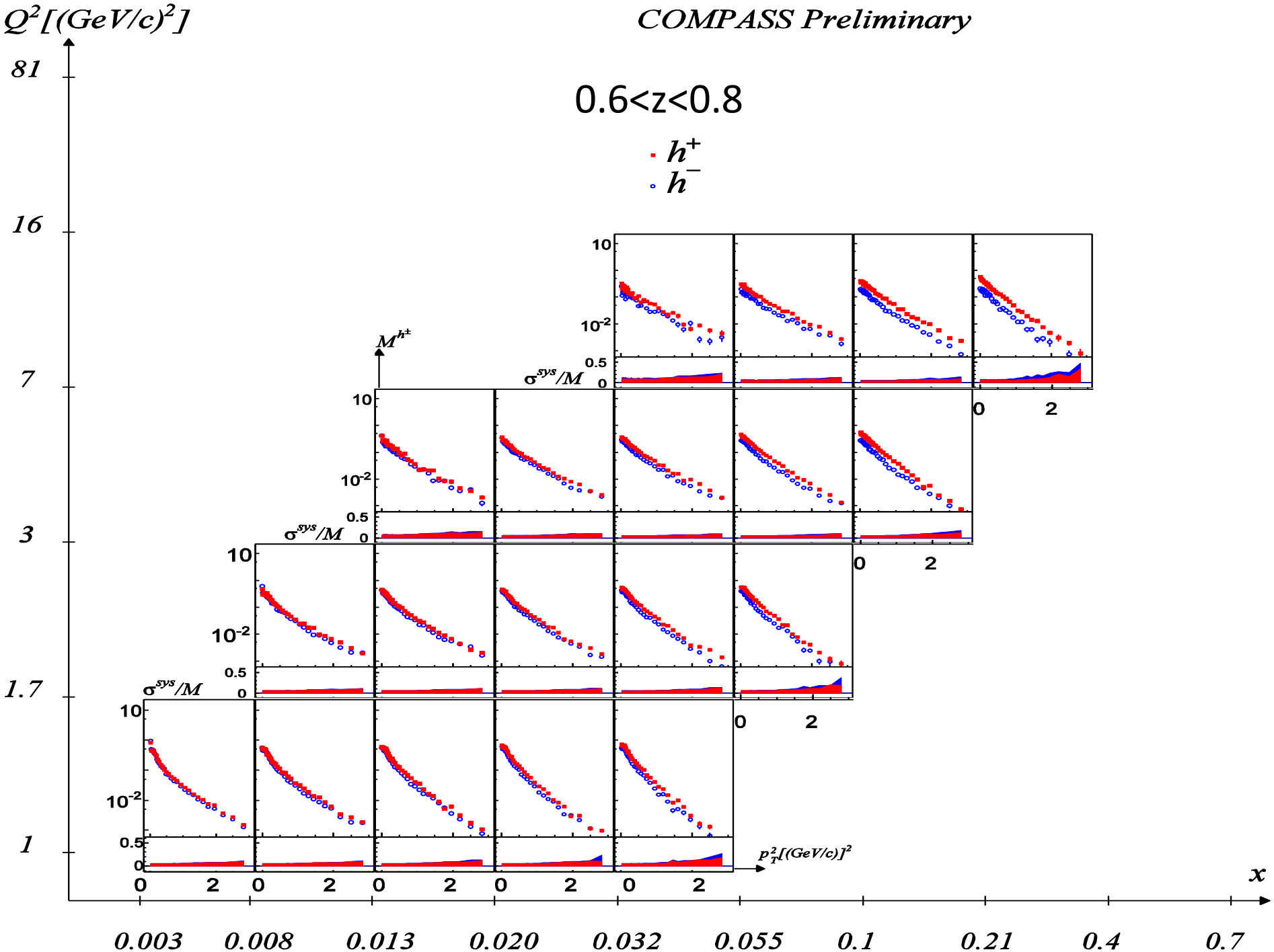
COMPASS Preliminary
0.6<z<0.8
h^+
h^-
$Q^2[(GeV/c)^2]$
81
16
7
3
1.7
1
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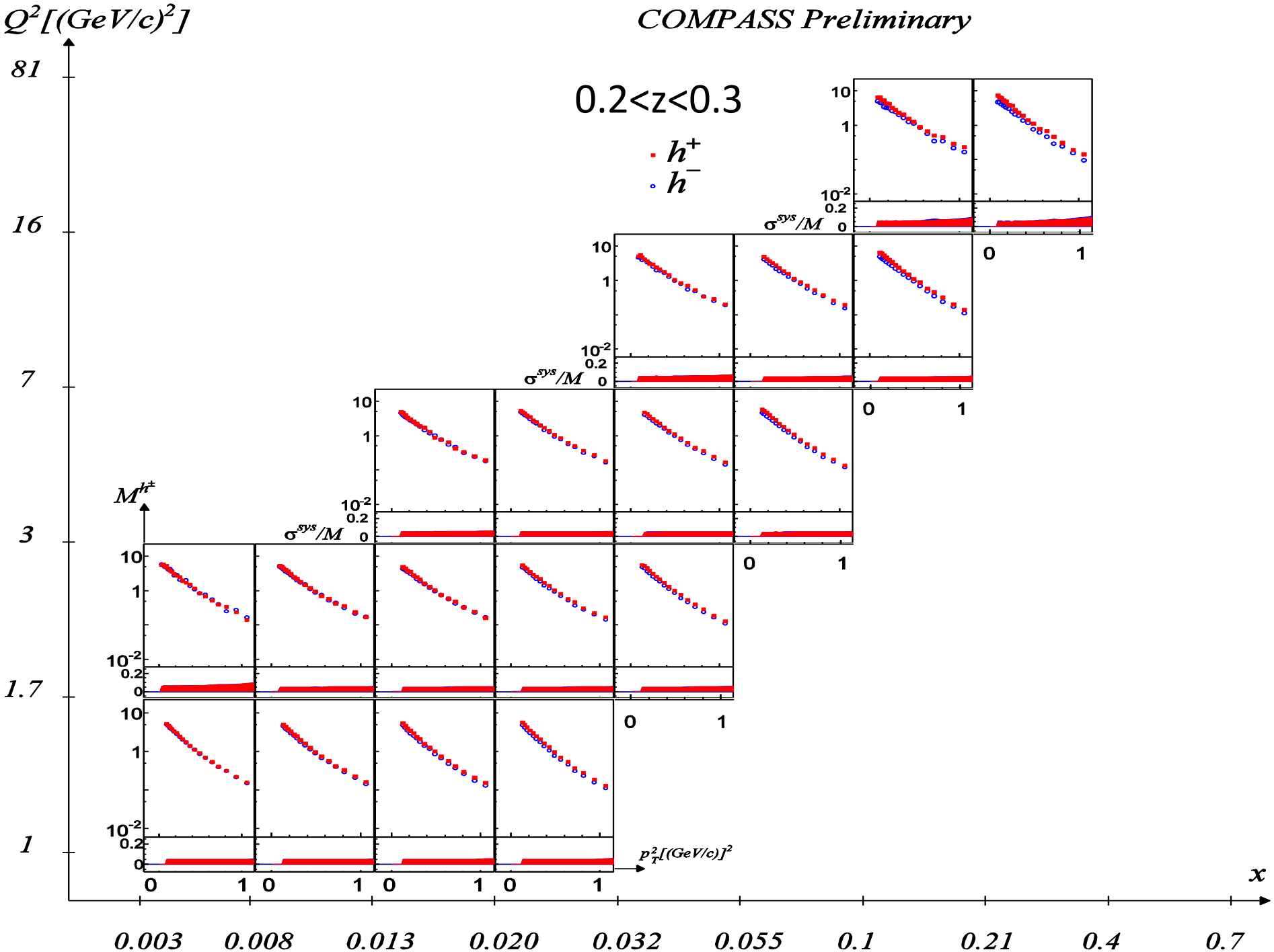
$P_T^2 < 1\ (GeV/c)^2$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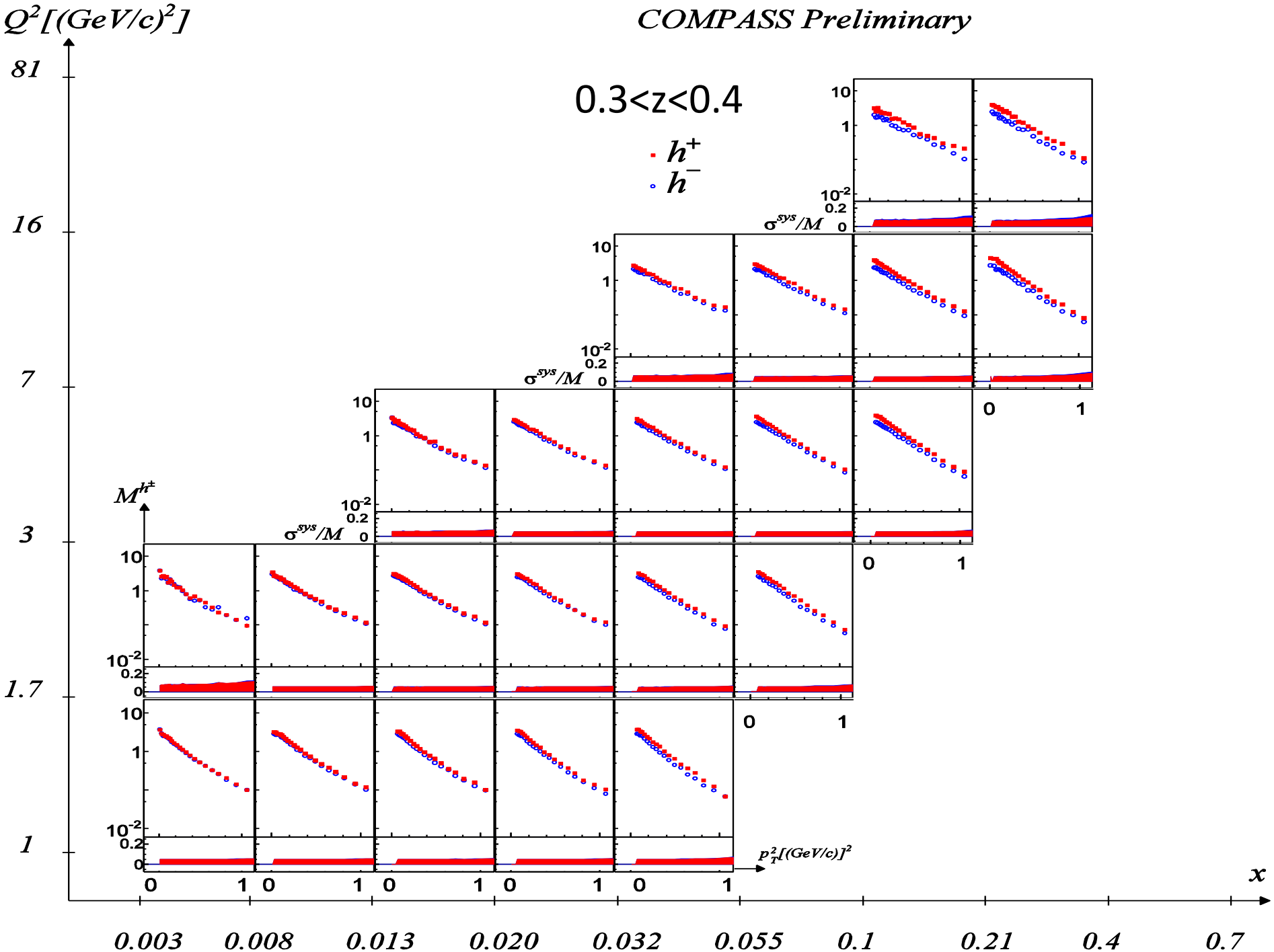
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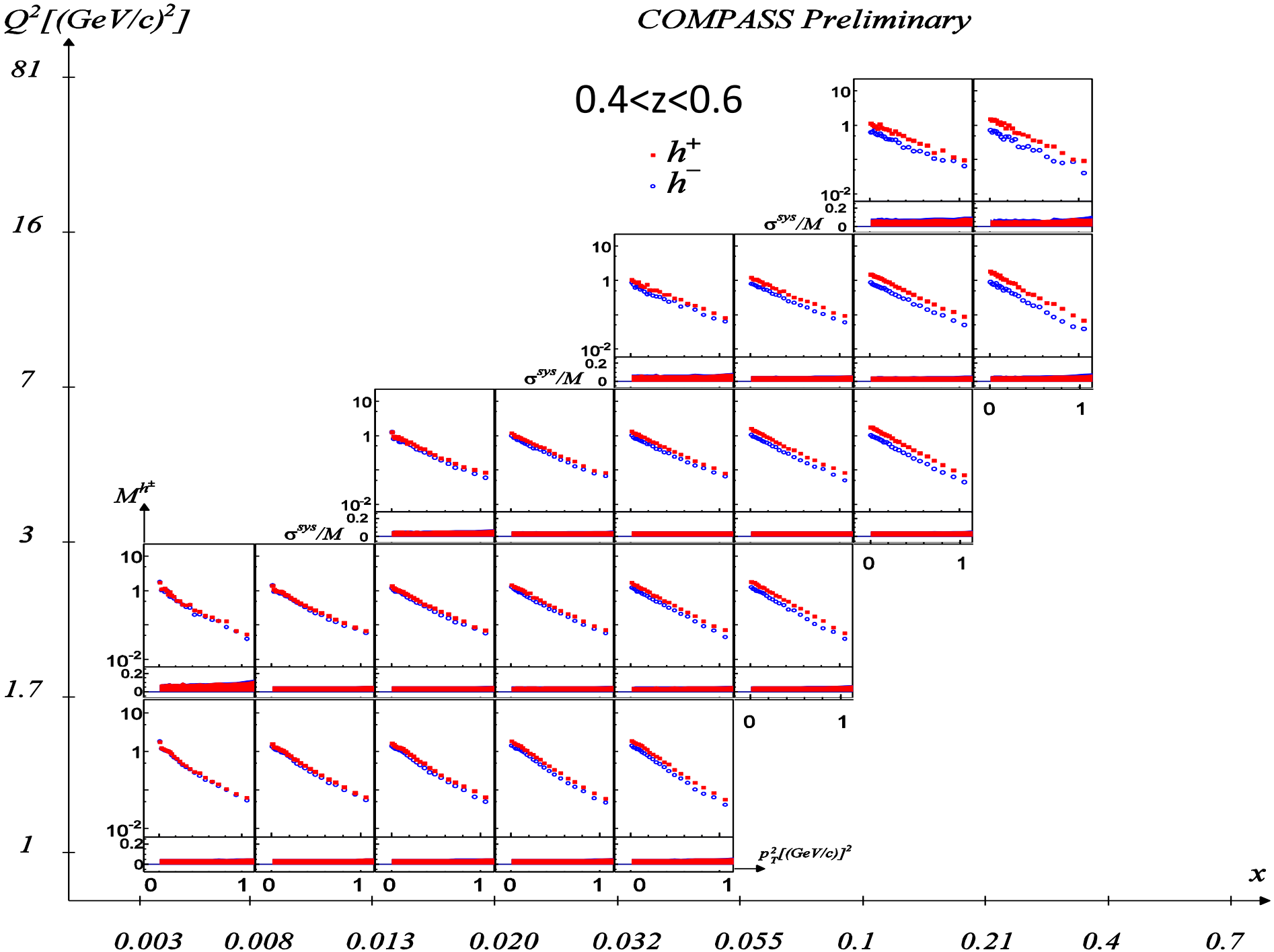
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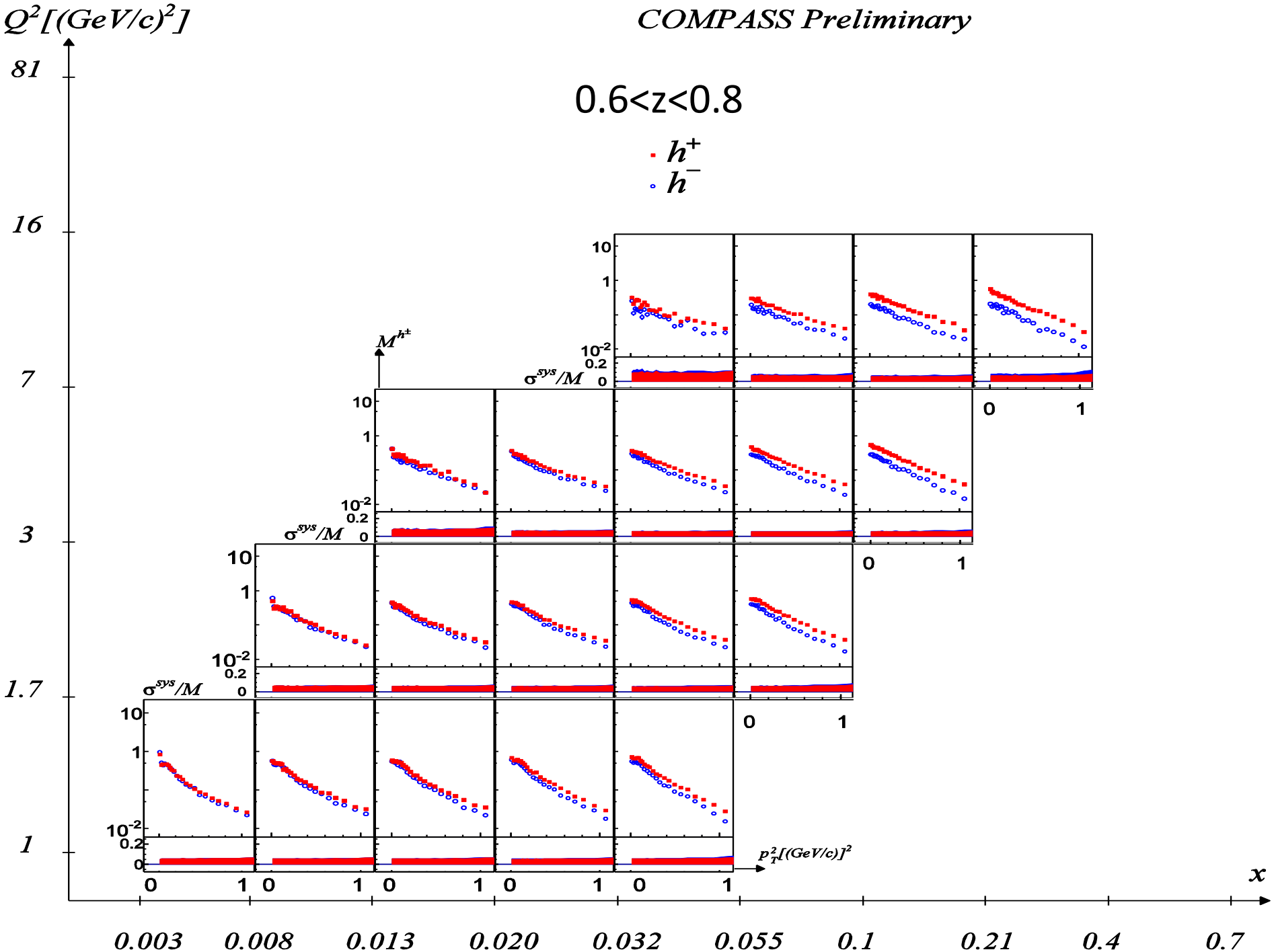
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