# SIDIS Rates and Projection for SoLID with CLEO (&CDF)

Zhihong Ye 08/19/2014

### Acceptance:

3.0

2.5

2.0

1.5

0.2

0.4

0.6

х<sub>ы</sub>



1.0

0.5

0.0

0.3

0.4

0.5

0.6

0.7

z

Black:

CDF



# Simulation:

#### • CDF with Geant3 by Xin:

(1) SIDIS cross section in FORTRAN, calculated both SIDIS XS and inclusive XS.

(2) He3 data was simulated by running Proton and Deuteron targets then summing them together.

(3) I only has his simulated Ntuples and ROOT files. I am not able to trace the parameters he put into the simulation.

(4) The simulation data in these Ntuples has the acceptance weight already.

(5) Estimate noise from accidental coincidence with single- inclusive XS.

#### • CLEO with GEMC by Zhiwen and me:

(1) Updated SIDIS model "collider", no inclusive XS.

(2) CLEO acceptance is simulated by GEMC w/o SIDIS physics

(3) Events were generated with "collider" and weighted by SIDIS cross sections+CLEO acceptance

## SIDIS Rate

#### • CDF: values in the PAC35 proposal

CLEO: (does not include detector efficiencies)

KHz	11GeV (FA/LA)	8.8GeV (FA/LA)	Total
(e, e'pi+)	1.467 / 0.192	0.810 / 0.117	(2.586kHZ)
(e <i>,</i> e'pi-)	1.010 / 0.120	0.554 / 0.073	(1.757kHZ)

CLEO has about 39%(pi+) and 41%(pi-) more

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KHz	11GeV (FA/LA)	8.8GeV (FA/LA)	Total
(e, e'pi+):	2.305 / 0.083	1.788 / 0.053	
(85% det eff)	1.959 / 0.071	1.520 / 0.045	(3.595kHZ)
(e, e'pi-):	1.600 / 0.051	1.224 / 0.033	
(85% det eff)	1.360 / 0.043	1.040 / 0.028	(2.471kHz)

# Projections:

#### • Method:

#### (a) Bin in Z, Q2, pt and x:

- 1, Z-binning: 0.30 ~ 0.70, bin-size = 0.05 (8 bins)
- 2, Q2-bining:  $1.0 \sim 8.0$ , bin-size = 1, (6 bins, last bin from  $6 \sim 8 \text{ GeV}^2$ )
- 3, pt-binning: 0.0 ~ 1.6, bin-size = 0.2 (<=8 bins, double bin-size when total event < 5e6)
- 4, x-binning: depending on statistics : ~max(2e6, Sum\_in\_pt\_bin/8.0)

(b) Calculation:

Astats =  $1/sqrt(N_x)$ 

```
N_x = N_raw * weight * Acceptance * Lumi * time * (pol*target_factor/sqrt(2))^2 * dilution^2 *det_eff
weight = cs * Phase_Space / N_simulated * 1e-33(cm^2), Phase_Space= Phase_Space_e * Phase_Space_h
where, Phase_Space_e = (cos Th_min - cos Th_max)*2*Pi*(11-0.5), Phase_Space_e = (cos Th_min - cos Th_max)*2*Pi*(6-0.5),
Th_min --Th_max, 11--0.5GeV/c and 6--0.5GeV/c are the phase ranges in the generator.
Acceptance = (Accept_FA_e*Accept_FA_h+Accept_LA_e*Accept_LA_h)
Lumi = 1e36 (cm^-2 * s^-1)
time = 48 days * 24 * 3600 s for 11GeV or 21 days *24 * 3600s for 8.8GeV
pol = 60%, target_factor = 0.865, dilution = dxs_n / dxs_He3
```

det\_eff = det\_eff\_e \* det\_eff\_h, assume to be overall 85% for e and pi.

# Projections:

• Compared Xin's results and my results:

N\_x = N\_raw \* weight \* Acceptance \* Lumi \* time \* (pol\*target\_factor/sqrt(2))^2 \* dilution^2 \* det\_eff (1) My x-bining method:

Each xbj bin much has the events, N\_bin  $\sim$  max (2e6/det\_eff, Sum/8.), where

N\_bin = <u>N\_raw \* weight \* Acceptance \* Lumi \* time</u>, Sum = all event in one pt bin

and Xin's x-binning method:

N\_bin = <u>N\_raw \* weight \* Acceptance \* Lumi \* time \* det\_eff</u>,

So his x-binning condition is actually  $\sim$  max (2e6, Sum/8.).

(2) Dilution Factors are calculated differently:

Mine  $\rightarrow$  directly from "collider", in the code, di = dxs\_p/dxs\_n, so for He3, dilute = 1/(1+2\*di)

For Xin  $\rightarrow$  dilution=(di\_mean\_D2 - di\_mean\_P)/di\_mean\_He3, "mean" means the mean value in each x-bin.

(3) and I don't know how he calculated weight \* Acceptance

(4) Xin estimated the Signal/Noise but did not apply on the projection plots. I don't calculate Signal/Noise since I need inclusive XS models with is not included in "collider"

# Projections:

Z-bining and Q2-binning should have no problem, so I check the events distribution in one particular (Z,Q2) bin and check how it depends on pt and x.



## Projections: -- Results

For all results please click the link:

https://userweb.jlab.org/~yez/Work/solid/CDF\_Projection/

https://userweb.jlab.org/~yez/Work/solid/CLEO\_Projection/

Next Step, check the "Counts" (1/Astat/Astat) for each (Z,Q) bin for CDF and CLEO, And also count the total events

Projections: -- Results

N=6.2 x 10^9

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N=5.02e+04	N=4.35e+04	N=3.35e+04	N=2.54e+04	N=2.33e+04	N=1.77e+04	N=1.01e+
6 <q2<8< td=""><td>6<q2<8< td=""><td>6<q2<8< td=""><td>6<q2<8< td=""><td>6<q2<8< td=""><td>6<q2<8< td=""><td>6<q2<8< td=""></q2<8<></td></q2<8<></td></q2<8<></td></q2<8<></td></q2<8<></td></q2<8<></td></q2<8<>	6 <q2<8< td=""><td>6<q2<8< td=""><td>6<q2<8< td=""><td>6<q2<8< td=""><td>6<q2<8< td=""><td>6<q2<8< td=""></q2<8<></td></q2<8<></td></q2<8<></td></q2<8<></td></q2<8<></td></q2<8<>	6 <q2<8< td=""><td>6<q2<8< td=""><td>6<q2<8< td=""><td>6<q2<8< td=""><td>6<q2<8< td=""></q2<8<></td></q2<8<></td></q2<8<></td></q2<8<></td></q2<8<>	6 <q2<8< td=""><td>6<q2<8< td=""><td>6<q2<8< td=""><td>6<q2<8< td=""></q2<8<></td></q2<8<></td></q2<8<></td></q2<8<>	6 <q2<8< td=""><td>6<q2<8< td=""><td>6<q2<8< td=""></q2<8<></td></q2<8<></td></q2<8<>	6 <q2<8< td=""><td>6<q2<8< td=""></q2<8<></td></q2<8<>	6 <q2<8< td=""></q2<8<>
0.35 <z<0.40< td=""><td>0.40<z<0.45< td=""><td>0.45<z<0.50< td=""><td>0.50<z<0.55< td=""><td>0.55<z<0.60< td=""><td>0.60<z<0.65< td=""><td>0.65<z<0.70< td=""></z<0.70<></td></z<0.65<></td></z<0.60<></td></z<0.55<></td></z<0.50<></td></z<0.45<></td></z<0.40<>	0.40 <z<0.45< td=""><td>0.45<z<0.50< td=""><td>0.50<z<0.55< td=""><td>0.55<z<0.60< td=""><td>0.60<z<0.65< td=""><td>0.65<z<0.70< td=""></z<0.70<></td></z<0.65<></td></z<0.60<></td></z<0.55<></td></z<0.50<></td></z<0.45<>	0.45 <z<0.50< td=""><td>0.50<z<0.55< td=""><td>0.55<z<0.60< td=""><td>0.60<z<0.65< td=""><td>0.65<z<0.70< td=""></z<0.70<></td></z<0.65<></td></z<0.60<></td></z<0.55<></td></z<0.50<>	0.50 <z<0.55< td=""><td>0.55<z<0.60< td=""><td>0.60<z<0.65< td=""><td>0.65<z<0.70< td=""></z<0.70<></td></z<0.65<></td></z<0.60<></td></z<0.55<>	0.55 <z<0.60< td=""><td>0.60<z<0.65< td=""><td>0.65<z<0.70< td=""></z<0.70<></td></z<0.65<></td></z<0.60<>	0.60 <z<0.65< td=""><td>0.65<z<0.70< td=""></z<0.70<></td></z<0.65<>	0.65 <z<0.70< td=""></z<0.70<>
N=8.60g+03	N=7.76e+03	N=6.57e+03	N=5.13e+03	N=3.19e+03	<b>N=1.34e+03</b>	<b>N=6.18e</b> +4
	$ \begin{array}{c} 1 < Q2 < 2 \\ 0.35 < z < 0.40 \\ N = 1.20e + 07 \\ \end{array} $ $ \begin{array}{c} 2 < Q2 < 3 \\ 0.35 < z < 0.40 \\ N = 2.37e + 06 \\ \end{array} $ $ \begin{array}{c} 3 < Q2 < 4 \\ 0.35 < z < 0.40 \\ N = 6.13e + 05 \\ \end{array} $ $ \begin{array}{c} 4 < Q2 < 5 \\ 0.35 < z < 0.40 \\ N = 1.83e + 05 \\ \end{array} $ $ \begin{array}{c} 5 < Q2 < 6 \\ 0.35 < z < 0.40 \\ N = 5.02e + 04 \\ \end{array} $ $ \begin{array}{c} 6 < Q2 < 8 \\ 0.35 < z < 0.40 \\ N = 9.60e \pm 02 \\ \end{array} $	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	I < Q2 < 2 $I < Q2 < 2$ $I < Q2 < 2$ $I < Q2 < 2$ $0.35 < < < 0.40$ $0.40 < < < 0.45$ $0.45 < < < < < < < < < < < < < < < < < < <$	I <q2<2< th="">       I<q2<2< th="">       I<q2<2< th="">       I<q2<2< th="">       I<q2<2< th="">         0.35<z<0.40< td="">       0.40<z<0.45< td="">       0.45       0.45       0.50       0.50       2.55         N=I.20e+07       N=9.93e+06       N=9.59e+06       N=7.54e+06       N=7.54e+06         2<q2<3< td="">       2<q2<3< td="">       2<q2<3< td="">       2<q2<3< td="">       0.35       N=0.59e+06       N=7.54e+06         3&lt;.02</q2<3<></q2<3<></q2<3<></q2<3<></z<0.45<></z<0.40<></q2<2<></q2<2<></q2<2<></q2<2<></q2<2<>	CDP - $\pi$ - $1 < Q2 < 2$ $0.35 < < < 0.40$ $0.40 < < < < 0.45$ $0.45 < < < < < < < < < < < < < < < < < < <$	CDP - Te- $1 < Q2 < 2$ $1 < Q2 < 2$ $0 < 25 < 20 < 20 < 50 < 50 < 50 < 50 < 5$

Projections: -- Results

N=9.1 x 10^9

ノ					π-			
1	_1 <q2<2 _0.30<z<0.35 _N=1.75e+07</z<0.35 </q2<2 	1< <u>0</u> 2<2 0.35 <z<0.40 N=1.54e+07</z<0.40 	1< <u>0</u> 2<2 0.40 <z<0.45 <b>N=1.34e+07</b></z<0.45 	1< <u>0</u> 2<2 0.45 <z<0.50 N=1.15e+07</z<0.50 	1< <u>0</u> 2<2 0.50 <z<0.55 <b>N=9.48e+06</b></z<0.55 	1 <q2<2 0.55<z<0.60 N=7.73e+06</z<0.60 </q2<2 	1 <q2<2 0.60<z<0.65 <b>N=6.02e+06</b></z<0.65 </q2<2 	1 <q2<2 0.65<z<0.70 N=4.32e+0</z<0.70 </q2<2 
1 	- - 2 <q2<3 - 0.30<z<0.35 - N=3.70e+06</z<0.35 </q2<3 	2 <q2<3 0.35<z<0.40 N=3.22e+06</z<0.40 </q2<3 	2 <q2<3 0.40<z<0.45 N=2.82e+06</z<0.45 </q2<3 	2 <q2<3 0.45<z<0.50 N=2.39e+06</z<0.50 </q2<3 	2 <q2<3 0.50<z<0.55 N=1.93e+06</z<0.55 </q2<3 	2 <q2<3 0.55<z<0.60 <b>N=1.55e+06</b></z<0.60 </q2<3 	2 <q2<3 0.60<z<0.65 <b>N=1.15e+06</b></z<0.65 </q2<3 	2 <q2<3 0.65<z<0.70 <b>N=8.19e+0</b></z<0.70 </q2<3 
2	- - 3 <q2<4 - 0.30<z<0.35 - N=7.02e+05</z<0.35 </q2<4 	3 <q2<4 0.35<z<0.40 N=6.15e+05</z<0.40 </q2<4 	3 <q2<4 0.40<z<0.45 N=5.23e+05</z<0.45 </q2<4 	3 <q2<4 0.45<z<0.50 <b>N=4.27e+05</b></z<0.50 </q2<4 	3 <q2<4 0.50<z<0.55 <b>N=3.56e+05</b></z<0.55 </q2<4 	3 <q2<4 0.55<z<0.60 N=2.75e+05</z<0.60 </q2<4 	3 <q2<4 0.60<z<0.65 N=2.06e+05</z<0.65 </q2<4 	3 <q2<4 0.65<z<0.70 N=1.34e+0</z<0.70 </q2<4 
)  - 	- - 4 <q2<5 - 0.30<z<0.35 - <mark>N=2.13e+05</mark></z<0.35 </q2<5 	4 <q2<5 0.35<z<0.40 N=1.82e+05</z<0.40 </q2<5 	4 <q2<5 0.40<z<0.45 N=1.56e+05</z<0.45 </q2<5 	4 <q2<5 0.45<z<0.50 N=1.28e+05</z<0.50 </q2<5 	4 <q2<5 0.50<z<0.55 N=1.07e+05</z<0.55 </q2<5 	4< <u>0</u> 2<5 0.55 <z<0.60 N=8.06e+04</z<0.60 	4< <u>0</u> 2<5 0.60 <z<0.65 N=5.92e+04</z<0.65 	4 <q2<5 0.65<z<0.70 N=4.19e+6</z<0.70 </q2<5 
*	- - - - - - - - - - - - - - - - - - -	5 <q2<6 0.35<z<0.40 N=7.76e+04</z<0.40 </q2<6 	5 <q2<6 0.40<z<0.45 <b>N=6.60e+04</b></z<0.45 </q2<6 	5 <q2<6 0.45<z<0.50 N=5.42e+04</z<0.50 </q2<6 	5 <q2<6 0.50<z<0.55 <b>N=4.54e+04</b></z<0.55 </q2<6 	5 <q2<6 0.55<z<0.60 N=3.51e+04</z<0.60 </q2<6 	5 <q2<6 0.60<z<0.65 N=2.54e+04</z<0.65 </q2<6 	5 <q2<6 0.65<z<0.70 <b>N=1.62e+6</b></z<0.70 </q2<6 
	6 <q2<8 0.30<z<0.35 N=3.57e+04</z<0.35 </q2<8 	6 <q2<8 0.35<z<0.40 N=3.06e+04</z<0.40 </q2<8 	6 <q2<8 0.40<z<0.45 _N=2.62e+04</z<0.45 </q2<8 	6 <q2<8 0.45<z<0.50 N=2.18e+04</z<0.50 </q2<8 	6 <q2<8 0.50<z<0.55 N=1.72e+04</z<0.55 </q2<8 	6 <q2<8 0.55<z<0.60 N=1.27e+04</z<0.60 </q2<8 	6 <q2<8 0.60<z<0.65 <b>N=8.48e+03</b></z<0.65 </q2<8 	6 <q2<8 0.65<z<0.70 <b>N=4.11e+0</b></z<0.70 </q2<8 

## Projections: -- Results (pi-, Collins, CDF)

0.1eV(c)	$\begin{array}{l} 1 < Q^2 < 2 \\ 0.30 < z < 0.35 \end{array} \xrightarrow{\textcircled{3}}_{z=0}^{2} 0.35 \end{array}$	$ \begin{array}{c} 1 < Q^2 < 2 \\ 0.35 < z < 0.40 \\ \end{array} $	$ \begin{array}{c} 1 < Q^2 < 2 \\ 0.40 < z < 0.45 \\ 0.45 \\ 0.40 \\ 0.45$	$1 < Q^{2} < 2$ 0.45 < z < 0.50	$1 < Q^2 < 2 \\ 0.50 < z < 0.55 \\ 0.50 $	$1 < Q^2 < 2$ 0.55 < z < 0.60	$1 < Q^2 < 2$ 0.60 < z < 0.65	$1 < Q^2 < 2$ 0.65 < z < 0.7	
ď		······	d	d	d	••••••••••••••••••••••••••••••••••••••	·····	•••••••	
0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	- ***** •	A 1
		•••••	•••••	••••••	•••••	•••••	•••••	*****	-0.2
9.0- 2	$0.0^{2}$	$2 - 0^2 - 2$	$2 + 0^2 + 3$	$2 + 0^2 + 2$	$2 + 0^2 + 2$	$2 < 0^2 < 2$	0.0	$2 - 0^2 - 2$	0.2 <sup>K</sup>
₹ <b>1.0</b>	0.30 < z < 0.35 $32.0$	$\frac{2 < Q < 3}{0.35 < z < 0.40} = 0.00$	2 < Q < 3 0.40 < z < 0.45	$\begin{array}{c} 2 < Q < 3 \\ 0.45 < z < 0.50 \\ \end{bmatrix} .0$	$ \begin{array}{c} 2 < Q < 3 \\ 0.50 < z < 0.55 \\ \hline 3 \\ \hline 3 \\ \hline 4.0 \end{array} $	$ \begin{array}{c} 2 < Q < 3 \\ 0.55 < z < 0.60 \\ \hline 0.60 \\ \hline$	2 < Q < 3 0.60 < z < 0.65 $3 .0$	2 < Q < 3 0.65 < z < 0.7	et of
ď	••••••• • <sup>+</sup>		······ 4	···· 4	··· 4	· · ·	<u></u>		
0.5	0.5	0.5	0.5	0.5		- ••••••• 0.5	0.5	*** *	As
E	•••••••	*****	······ ·	- ••••• •	· · · · · · ·	· ·····		Type •	-0.1
0.0		<b>0.0</b>	0.0		<b>0.0</b>	<i>0.0</i>	0.0	_ 	+0.2
51.0-	$3 < Q^2 < 4$	$3 < Q^2 < 4$	$3 < Q^2 < 4$ 0 40 < 7 < 0 45 . 4.0	$3 < Q^2 < 4$ 0.45 < 7 < 0.50.41.0	$3 < Q^2 < 4$ 0.50 < 7 < 0.55 $4.0$	$3 < Q^2 < 4$ 0.55 < $z < 0.60$ $3.0$	$3 < Q^2 < 4$ 0.60 < 7 < 0.65, $\Im$ .0	$3 < Q^2 < 4$ 0.65 < 7 < 0.7	0.2
P <sub>1</sub> (6								-	0.1
0.5	IIII 0.5	- <b>III I</b> 0.5	- <b>III</b> 0.5	- <u>+</u> = 0.5	- <b>II</b> 0.5	- · · · · 0.5	• • • 0.5		9.0 <sup>1</sup>
E	<u>.</u>	<b>≈</b>	== <u>+</u> <u>+</u> ==	- 			* # # #	*** *	-0.1
0.0	0.0	- 0.0	- 0.0	0.0	0.0	0.0	0.0	-	-0.2
.0 .1 .0	$4 < Q^2 < 5$ 0.30 < z < 0.35 3.0	$\begin{array}{c c} 4 < Q^2 < 5 \\ 0.35 < z < 0.40 \\ 3 \end{array}$	$\begin{array}{c c} 4 < Q^2 < 5 \\ 0.40 < z < 0.45 \\ 0.45 \\ \end{array}$	$4 < Q^2 < 5$ 0.45 < z < 0.50 $\frac{2}{3}$ .0	$\begin{array}{c c} 4 < Q^2 < 5 \\ 0.50 < z < 0.55 \\ 4 \end{bmatrix} \begin{array}{c} 0.50 \\ 4 \end{array}$	$\begin{array}{c c} 4 < Q^2 < 5 \\ 0.55 < z < 0.60 \\ 3 \end{array}$	$\begin{array}{c c} 4 < Q^2 < 5 \\ 0.60 < z < 0.65 \\ 9.0 \end{array}$	$4 < Q^2 < 5$ 0.65 < z < 0.7	θ.2 <sup>μ</sup>
<b>P</b> <sub>T</sub> (	$\mathbf{P}_{\mathrm{T}}$	$\mathbf{P}_{\mathrm{T}}(\mathbf{c})$	P <sub>T</sub> (	P <sub>T</sub> (	P <sub>T</sub> (	P <sub>T</sub> (	P <sub>1</sub>	-	0.1
0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		9:02
Ę	III I	11 +	<u>.</u>		· • • • •	· <b>**</b> *	· <b>ž</b> •	•	-0.1
0.0	0.0		<i>0.0</i>				<i>0.0</i>	-  	-0.2
21.0	$5 < Q^2 < 6$	$5 < Q^2 < 6$	$5 < Q^2 < 6$	$5 < Q^2 < 6$	$5 < Q^2 < 6$	$5 < Q^2 < 6$	$5 < Q^2 < 6$	$5 < Q^2 < 6$	0.2 <sup>H</sup>
9	0.50 < 2 < 0.55 G	0.33 < 2 < 0.40 g	0.40 < 2 < 0.45 g		0.50 (2 ( 0.55 )) <sup>1</sup>	0.55 < 2 < 0.00 g	0.00 < 2 < 0.03 @	. 0.03 < 2 < 0.7	0.1
0.5	0.5	- 0.5	- 0.5	- 0.5	- 0.5	- 0.5	- 0.5		0.0š
Ē	<b>. . .</b>			-				Ŧ	-0.1
0.0	0.0	- 0.0	0.0	0.0	0.0	0.0	0.0	-	-0.2
()/	$6 < O^2 < 8$	$6 < Q^2 < 8$	$6 < O^2 < 8 \stackrel{\frown}{\geq} 0$	$6 < Q^2 < 8 \stackrel{\frown}{\geq} 0$	$6 < O^2 < 8$	$6 < O^2 < 8$	$6 < Q^2 < 8 \stackrel{\sim}{\geq} 0$	$6 < Q^2 < 8$	0.2 <sup>×</sup>
<b>7.0</b>	0.30 < z < 0.35	0.35 < z < 0.40	0.40 < z < 0.45	0.45 < z < 0.50	0.50 < z < 0.55	0.55 < z < 0.60	0.60 < z < 0.65	0.65 < z < 0.7	Ø.1
- - -	<u></u>	 	 			 		• •	-0.0Ē
0.5	0.5 I							I	-0.Ť
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	I I	-0.2
	0.1 0.2 0.3 0.4 0.5	0.1 0.2 0.3 0.4 0.5	0.1 0.2 0.3 0.4 0.5	0.1 0.2 0.3 0.4 0.5	0.1 0.2 0.3 0.4 0.5	0.1 0.2 0.3 0.4 0.5	0.1 0.2 0.3 0.4 0.5	0.1 0.2 0.3 0.4 0.5	1



Projections: -- Results (pi-, collins)



Projections: -- Results

N=9.16 x 10^9

				'-π+			
2	1 <q2<2< th=""><th>1<q2<2< th=""><th>1<q2<2< th=""><th>1<q2<2< th=""><th>1<q2<2< th=""><th>1<q2<2< th=""><th>1<q2<2< th=""></q2<2<></th></q2<2<></th></q2<2<></th></q2<2<></th></q2<2<></th></q2<2<></th></q2<2<>	1 <q2<2< th=""><th>1<q2<2< th=""><th>1<q2<2< th=""><th>1<q2<2< th=""><th>1<q2<2< th=""><th>1<q2<2< th=""></q2<2<></th></q2<2<></th></q2<2<></th></q2<2<></th></q2<2<></th></q2<2<>	1 <q2<2< th=""><th>1<q2<2< th=""><th>1<q2<2< th=""><th>1<q2<2< th=""><th>1<q2<2< th=""></q2<2<></th></q2<2<></th></q2<2<></th></q2<2<></th></q2<2<>	1 <q2<2< th=""><th>1<q2<2< th=""><th>1<q2<2< th=""><th>1<q2<2< th=""></q2<2<></th></q2<2<></th></q2<2<></th></q2<2<>	1 <q2<2< th=""><th>1<q2<2< th=""><th>1<q2<2< th=""></q2<2<></th></q2<2<></th></q2<2<>	1 <q2<2< th=""><th>1<q2<2< th=""></q2<2<></th></q2<2<>	1 <q2<2< th=""></q2<2<>
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28e+07	N=1.22e+07	N=1.13e+07	N=1.02e+07	N=8.86e+06	N=7.26e+06	N=5.59e+06	N <b>=4.30e+0</b>
3	2 <q2<3< td=""><td>2<q2<3< td=""><td>2<q2<3< td=""><td>2<q2<3< td=""><td>2<q2<3< td=""><td>2<q2<3< td=""><td>2<q2<3< td=""></q2<3<></td></q2<3<></td></q2<3<></td></q2<3<></td></q2<3<></td></q2<3<></td></q2<3<>	2 <q2<3< td=""><td>2<q2<3< td=""><td>2<q2<3< td=""><td>2<q2<3< td=""><td>2<q2<3< td=""><td>2<q2<3< td=""></q2<3<></td></q2<3<></td></q2<3<></td></q2<3<></td></q2<3<></td></q2<3<>	2 <q2<3< td=""><td>2<q2<3< td=""><td>2<q2<3< td=""><td>2<q2<3< td=""><td>2<q2<3< td=""></q2<3<></td></q2<3<></td></q2<3<></td></q2<3<></td></q2<3<>	2 <q2<3< td=""><td>2<q2<3< td=""><td>2<q2<3< td=""><td>2<q2<3< td=""></q2<3<></td></q2<3<></td></q2<3<></td></q2<3<>	2 <q2<3< td=""><td>2<q2<3< td=""><td>2<q2<3< td=""></q2<3<></td></q2<3<></td></q2<3<>	2 <q2<3< td=""><td>2<q2<3< td=""></q2<3<></td></q2<3<>	2 <q2<3< td=""></q2<3<>
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5 <mark>4e+06</mark>	N=2.06e+06	N=1.79e+06	N=1.59e+06	N=1.37e+06	<b>N=9.13e+05</b>	N=8.24e+05	<b>N=6.02e+0</b> .
4	3 <q2<4< td=""><td>3<q2<4< td=""><td>3<q2<4< td=""><td>3<q2<4< td=""><td>3<q2<4< td=""><td>3<q2<4< td=""><td>3<q2<4< td=""></q2<4<></td></q2<4<></td></q2<4<></td></q2<4<></td></q2<4<></td></q2<4<></td></q2<4<>	3 <q2<4< td=""><td>3<q2<4< td=""><td>3<q2<4< td=""><td>3<q2<4< td=""><td>3<q2<4< td=""><td>3<q2<4< td=""></q2<4<></td></q2<4<></td></q2<4<></td></q2<4<></td></q2<4<></td></q2<4<>	3 <q2<4< td=""><td>3<q2<4< td=""><td>3<q2<4< td=""><td>3<q2<4< td=""><td>3<q2<4< td=""></q2<4<></td></q2<4<></td></q2<4<></td></q2<4<></td></q2<4<>	3 <q2<4< td=""><td>3<q2<4< td=""><td>3<q2<4< td=""><td>3<q2<4< td=""></q2<4<></td></q2<4<></td></q2<4<></td></q2<4<>	3 <q2<4< td=""><td>3<q2<4< td=""><td>3<q2<4< td=""></q2<4<></td></q2<4<></td></q2<4<>	3 <q2<4< td=""><td>3<q2<4< td=""></q2<4<></td></q2<4<>	3 <q2<4< td=""></q2<4<>
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37e+05	<b>N=6.13e+05</b>	<b>N=4.85e+05</b>	<b>N=3.91e+05</b>	<b>N=3.93e+05</b>	N=2.21e+05	<b>N=1.94e+05</b>	N=1.42e+0
5	4 <q2<5< td=""><td>4<q2<5< td=""><td>4&lt;<u>0</u>2&lt;5</td><td>4<q2<5< td=""><td>4<q2<5< td=""><td>4<q2<5< td=""><td>4<q2<5< td=""></q2<5<></td></q2<5<></td></q2<5<></td></q2<5<></td></q2<5<></td></q2<5<>	4 <q2<5< td=""><td>4&lt;<u>0</u>2&lt;5</td><td>4<q2<5< td=""><td>4<q2<5< td=""><td>4<q2<5< td=""><td>4<q2<5< td=""></q2<5<></td></q2<5<></td></q2<5<></td></q2<5<></td></q2<5<>	4< <u>0</u> 2<5	4 <q2<5< td=""><td>4<q2<5< td=""><td>4<q2<5< td=""><td>4<q2<5< td=""></q2<5<></td></q2<5<></td></q2<5<></td></q2<5<>	4 <q2<5< td=""><td>4<q2<5< td=""><td>4<q2<5< td=""></q2<5<></td></q2<5<></td></q2<5<>	4 <q2<5< td=""><td>4<q2<5< td=""></q2<5<></td></q2<5<>	4 <q2<5< td=""></q2<5<>
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5 <b>4e+05</b>	N=1.64e+05	<b>N=1.54e+05</b>	N=1.06e+05	N=7.94e+04	N=7.37e+04	N=5.18e+04	<b>N=3.23e+0</b>
6	5 <q2<6< td=""><td>5<q2<6< td=""><td>5<q2<6< td=""><td>5<q2<6< td=""><td>5<q2<6< td=""><td>5<q2<6< td=""><td>5<q2<6< td=""></q2<6<></td></q2<6<></td></q2<6<></td></q2<6<></td></q2<6<></td></q2<6<></td></q2<6<>	5 <q2<6< td=""><td>5<q2<6< td=""><td>5<q2<6< td=""><td>5<q2<6< td=""><td>5<q2<6< td=""><td>5<q2<6< td=""></q2<6<></td></q2<6<></td></q2<6<></td></q2<6<></td></q2<6<></td></q2<6<>	5 <q2<6< td=""><td>5<q2<6< td=""><td>5<q2<6< td=""><td>5<q2<6< td=""><td>5<q2<6< td=""></q2<6<></td></q2<6<></td></q2<6<></td></q2<6<></td></q2<6<>	5 <q2<6< td=""><td>5<q2<6< td=""><td>5<q2<6< td=""><td>5<q2<6< td=""></q2<6<></td></q2<6<></td></q2<6<></td></q2<6<>	5 <q2<6< td=""><td>5<q2<6< td=""><td>5<q2<6< td=""></q2<6<></td></q2<6<></td></q2<6<>	5 <q2<6< td=""><td>5<q2<6< td=""></q2<6<></td></q2<6<>	5 <q2<6< td=""></q2<6<>
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<mark>28e+04</mark>	N=3.83e+04	N=3.32e+04	N=2.64e+04	N=1.93e+04	<b>N=1.68e+04</b>	N=1.37e+04	<b>N=6.31e+0</b>
8	6 <q2<8< td=""><td>6<q2<8< td=""><td>6<q2<8< td=""><td>6<q2<8< td=""><td>6<q2<8< td=""><td>6<q2<8< td=""><td>6<q2<8< td=""></q2<8<></td></q2<8<></td></q2<8<></td></q2<8<></td></q2<8<></td></q2<8<></td></q2<8<>	6 <q2<8< td=""><td>6<q2<8< td=""><td>6<q2<8< td=""><td>6<q2<8< td=""><td>6<q2<8< td=""><td>6<q2<8< td=""></q2<8<></td></q2<8<></td></q2<8<></td></q2<8<></td></q2<8<></td></q2<8<>	6 <q2<8< td=""><td>6<q2<8< td=""><td>6<q2<8< td=""><td>6<q2<8< td=""><td>6<q2<8< td=""></q2<8<></td></q2<8<></td></q2<8<></td></q2<8<></td></q2<8<>	6 <q2<8< td=""><td>6<q2<8< td=""><td>6<q2<8< td=""><td>6<q2<8< td=""></q2<8<></td></q2<8<></td></q2<8<></td></q2<8<>	6 <q2<8< td=""><td>6<q2<8< td=""><td>6<q2<8< td=""></q2<8<></td></q2<8<></td></q2<8<>	6 <q2<8< td=""><td>6<q2<8< td=""></q2<8<></td></q2<8<>	6 <q2<8< td=""></q2<8<>
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<b>)3e+04</b>	<b>N=9.07e+03</b>	N=4,20e+03	N= <b>3.64e+03</b>	N=2.67e+03	N=2.06e+03	N=9.77e+02	<b>N=6.39e+0</b>
	2 2 2 2 2 2 2 2 2 2 2 2 2 2	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	2 $1 < Q^{2} < 2$ $1 < Q^{2} < 2$ $(0.35)$ $0.35 < < < 0.40$ $0.40 < < < 0.45$ $(0.35)$ $N = 1.22e + 07$ $N = 1.13e + 07$ $(0.35)$ $0.35 < < < 0.40$ $0.40 < < < 0.45$ $(0.35)$ $0.35 < < < < 0.40$ $0.40 < < < < 0.45$ $(0.40 < < < < < < < < < < < < < < < < < < <$	2 $1 < Q2 < 2$ $0 \cdot 40 < < < 2 \cdot 0 \cdot 45$ $0 \cdot 45 < < < < 0 \cdot 50$ $N = 1 \cdot 0 \cdot 2e + 07$ $N = 1 \cdot 1 \cdot 3e + 07$ $N = 1 \cdot 0 \cdot 2e + 07$ 3 $2 < Q2 < 3$ $0 \cdot 45 < < < < 0 \cdot 50$ $N = 1 \cdot 02e + 07$ 3 $2 < Q2 < 3$ $0 \cdot 35 < < < < & 0 \cdot 35 < < < < < < & 0 \cdot 0 \cdot 0$ $N = 1 \cdot 07e + 06$ $N = 1 \cdot 59e + 06$ 4 $3 < Q2 < 4$ $0 \cdot 40 < < < < < \cdot 0 \cdot 45$ $0 \cdot 45 < < < < < < < < < < < < < < < < < < $	l < (22<2) $l < (22<2)$ $l < (22<3)$ $l < (22<4)$ <t< td=""><td><math display="block">\begin{array}{c c c c c c c c c c c c c c c c c c c </math></td><td><math display="block">\begin{array}{c c c c c c c c c c c c c c c c c c c </math></td></t<>	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c c c c c c c c c c c c c c c c c c c $

Projections: -- Results

N=13.2 x 10^9

			<b>U-</b> π+			
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0.35 <z<0.40< td=""><td>0.40<z<0.45< td=""><td>0.45<z<0.50< td=""><td>0.50<z<0.55< td=""><td>0.55<z<0.60< td=""><td>0.60<z<0.65< td=""><td>0.65<z<0.70< td=""></z<0.70<></td></z<0.65<></td></z<0.60<></td></z<0.55<></td></z<0.50<></td></z<0.45<></td></z<0.40<>	0.40 <z<0.45< td=""><td>0.45<z<0.50< td=""><td>0.50<z<0.55< td=""><td>0.55<z<0.60< td=""><td>0.60<z<0.65< td=""><td>0.65<z<0.70< td=""></z<0.70<></td></z<0.65<></td></z<0.60<></td></z<0.55<></td></z<0.50<></td></z<0.45<>	0.45 <z<0.50< td=""><td>0.50<z<0.55< td=""><td>0.55<z<0.60< td=""><td>0.60<z<0.65< td=""><td>0.65<z<0.70< td=""></z<0.70<></td></z<0.65<></td></z<0.60<></td></z<0.55<></td></z<0.50<>	0.50 <z<0.55< td=""><td>0.55<z<0.60< td=""><td>0.60<z<0.65< td=""><td>0.65<z<0.70< td=""></z<0.70<></td></z<0.65<></td></z<0.60<></td></z<0.55<>	0.55 <z<0.60< td=""><td>0.60<z<0.65< td=""><td>0.65<z<0.70< td=""></z<0.70<></td></z<0.65<></td></z<0.60<>	0.60 <z<0.65< td=""><td>0.65<z<0.70< td=""></z<0.70<></td></z<0.65<>	0.65 <z<0.70< td=""></z<0.70<>
N=1.49e+07	N=1.28e+07	N=1.09e+07	N=8.95e+06	N=7.24e+06	N=7.26e+06	N=2.63e+0
2 <q2<3< td=""><td>2<q2<3< td=""><td>2<q2<3< td=""><td>2<q2<3< td=""><td>2<q2<3< td=""><td>2<q2<3< td=""><td>2<q2<3< td=""></q2<3<></td></q2<3<></td></q2<3<></td></q2<3<></td></q2<3<></td></q2<3<></td></q2<3<>	2 <q2<3< td=""><td>2<q2<3< td=""><td>2<q2<3< td=""><td>2<q2<3< td=""><td>2<q2<3< td=""><td>2<q2<3< td=""></q2<3<></td></q2<3<></td></q2<3<></td></q2<3<></td></q2<3<></td></q2<3<>	2 <q2<3< td=""><td>2<q2<3< td=""><td>2<q2<3< td=""><td>2<q2<3< td=""><td>2<q2<3< td=""></q2<3<></td></q2<3<></td></q2<3<></td></q2<3<></td></q2<3<>	2 <q2<3< td=""><td>2<q2<3< td=""><td>2<q2<3< td=""><td>2<q2<3< td=""></q2<3<></td></q2<3<></td></q2<3<></td></q2<3<>	2 <q2<3< td=""><td>2<q2<3< td=""><td>2<q2<3< td=""></q2<3<></td></q2<3<></td></q2<3<>	2 <q2<3< td=""><td>2<q2<3< td=""></q2<3<></td></q2<3<>	2 <q2<3< td=""></q2<3<>
0.35 <z<0.40< td=""><td>0.40<z<0.45< td=""><td>0.45<z<0.50< td=""><td>0.50<z<0.55< td=""><td>0.55<z<0.60< td=""><td>0.60<z<0.65< td=""><td>0.65<z<0.70< td=""></z<0.70<></td></z<0.65<></td></z<0.60<></td></z<0.55<></td></z<0.50<></td></z<0.45<></td></z<0.40<>	0.40 <z<0.45< td=""><td>0.45<z<0.50< td=""><td>0.50<z<0.55< td=""><td>0.55<z<0.60< td=""><td>0.60<z<0.65< td=""><td>0.65<z<0.70< td=""></z<0.70<></td></z<0.65<></td></z<0.60<></td></z<0.55<></td></z<0.50<></td></z<0.45<>	0.45 <z<0.50< td=""><td>0.50<z<0.55< td=""><td>0.55<z<0.60< td=""><td>0.60<z<0.65< td=""><td>0.65<z<0.70< td=""></z<0.70<></td></z<0.65<></td></z<0.60<></td></z<0.55<></td></z<0.50<>	0.50 <z<0.55< td=""><td>0.55<z<0.60< td=""><td>0.60<z<0.65< td=""><td>0.65<z<0.70< td=""></z<0.70<></td></z<0.65<></td></z<0.60<></td></z<0.55<>	0.55 <z<0.60< td=""><td>0.60<z<0.65< td=""><td>0.65<z<0.70< td=""></z<0.70<></td></z<0.65<></td></z<0.60<>	0.60 <z<0.65< td=""><td>0.65<z<0.70< td=""></z<0.70<></td></z<0.65<>	0.65 <z<0.70< td=""></z<0.70<>
N=2.97e+06	N=2.52e+06	N=2.12e+06	N=1.73e+06	N=1.34e+06	N=9.13e+05	<b>N=6.71e+0</b>
3 <q2<4< td=""><td>3<q2<4< td=""><td>3<q2<4< td=""><td>3<q2<4< td=""><td>3<q2<4< td=""><td>3<q2<4< td=""><td>3<q2<4< td=""></q2<4<></td></q2<4<></td></q2<4<></td></q2<4<></td></q2<4<></td></q2<4<></td></q2<4<>	3 <q2<4< td=""><td>3<q2<4< td=""><td>3<q2<4< td=""><td>3<q2<4< td=""><td>3<q2<4< td=""><td>3<q2<4< td=""></q2<4<></td></q2<4<></td></q2<4<></td></q2<4<></td></q2<4<></td></q2<4<>	3 <q2<4< td=""><td>3<q2<4< td=""><td>3<q2<4< td=""><td>3<q2<4< td=""><td>3<q2<4< td=""></q2<4<></td></q2<4<></td></q2<4<></td></q2<4<></td></q2<4<>	3 <q2<4< td=""><td>3<q2<4< td=""><td>3<q2<4< td=""><td>3<q2<4< td=""></q2<4<></td></q2<4<></td></q2<4<></td></q2<4<>	3 <q2<4< td=""><td>3<q2<4< td=""><td>3<q2<4< td=""></q2<4<></td></q2<4<></td></q2<4<>	3 <q2<4< td=""><td>3<q2<4< td=""></q2<4<></td></q2<4<>	3 <q2<4< td=""></q2<4<>
0.35 <z<0.40< td=""><td>0.40<z<0.45< td=""><td>0.45<z<0.50< td=""><td>0.50<z<0.55< td=""><td>0.55<z<0.60< td=""><td>0.60<z<0.65< td=""><td>0.65<z<0.70< td=""></z<0.70<></td></z<0.65<></td></z<0.60<></td></z<0.55<></td></z<0.50<></td></z<0.45<></td></z<0.40<>	0.40 <z<0.45< td=""><td>0.45<z<0.50< td=""><td>0.50<z<0.55< td=""><td>0.55<z<0.60< td=""><td>0.60<z<0.65< td=""><td>0.65<z<0.70< td=""></z<0.70<></td></z<0.65<></td></z<0.60<></td></z<0.55<></td></z<0.50<></td></z<0.45<>	0.45 <z<0.50< td=""><td>0.50<z<0.55< td=""><td>0.55<z<0.60< td=""><td>0.60<z<0.65< td=""><td>0.65<z<0.70< td=""></z<0.70<></td></z<0.65<></td></z<0.60<></td></z<0.55<></td></z<0.50<>	0.50 <z<0.55< td=""><td>0.55<z<0.60< td=""><td>0.60<z<0.65< td=""><td>0.65<z<0.70< td=""></z<0.70<></td></z<0.65<></td></z<0.60<></td></z<0.55<>	0.55 <z<0.60< td=""><td>0.60<z<0.65< td=""><td>0.65<z<0.70< td=""></z<0.70<></td></z<0.65<></td></z<0.60<>	0.60 <z<0.65< td=""><td>0.65<z<0.70< td=""></z<0.70<></td></z<0.65<>	0.65 <z<0.70< td=""></z<0.70<>
N=5.16e+05	N=4.33e+05	N=3.52e+05	N=2.89e+05	N=2.17e+05	N=1.49e+05	N=9.73e+0
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N=1.52e+05	<b>N=1.24e+05</b>	N=9.97e+04	N=8.16e+04	N=6.19e+04	N=4.33e+04	N=2.98e+0
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0.35 <z<0.40< td=""><td>0.40<z<0.45< td=""><td>0.45<z<0.50< td=""><td>0.50<z<0.55< td=""><td>0.55<z<0.60< td=""><td>0.60<z<0.65< td=""><td>0.65<z<0.70< td=""></z<0.70<></td></z<0.65<></td></z<0.60<></td></z<0.55<></td></z<0.50<></td></z<0.45<></td></z<0.40<>	0.40 <z<0.45< td=""><td>0.45<z<0.50< td=""><td>0.50<z<0.55< td=""><td>0.55<z<0.60< td=""><td>0.60<z<0.65< td=""><td>0.65<z<0.70< td=""></z<0.70<></td></z<0.65<></td></z<0.60<></td></z<0.55<></td></z<0.50<></td></z<0.45<>	0.45 <z<0.50< td=""><td>0.50<z<0.55< td=""><td>0.55<z<0.60< td=""><td>0.60<z<0.65< td=""><td>0.65<z<0.70< td=""></z<0.70<></td></z<0.65<></td></z<0.60<></td></z<0.55<></td></z<0.50<>	0.50 <z<0.55< td=""><td>0.55<z<0.60< td=""><td>0.60<z<0.65< td=""><td>0.65<z<0.70< td=""></z<0.70<></td></z<0.65<></td></z<0.60<></td></z<0.55<>	0.55 <z<0.60< td=""><td>0.60<z<0.65< td=""><td>0.65<z<0.70< td=""></z<0.70<></td></z<0.65<></td></z<0.60<>	0.60 <z<0.65< td=""><td>0.65<z<0.70< td=""></z<0.70<></td></z<0.65<>	0.65 <z<0.70< td=""></z<0.70<>
N=5.87e+04	<b>N=4.78e+04</b>	N=3.83e+04	N=3.01e+04	N=2.36e+04	N=1.64e+04	N=1.03e+0
6 <q2<8 0.35<z<0.40< td=""><td>6<q2<8 0.40<z<0.45< td=""><td>6<q2<8 0.45<z<0.50< td=""><td>6<q2<8 0.50<z<0.55 N=0.02a+03</z<0.55 </q2<8 </td><td>6<q2<8 0.55<z<0.60 <b>N=7.29e+03</b></z<0.60 </q2<8 </td><td>6<q2<8 0.60<z<0.65 <b>N=4.41e+03</b></z<0.65 </q2<8 </td><td>6<q2<8 0.65<z<0.70 N=2.38e+0</z<0.70 </q2<8 </td></z<0.50<></q2<8 </td></z<0.45<></q2<8 </td></z<0.40<></q2<8 	6 <q2<8 0.40<z<0.45< td=""><td>6<q2<8 0.45<z<0.50< td=""><td>6<q2<8 0.50<z<0.55 N=0.02a+03</z<0.55 </q2<8 </td><td>6<q2<8 0.55<z<0.60 <b>N=7.29e+03</b></z<0.60 </q2<8 </td><td>6<q2<8 0.60<z<0.65 <b>N=4.41e+03</b></z<0.65 </q2<8 </td><td>6<q2<8 0.65<z<0.70 N=2.38e+0</z<0.70 </q2<8 </td></z<0.50<></q2<8 </td></z<0.45<></q2<8 	6 <q2<8 0.45<z<0.50< td=""><td>6<q2<8 0.50<z<0.55 N=0.02a+03</z<0.55 </q2<8 </td><td>6<q2<8 0.55<z<0.60 <b>N=7.29e+03</b></z<0.60 </q2<8 </td><td>6<q2<8 0.60<z<0.65 <b>N=4.41e+03</b></z<0.65 </q2<8 </td><td>6<q2<8 0.65<z<0.70 N=2.38e+0</z<0.70 </q2<8 </td></z<0.50<></q2<8 	6 <q2<8 0.50<z<0.55 N=0.02a+03</z<0.55 </q2<8 	6 <q2<8 0.55<z<0.60 <b>N=7.29e+03</b></z<0.60 </q2<8 	6 <q2<8 0.60<z<0.65 <b>N=4.41e+03</b></z<0.65 </q2<8 	6 <q2<8 0.65<z<0.70 N=2.38e+0</z<0.70 </q2<8 
	1 < Q2 < 2 $0.35 < z < 0.40$ $N = 1.49e + 07$ $2 < Q2 < 3$ $0.35 < z < 0.40$ $N = 2.97e + 06$ $3 < Q2 < 4$ $0.35 < z < 0.40$ $N = 5.16e + 05$ $4 < Q2 < 5$ $0.35 < z < 0.40$ $N = 1.52e + 05$ $5 < Q2 < 6$ $0.35 < z < 0.40$ $N = 5.87e + 04$ $6 < Q2 < 8$ $0.35 < z < 0.40$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	1 < Q2 < 2 $1 < Q2 < 2$ $0.35 < z < 0.40$ $N = 1.28 + 07$ $N = 1.09e + 07$ $N = 8.95e + 06$ $2 < Q2 < 3$ $0.35 < z < 0.40$ $0.40 < z < 0.45$ $0.45 < z < 0.50$ $2 < Q2 < 3$ $0.35 < z < 0.40$ $0.40 < z < 0.45$ $0.45 < z < 0.50$ $2 < Q2 < 3$ $0.35 < z < 0.40$ $N = 2.52e + 06$ $N = 2.12e + 06$ $N = 1.73e + 06$ $3 < Q2 < 4$ $3 < Q2 < 4$ $0.40 < z < 0.45$ $N = 2.52e + 05$ $N = 5.16e + 05$ $N = 4.33e + 05$ $N = 3.52e + 05$ $N = 2.89e + 05$ $4 < Q2 < 5$ $0.40 < z < 0.45$ $0.40 < z < 0.45$ $0.45 < z < 0.50$ $N = 1.52e + 05$ $N = 1.24e + 05$ $N = 3.52e + 06$ $N = 2.89e + 05$ $5 < Q2 < 6$ $0.40 < z < 0.45$ $0.45 < z < 0.50$ $0.50 < z < 0.55$ $N = 1.52e + 05$ $N = 1.24e + 05$ $N = 9.97e + 04$ $N = 8.16e + 04$ $5 < Q2 < 6$ $5 < Q2 < 6$ $0.40 < z < 0.45$ $N = 3.83e + 04$ $N = 5.87e + 04$ $N = 4.78e + 04$ $N = 3.83e + 04$ $N = 3.01e + 04$	$1 < Q_{2} < 2$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < 0 < S_{2}$ $0 < S_{2} < c_{2} < S_{2} < 0 < S_{2}$ </td <td><math>1 \cdot Q_{2} \cdot Z_{0,3} = Q_{2} \cdot Z_{0,4} = Q_{2} \cdot Z_{0,4} = Q_{2} \cdot Z_{0,4} = Q_{2} \cdot Z_{0,5} = Q_{4,5} = Q_{2} \cdot Z_{0,5} = Q_{4,5} = Q_{5,5} = Q_{5,5</math></td>	$1 \cdot Q_{2} \cdot Z_{0,3} = Q_{2} \cdot Z_{0,4} = Q_{2} \cdot Z_{0,4} = Q_{2} \cdot Z_{0,4} = Q_{2} \cdot Z_{0,5} = Q_{4,5} = Q_{2} \cdot Z_{0,5} = Q_{4,5} = Q_{5,5} = Q_{5,5$

## Projections: -- Results (pi+, Collins, CDF)

(GeV/c)	$\begin{bmatrix} 1 < Q^2 < 2 \\ 0.30 < z < 0.35 \end{bmatrix} \stackrel{\bigcirc}{}_{z=0}^{z=0}$	$1 < Q^{2} < 2$ 0.35 < z < 0.40 $3$ .0	$1 < Q^{2} < 2$ 0.40 < z < 0.45 $\underbrace{3}_{0.40}$	$\begin{array}{c} 1 < Q^2 < 2 \\ 0.45 < z < 0.50 \end{array}$	$1 < Q^{2} < 2$ 0.50 < z < 0.55	$1 < Q^2 < 2$ 0.55 < z < 0.60 $\frac{1}{2}$ .0	$1 < Q^{2} < 2$ 0.60 < z < 0.65	$\begin{array}{c} I < Q^2 < 2 \\ 0.65 < z < 0.7 \end{array}$	0.2 <sup>+</sup>
ď		<u> </u>	····· · ·	<u></u>	······••••••••••••••••••••••••••••••••	····· •	·····. ···	****	0.0
0.5		•••••	•••••	•••••	•••••	•••••	••••••••		-0.1
0.0	· · · · · · · · · · · · · · · · · · ·	•••••••• 0.0	••••• •	•••••• 0.0	0.0	••••• 0.0	••••••	*****	-0.2
(GeV/c)	$ \begin{array}{c} 2 < Q^2 < 3 \\ 0.30 < z < 0.35 \end{array} $	$2 < Q^{2} < 3$ 0.35 < z < 0.40 $3$ .0	$2 < Q^{2} < 3$ 0.40 < z < 0.45	$2 < Q^{2} < 3 \\ 0_{4}45 < z < 0.50 \\ 0_{5}4.0$	$2 < Q^{2} < 3$ 0.50 < z < 0.55 $3$ .0	$ \begin{array}{c} 2 < Q^2 < 3 \\ 0.55 < z < 0.60 \\ 0.60 \end{array} $	$2 < Q^{2} < 3 \\ 0.60 < z < 0.65 \\ 0.00 < z < 0.65 $	$2 < Q^2 < 3 \\ 0.65 < z < 0.7$	0.2 <sup>+</sup> ⊕ 0.1e
P								Ŧ	0.05
0.5	0.5	0.5	0.5	0.5			0.5		Ř
	•••••	••••••	•••••	•••••	•••••	•==•		• <del>]</del> == •	-0.2
()/	$3 < 0^2 < 4$	$3 < 0^2 < 4$	$3 < 0^2 < 4$	$3 < 0^2 < 4$	$3 < 0^2 < 4$	$3 < 0^2 < 4$	$3 < 0^2 < 4$	$3 < 0^2 < 4$	0.2 <sup>+</sup>
E1.0	0.30 < z < 0.35 $30.00 = 0.35$	0.35 < z < 0.40 = 0.00	0.40 < z < 0.45 gl.0	0.45 < z < 0.50 g.0	0.50 < z < 0.55 g.0	$0.55 < z < 0.60 \frac{1}{6}$	0.60 < z < 0.65 g.0	0.65 < z < 0.7	0.18
$\mathbf{P}_{\mathrm{T}}$				•	• • •	<b>d</b>	<b>4</b>	- - -	
0.5									Ă
	IIIII I	1+mi 1	*** <u>*</u> ****	*imi	**#### #		*** *	***	0.1
<i>0.0</i> २		- <i>0.0</i>			- <i>0.0</i>		- <i>0.0</i>	- 	
2.0	$4 < Q^2 < 5$ 0.30 < z < 0.35 $3$ .0	$\begin{array}{c} 4 < Q^2 < 5 \\ 0.35 < z < 0.40 \\ 0.35 \end{array}$	$4 < Q^2 < 5$ 0.40 < z < 0.45	$\begin{array}{c} 4 < Q^{2} < 5 \\ 0.45 < z < 0.50 \\ \end{array}$	$\begin{array}{c} 4 < Q^2 < 5 \\ 0.50 < z < 0.55 \\ \end{array}$	$\begin{array}{c} 4 < Q^2 < 5 \\ 0.55 < z < 0.60 \\ 3 \end{array}$	$4 < Q^2 < 5$ 0.60 < z < 0.65 $3.0$	$4 < Q^2 < 5 0.65 < z < 0.7$	ef. 0.2
$\mathbf{P}_{\mathrm{T}}$	L L	<b>d</b>	± 4	A	4	<b>d</b>	P	-	
0.5		- • • • 0.5	- <b>∔</b> ≢ 0.5	- • 0.5	· · · · · · · · · · · · · · · · · · ·	- • • 0.5	- 0.5	- ·	Asj
						· · · · · · · · · · · · · · · · · · ·	****	***	-0.1
0.0 T	0.0 	- 0.0	0.0 	- <u>0.0</u>	- 0.0	- 0.0	- <u>0.0</u>	-	0.2
٥.1 <u>6</u>	$5 < Q^2 < 6$ 0.30 < z < 0.35	$5 < Q^2 < 6$ 0.35 < z < 0.40 g.0	$5 < Q^2 < 6$ 0.40 < z < 0.45	$5 < Q^2 < 6$ 0.45 < z < 0.50 $3.0$	$5 < Q^2 < 6 > 0.50 < z < 0.55 < 0.55$	$5 < Q^2 < 6 > 0.55 < z < 0.60 ~ 3.00$	$5 < Q^2 < 6$ 0.60 < z < 0.65 $3.0$	$5 < Q^2 < 6 0.65 < z < 0.7$	0.2
<b>P</b> <sub>T</sub> (	<b>P</b> <sub>T</sub> (	L L	$\mathbf{P}_{\mathrm{T}}$	, La	$\mathbf{P}_{\mathrm{T}}($	<b>P</b> <sub>T</sub> (		-	0.1
0.5	0.5	- 0.5	0.5	- 0.5	0.5	- 0.5	- 0.5	-	Aso.o
	- <b>* * * *</b> - -		* <u>*</u> ₹	± ± =	± •	- <u>*</u> *		Ŧ	-0.1
0.0 T	0.0	- 0.0 	- <u>0.0</u>	- 0.0	0.0	- 0.0		_ 	-0.2
3.0	$6 < Q^2 < 8$	$6 < Q^2 < 8$ $= 0.35 < 7 < 0.40$	$6 < Q^2 < 8$	$6 < Q^2 < 8$	$6 < Q^2 < 8$	$6 < Q^2 < 8$	$6 < Q^2 < 8$ $3.0$	$6 < Q^2 < 8$	
T (6		0.55 \ 2 \ 0.40 \ C	0.70 \ 2 \ 0.45 C	<u> </u>	0.50 \ 2 \ 0.55 C	0.55 \ 2 \ 0.60 \ C		0.00 \ 2 \ 0.7	
<b>~0</b> .5	0.5	0.5	0.5	0.5	0.5 I	<b>0.5</b> т	0.5	- т	Asyo
			1	I	Ĩ		1	t	-0.1
0.0	0.1 0.2 0.3 0.4 0.5	0.0	0.0	0.1 0.2 0.3 0.4 0.5	0.0 0.1 0.2 0.3 0.4 0.5	0.0 0.1 0.2 0.3 0.4 0.5	0.0	0.1 0.2 0.3 0.4 0.5	
	v	x	x	x	x	x	x		x



Projections: -- Results (pi+, collins)



## Projections: -- Results

The total number of events for the entire bins:

	Pi+	Pi-
CDF:	9.16e9	6.20e9
CLEO:	13.20e9	9.12e9
Difference:	44%	47% (events in one bin will be discarded if Astat in this bin is >0.05)
Rate differenc	e: 39%	41%