

# $A_N$ versus $P_T$ Unfolding

**RadLab Meeting**  
**2020/08/19**  
**9:00 PM (JST/KST)**

**Benard Mulilo (KU/RIKEN)**

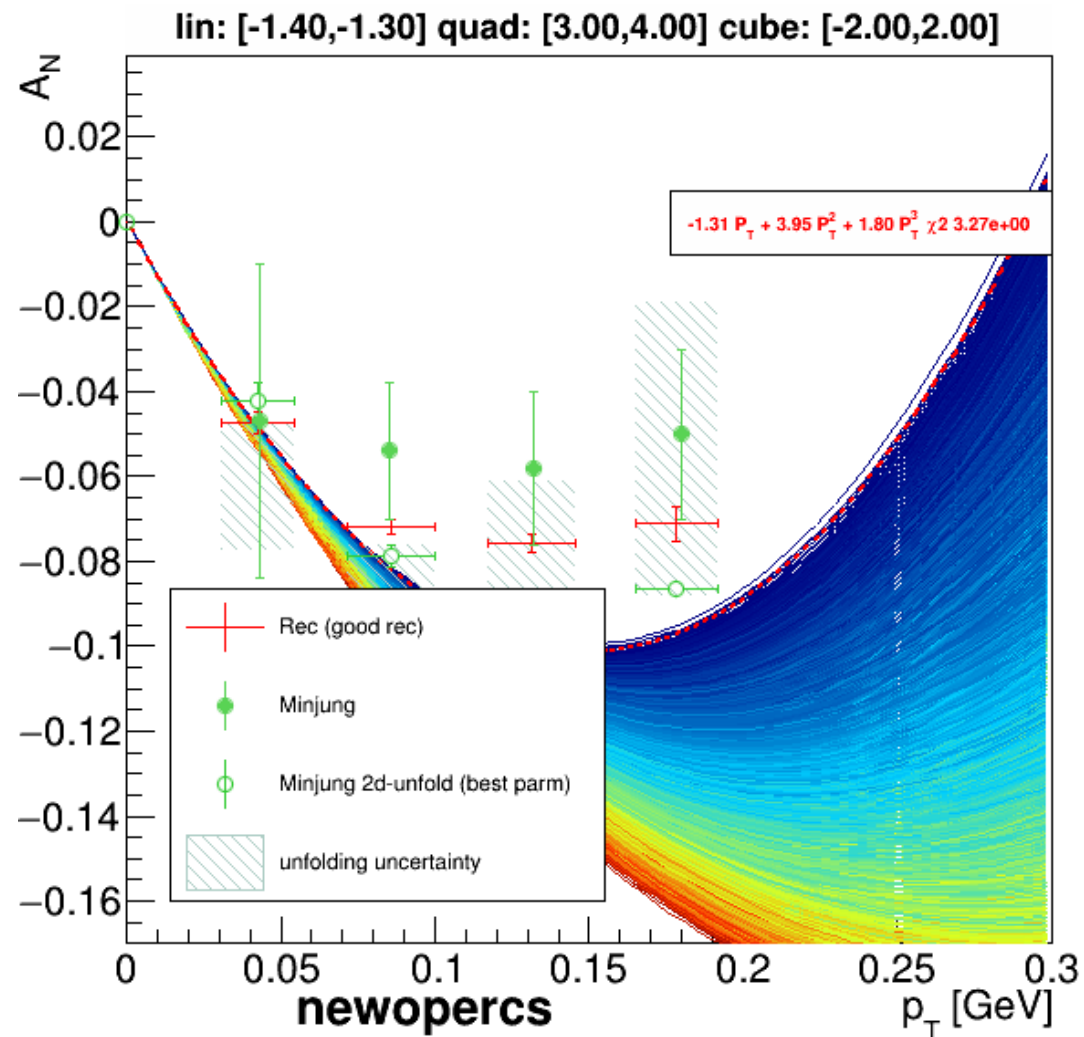
# Experimental Data Asymmetries ( $A_N$ 's) with Systematic Uncertainties

Inclusive

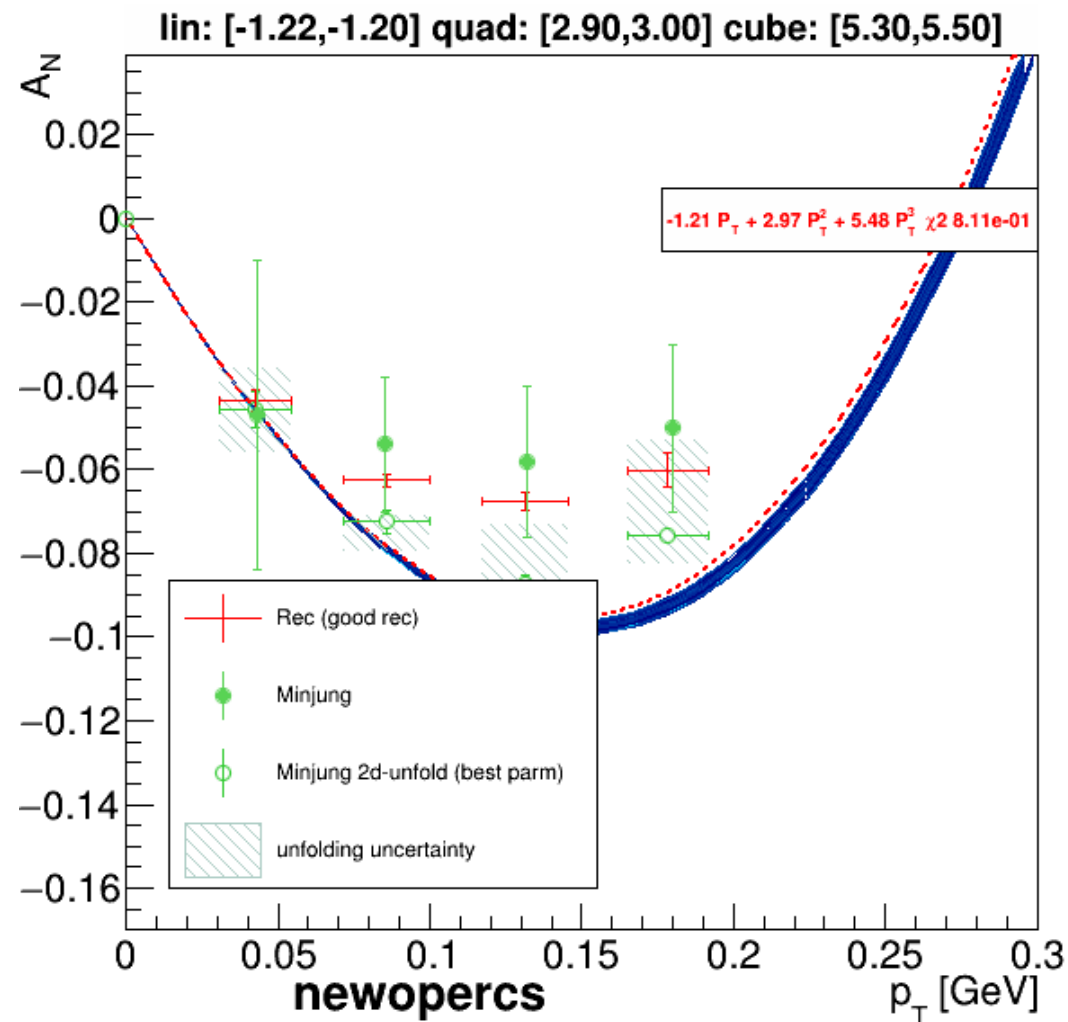
	Pt	$A_N$	e
pt1	0.043	-0.047	0.038
pt2	0.085	-0.054	0.016
pt3	0.132	-0.058	0.018
pt4	0.180	-0.050	0.020

# Chi-Square and Unfolded Asymmetry Based on 3rd Degree Polynomial

coarse scan

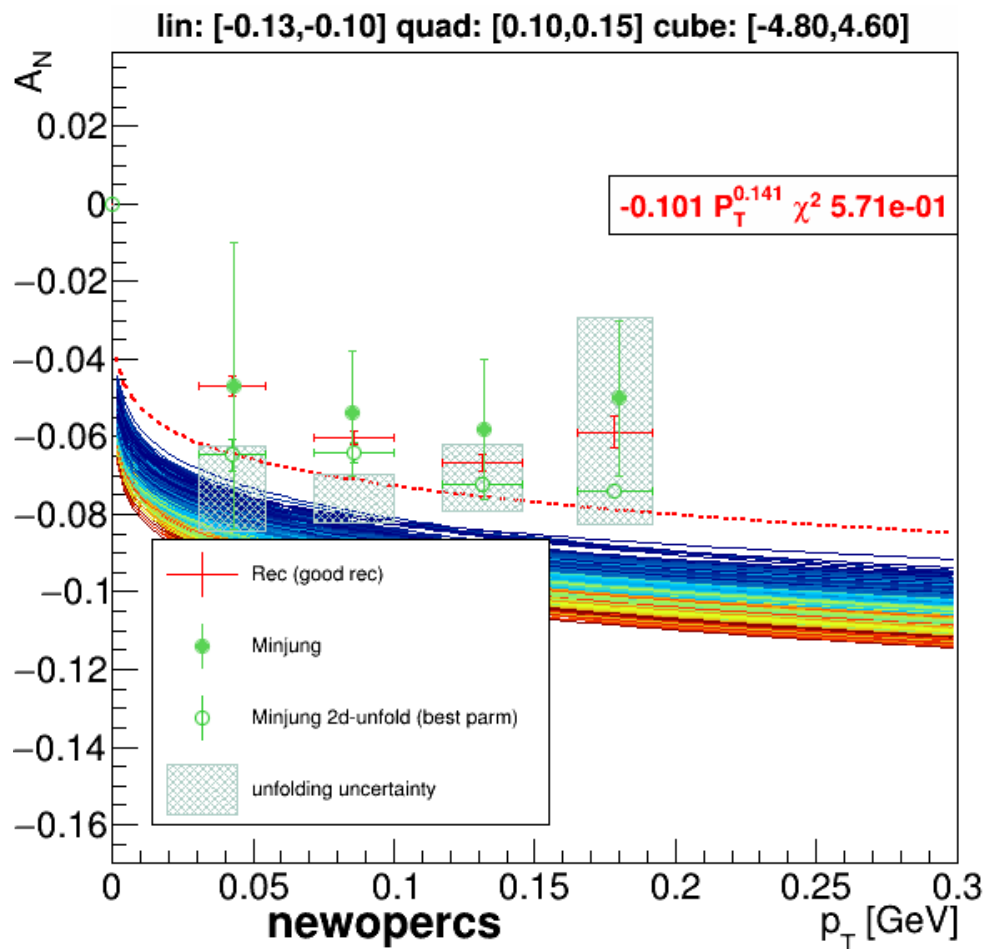


fine scan

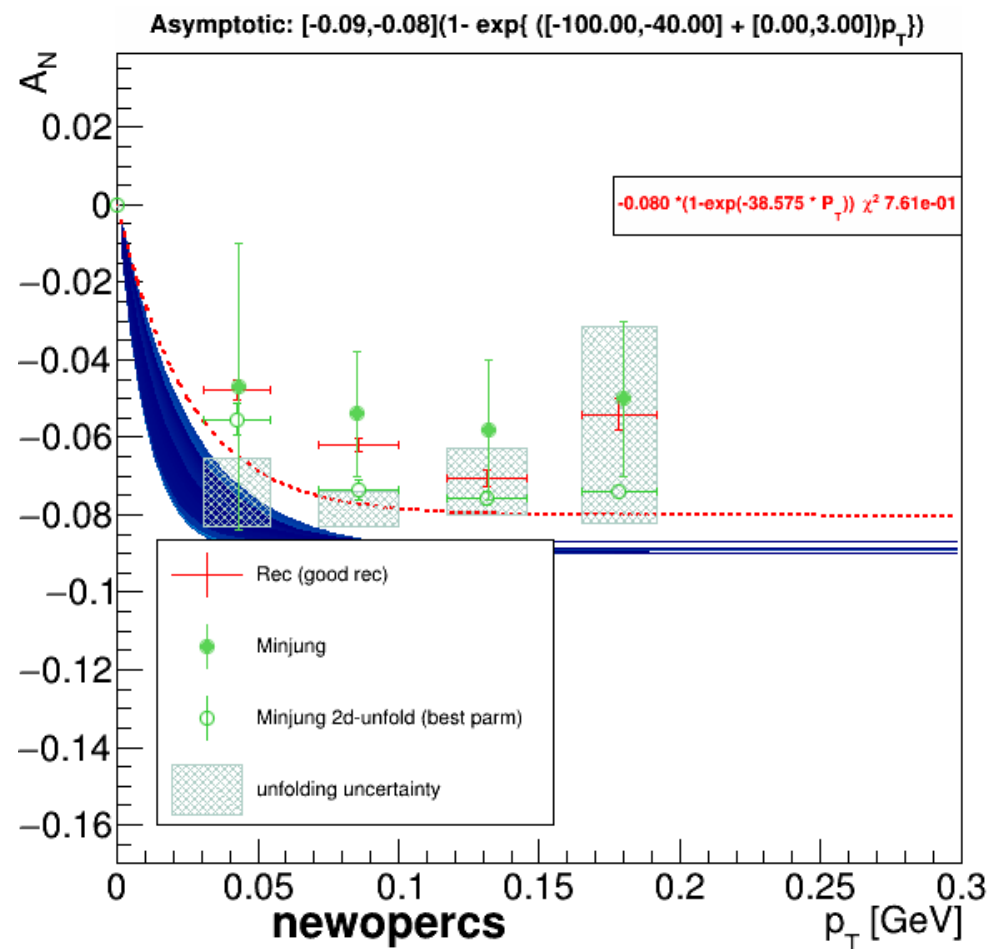


# Chi-Squares and Unfolded Asymmetry based on Power and 1-exp Fns

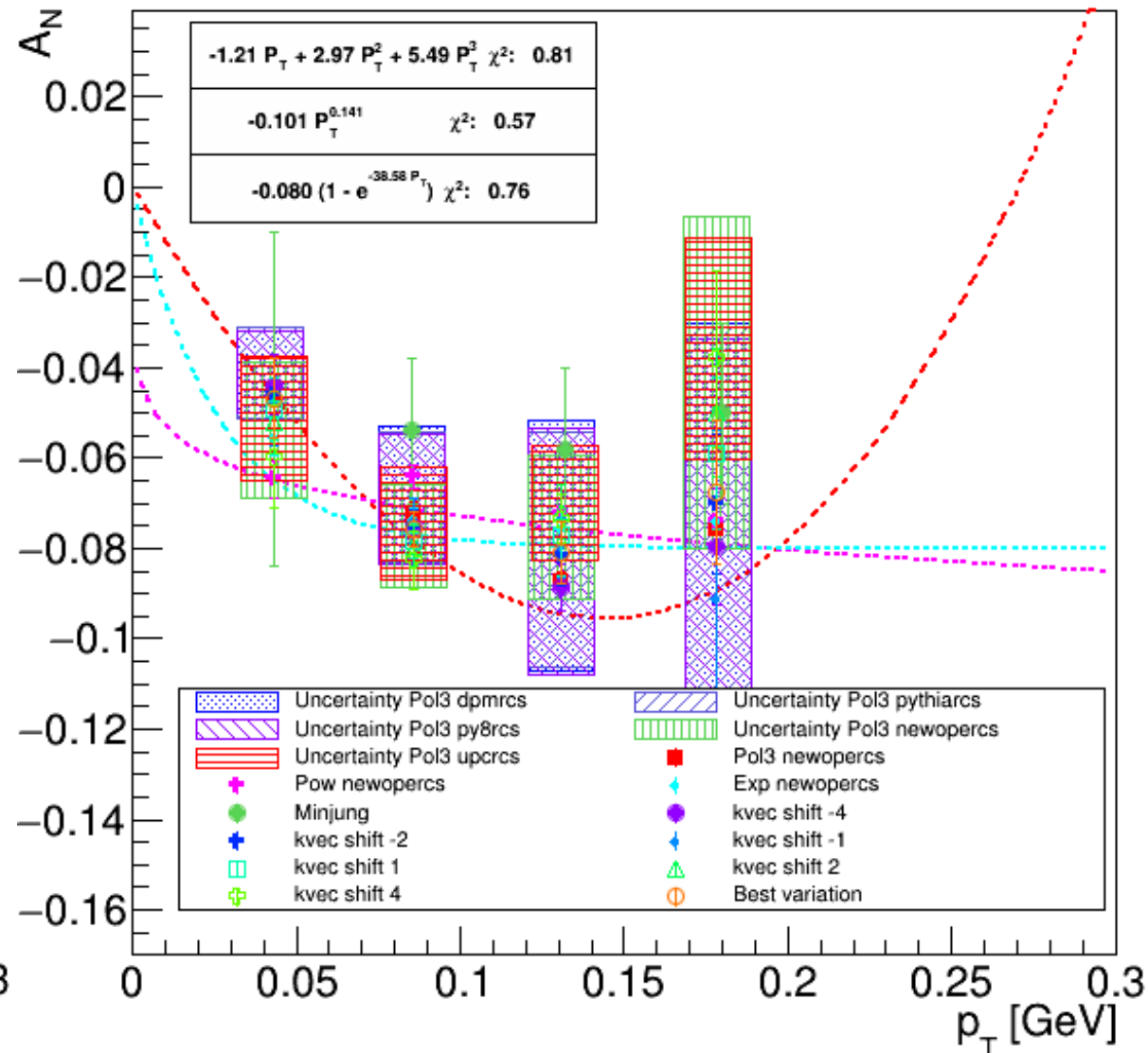
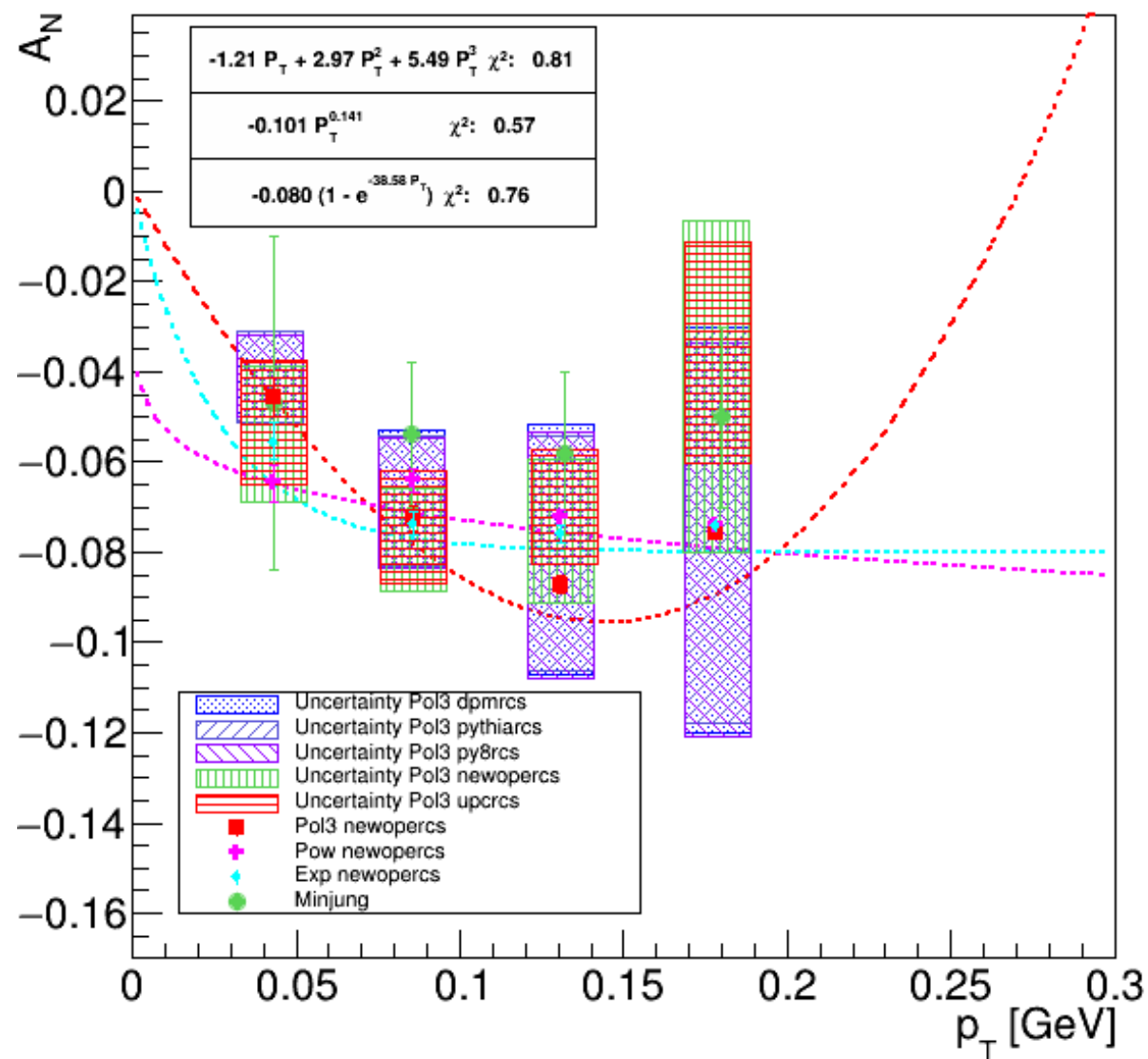
power law



1-exponential



# Summary Unfolded $A_N$ Results based on Pol3, Pow and 1-exp Functions



**BACKUP**

# Result - pp

$p_T$ ( GeV/c)		0.01-0.06	0.06-0.11	0.11-0.16	0.16-0.21
ZDC	$p_T$ mean	0.043	0.085	0.132	0.180
	$A_N^S$	-0.047	-0.054	-0.058	-0.050
	Statistical error	$\pm 0.002$	$\pm 0.002$	$\pm 0.002$	$\pm 0.004$
	Systematic error				
	<i>Background</i>	$\pm 0.033$	$\pm 0.012$	$\pm 0.013$	$\pm 0.016$
	<i>Beam pos.</i>	$\pm 0.016$	$\pm 0.011$	$\pm 0.012$	$\pm 0.012$
	<i>Total systematic</i>	$\pm 0.037$	$\pm 0.016$	$\pm 0.018$	$\pm 0.020$

# Experimental Data $A_N$ 's with and Without Systematic Uncertainties

Expt  $A_N$  Data without Statistical Uncertainty

Expt  $A_N$  Data with Systematic Uncertainty

**Inclusive**

**Inclusive**

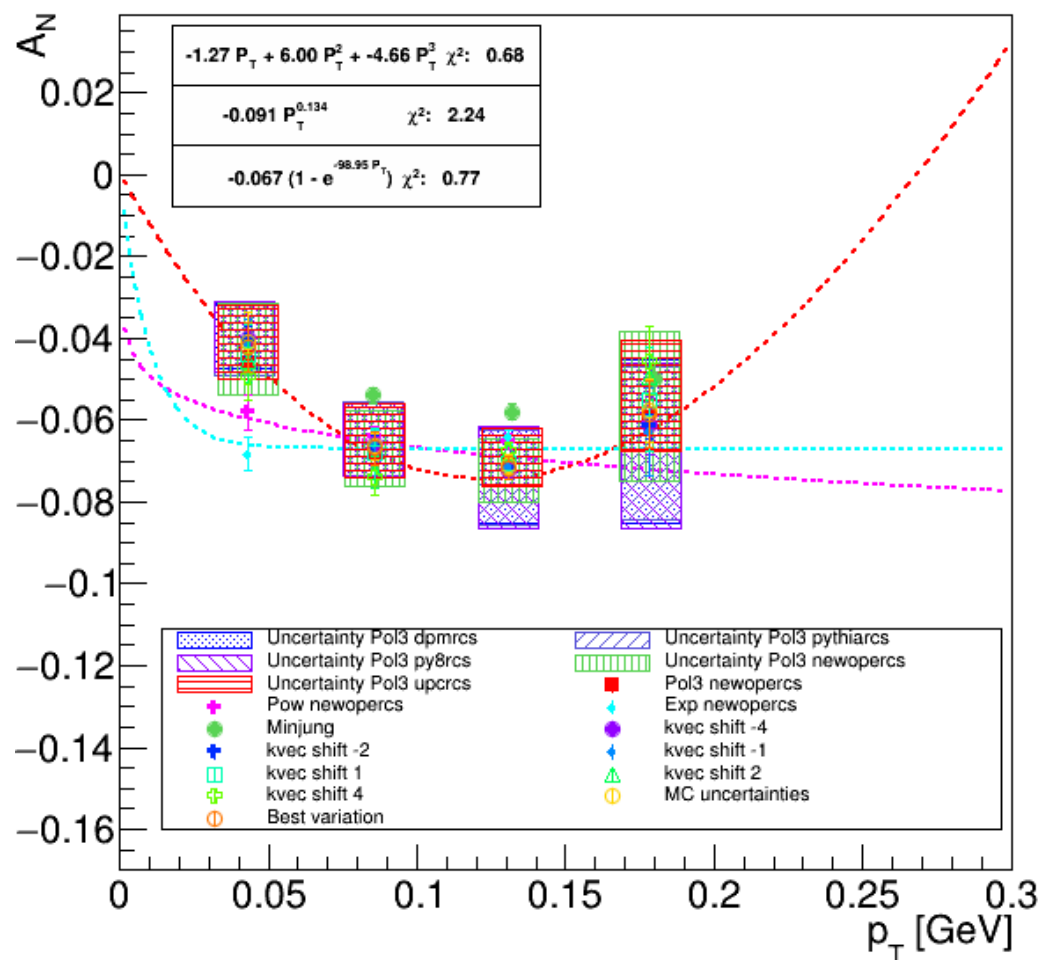
	Pt	$A_N$	e
pt1	0.043	-0.047	0.002
pt2	0.085	-0.054	0.002
pt3	0.132	-0.058	0.002
pt4	0.180	-0.050	0.004

	Pt	$A_N$	e
pt1	0.043	-0.047	0.038
pt2	0.085	-0.054	0.016
pt3	0.132	-0.058	0.018
pt4	0.180	-0.050	0.020

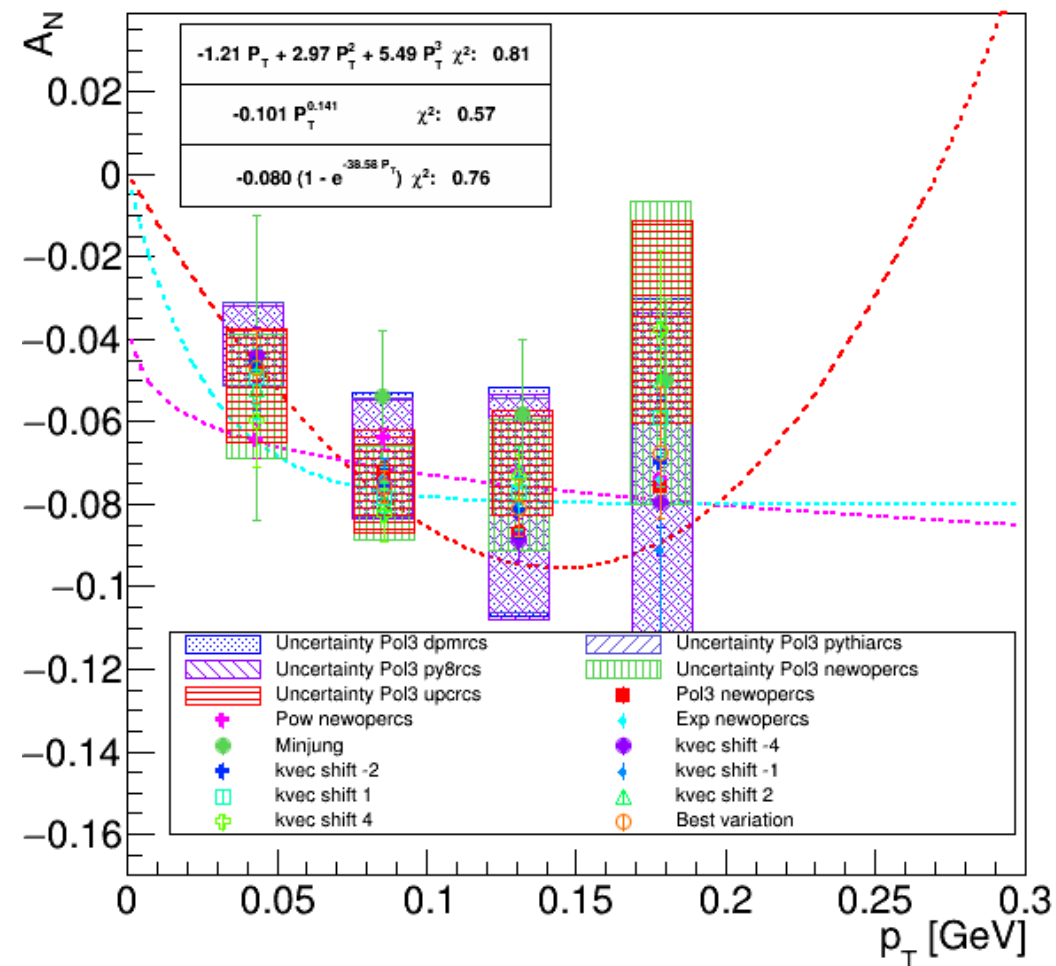


# Unfolded Asymmetries based on Pol3, Power and 1-exponential

Experimental  $A_N$ 's with Statistical Uncertainties



Experimental  $A_N$ 's with Systematic Uncertainties



# Unfolded Asymmetries based on Pol3, Power and 1-exponential

Experimental AN's with Statistical Uncertainties

