

# **RHIC & AGS Polarization Comparision**

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# Study Done

Purpose: to do high precision comparison between AGS and RHIC injection polarization comparison.

What have been done:

1. 12X12 fill with fixed target measurements.
2. 111X111 fills with two bunch intensities:  $2 \cdot 10^{11}$  and  $1 \cdot 10^{11}$ .

Total of 81 measurements were taken. We lost two yellow targets in the process.

# Injection Polarization

Scaling factors for RHIC polarimeters (based on 255GeV measurements):

B1: 1.06+-0.02; B2: 1.11+-0.03; Y1: 1.09+-0.02; Y2: 1.08+-0.02

Polarimeter	$10^{11}$	$2*10^{11}$	Fixed target
AGS (fixed)	72.25+-0.72	67.80+-0.73	67.80+-0.73
AGS(sweep)	68.71+-0.90	65.99+-1.10	
Expected Blue	66.03+-0.86	63.42+-1.06	
Blue1	67.72+-0.70	59.81+-0.79	
Blue2	66.39+-0.92	61.64+-1.03	63.8+-1.15
Expected Yellow	68.09+-0.89	65.40+-1.09	
Yellow1	68.51+-1.38	63.20+-1.18	
Yellow2	64.88+-1.51	58.96+-0.84	61.28+-0.98

Note: 1. The fixed target and sweep measurement ratio for polarimeter2 suggest  $R=0.07-0.08$ , consistent with measured 0.08 value. There is no difference between the 12X12 and 111X111 fill pattern.

2. Yellow2 was measured with different target between the two intensities.

3. Error for R values are too large, so not worth to list them here.