FY08 Polarized Proton Parameters

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Proton Mass = 0.938271998(38) GeV/c^2

$G + 1 = 2.792847337(29)$

Booster Injection Kinetic Energy = 200 MeV

Booster Extraction $G\gamma = 4.5$

Ags Injection $G\gamma = 4.5$

Ags Extraction $G\gamma = 45.5$

Nominal RHIC Circumference: $C_r = 3833.845181$ m

RHIC Circumference shift at $G\gamma = 45.5$ due to snakes: $\delta C = 4.160$ mm

RHIC Circumference shift at $E = 100$ GeV due to snakes: $\delta C = 0.236$ mm

Ags Circumference at Extraction = $4(C_r + \delta C)/19$

Table 1: Polarized Protons in Booster

Parameter	Injection	Extraction	Unit
$G\gamma$	2.175006741	4.5	
W	200.000	1416.76621628	MeV
cp	644.444566429	2160.05801970	MeV
E	1.138271998	2.35503821428	GeV
$B\rho$	2.14963568706	7.20517798917	Tm
β	0.566160432271	0.917207205644	
γ	1.213157805441	2.50997388742	
η	-0.6362	-0.1154	
h	1	1	
hf	841.166753953	1362.77884937	kHz
R	$201.780/(2\pi)$	$128.4526/4$	m

Table 2: Polarized Protons in Booster

Parameter	$G\gamma = 3$	$G\gamma = 4$	Unit
$G\gamma$	3.0	4.0	
W	631.753478185	1155.09530358	MeV
cp	1.25881915049	1.87131833665	GeV
E	1.57002547618	2.09336730158	GeV
$B\rho$	4.19896870951	6.24204607793	Tm
β	0.801782626832	0.893927374924	
γ	1.67331592495	2.23108789993	
η	-0.31385	-0.15760	
h	1	1	
hf	1.19123988740	1.32814295273	MHz
R	$201.780/(2\pi)$	$201.780/(2\pi)$	m

Table 3: Polarized Protons in AGS

Parameter	Injection	Transition	Extraction	Unit
$G\gamma$	4.5	15.2392023645	45.5	
W	1.41676621628	7.03703998500	22.8737810575	GeV
cp	2.16005801970	7.91992720194	23.7935603972	GeV
E	2.35503821428	7.97531198300	23.8120530555	GeV
$B\rho$	7.20517798917	26.4180335115	79.3667744543	Tm
β	0.917207205644	0.993055471537	0.999223390850	
γ	2.50997388742	8.5000	25.3786248617	
η	-0.145	0.0	0.01229	
h	12	12	12	
hf	4.08833654811	4.42642071890	4.45372203183	MHz
R	128.4526	128.4526	128.458120777	m

Table 4: Polarized Protons in RHIC

Parameter	Injection	Store	Store	Unit
$G\gamma$	45.5	191.5	191.079701922	
W	22.8737810575	99.2816875651	99.0617280020	GeV
cp	23.7935603972	100.215567356	99.9955981314	GeV
E	23.8120530555	100.219959563	100	GeV
$B\rho$	79.3667744543	334.283150499	333.549412145	Tm
β	0.999223390850	0.999956174328	0.999955981314	
γ	25.3786248617	106.813333209	106.578902720	
η	3.560×10^{-4}	1.8209×10^{-3}	1.8205×10^{-3}	
h	360	360	360	
hf	28.1287707274	28.1494278573	28.1494224238	MHz
δC	4.160	0.236	0.236	mm