Nsrl3 Schedule and Parameters

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Caution! The following schedule is subject to change. Please note release date above.

NSRL is to begin taking beam on 7 June 2004.

Beam Order:

1. Protons. 1000 MeV per nucleon. June 7–10 (Mon–Thur). Load function "1000MevHydrogenNsrl3" from BoosterMainMagnet Library.
2. Iron. 1000 Mev per nucleon. June 11–23 (Fri–Wed). Load function "1000MevIronNsrl3" from BoosterMainMagnet Library. Use archive "Live102203" for everything else.
3. Iron. 600 Mev per nucleon. June 24–26 (Thur–Sat). Load function "600MevIronNsrl3" from BoosterMainMagnet Library. Use archive "Fe600MeV16Apr04" for extraction and R-line setup.
4. Protons and Iron. Iron at 1000 MeV per nucleon; protons at same rigidity as iron in R line. Setup mode switching Sun June 27 and Mon June 28. Biology Tue June 29 and Wed June 30.

Protons and Fe^{20+} ions will be delivered from MP7 during most of the run. For the last two days of the run we will want to mode switch between protons and iron so that NASA biologists can expose the same sample to both protons and iron. In this case protons will be delivered from MP6 and iron from MP7. Booster Users 2 and 3 are to be used for protons and iron respectively.

A study cycle will be put on User 4 for J. DeLong and J.W. Glenn.

Table 1: Iron, Proton, and Deuteron Parameters at Booster Injection

Parameter	Fe^{20+}	Proton	Deuteron	Unit
mc^2	52.0928437	0.938271998	1.875612762	GeV
Date	5 Nov 03	4 Jun 04	21 Nov 02	
11DH1 NMR Probe	4364.1	3971.15	5580	Gauss
hf	341.100	566.033	401.922	kHz
h	3	2	2	
$T = 1/f$	8.7951	3.53336	4.9761	μs
Kinetic Energy W	153.213327	17.5008	17.3965	MeV
$B\rho$	0.666838554	0.607300	0.854085	Tm
$B\rho/\rho$	480.930	437.990	615.974	Gauss
Booster Hall Probe	451.4	418.3	593.7	Gauss
Booster Gauss Clock	25.5	14.0	16.7	Gauss
Injection Field H	476.9	432.3	610.4	Gauss
Inflector Setpoint V_S	29.534	67.419	68.070	kV
Inflector Predicted V_I	29.753	67.448	67.355	kV

Table 2: Iron and Proton Parameters at Extraction

Parameter	Fe^{20+}	Fe^{20+}	Proton	Unit
mc^2	52.0928437	52.0928437	0.938271998	GeV
Date	28 Mar 04	12 Apr 04	–	
hf	3.907680	3.55888	2.600120	MHz
h	3	3	2	
$T = 1/f$	0.76772	0.84296	0.769195	μs
Kinetic E per Nucleon	1003.6298	614.8564	1000.0000	MeV
$B\rho$	15.83497291	11.52230630	5.65737292	Tm
$B\rho/\rho$	11420.33	8309.99	4080.15	Gauss
Magnetic Field Setpoint	11600	8471	4159	Gauss
Calculated MM Current	4700	3420	1679	Amps
MM Current Setpoint	4934	3495	1710	Amps

Table 3: Iron and Proton Parameters at Extraction

Parameter	Fe^{20+}	Fe^{26+}	Proton	Unit
mc^2	52.0928437	52.0897777	0.938271998	GeV
Date	28 Mar 04	–	–	
hf	3.907680	3.907680	2.87798515	MHz
h	3	3	2	
$T = 1/f$	0.76772	0.76772	0.69493	μs
Kinetic E per Nucleon	1003.6298	1003.5707	2831.8304	MeV
$B\rho$	15.83497291	12.1800314768	12.1800314768	Tm
$B\rho/\rho$	11420.33	8784.35	8784.35	Gauss
Magnetic Field Setpoint	11600	8924	8924	Gauss
Calculated MM Current	4700	3615	3615	Amps
MM Current Setpoint	4934	–	–	Amps

Table 4: Iron with Same Rigidity as Proton with $G\gamma = 4.5$

Parameter	Proton	Fe^{20+}	Unit
mc^2	0.938271998	52.0928437	GeV
Date	–	–	
hf	2.72555769874	2.84538891565	MHz
h	2	3	
$T = 1/f$	0.73379	1.05434	μs
Kinetic E per Nucleon	1416.76621628	278.26585	MeV
$B\rho$	7.20517798917	7.20517798917	Tm
$B\rho/\rho$	5200.68	5200.68	Gauss
Magnetic Field Setpoint	5294	5294	Gauss
Calculated MM Current	2140	2140	Amps
MM Current Setpoint	–	–	Amps