

Polarimetry

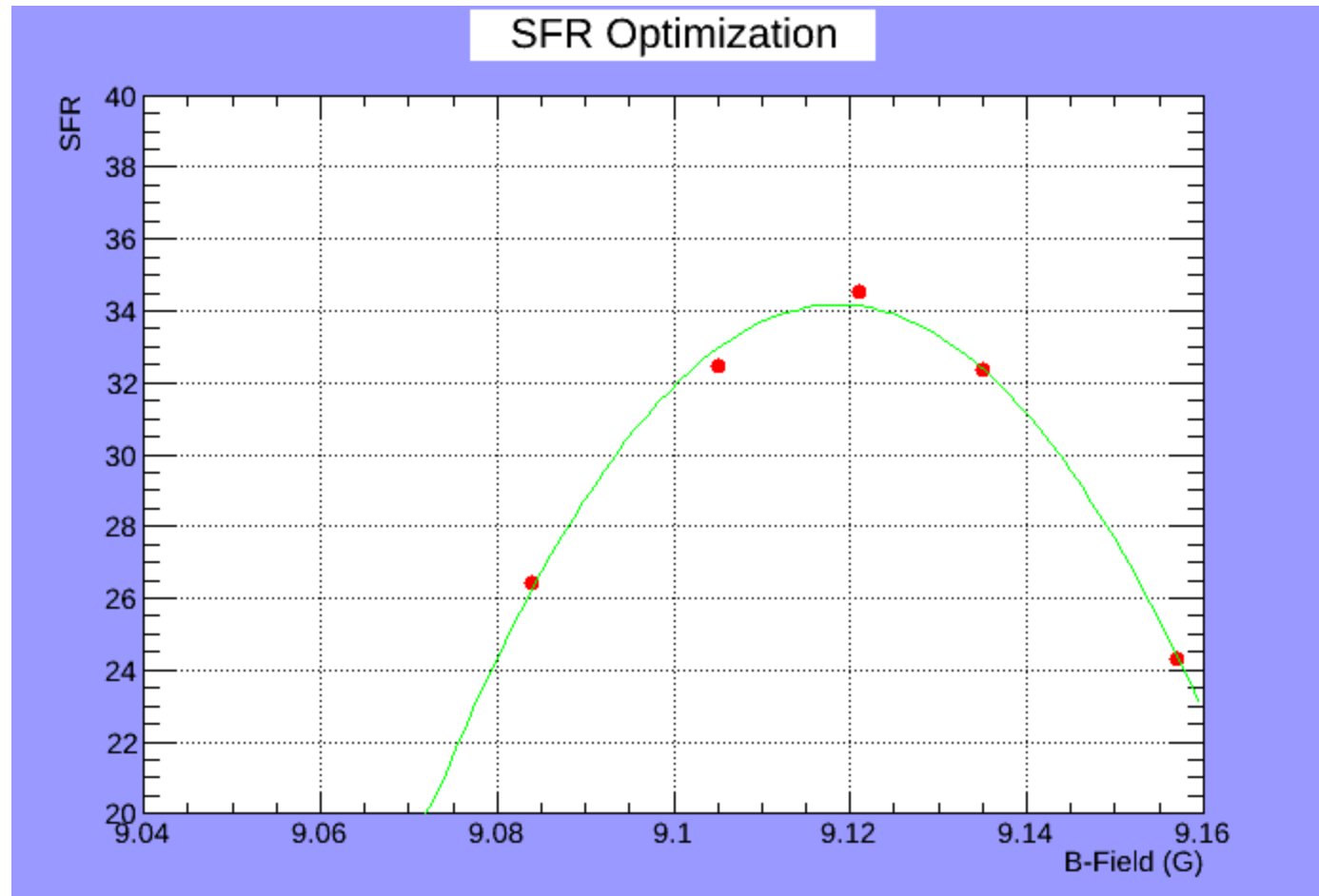
3-25-2015

n³He Experiment

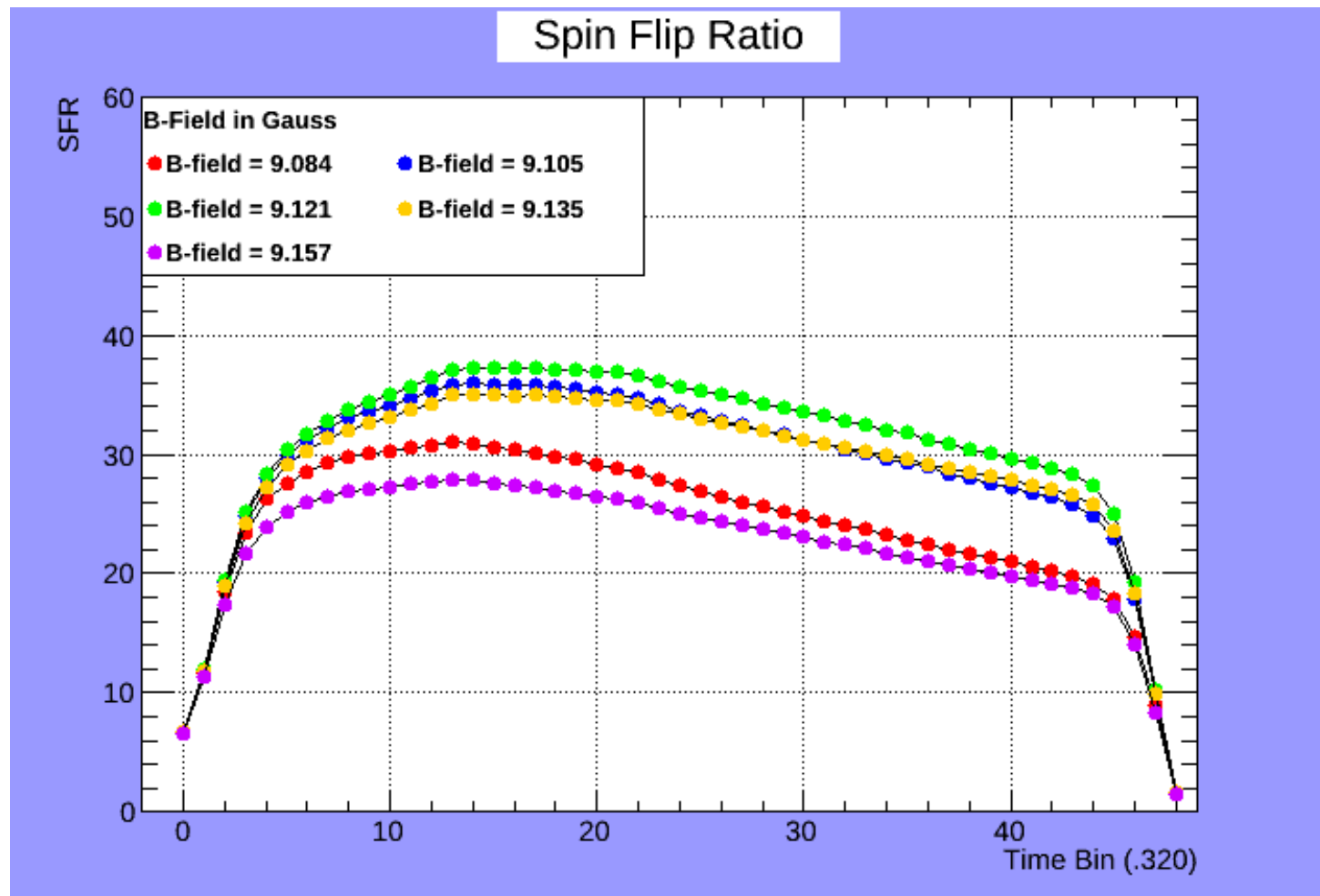
Data Runs

3/25/2015	3	9.121	22790-22792	Polarized Cell	up	34.54	486	
3/25/2015	4	9.084	22793-22795	Polarized Cell	up	26.41	486	Runs optimize SFR versus changes in guide field
3/25/2015	5	9.158	22796-22798	Polarized Cell	up	24.32	486	All runs taken at voltage V=486 mV
3/25/2015	6	9.135	22799-22801	Polarized Cell	up	32.35	486	optimizes at 9.12 Gauss/ 20 mGauss large than previous
3/25/2015	7	9.12	22802-22803	Polarized Cell	up		486	
3/25/2015	8	9.12	22804-22805	Polarized Cell	up		488	Runs optimize SFR versus changes in FGVoltage.
3/25/2015	9	9.12	22806-22807	Polarized Cell	up		484	V(MAX) = 486 mV
3/25/2015	11	9.12	22808-22809	Polarized Cell	up	34.63	486	NW2.370
3/25/2015	12	9.12	22810-22811	Polarized Cell	up	33.96	486	NW2.398
3/25/2015	13	9.12	22812-22814	Polarized Cell	up	2.336		NW2.336 (a/b ratio currently used)
3/25/2015	14	9.12	22815-22816	Polarized Cell	down	37.23	486	AFP flip
3/25/2015	15	9.12	22817-22818	Polarized Cell	up	35.55	486	2nd AFP Flip
3/25/2015	16	9.12	22819-22820	Depolarized Cell	up	1	486	De-Polarized Cell

Optimization of SFR



Optimization of SFR



Optimization Data

9.084	26.4112	22793
9.105	32.4775	22786
9.121	34.5453	22790
9.135	32.3575	22799
9.157	24.3217	22796

Minimizer is Minuit / Migrad

Chi2 = 0.424528

NDf = 2

Edm = 2.21907e-07

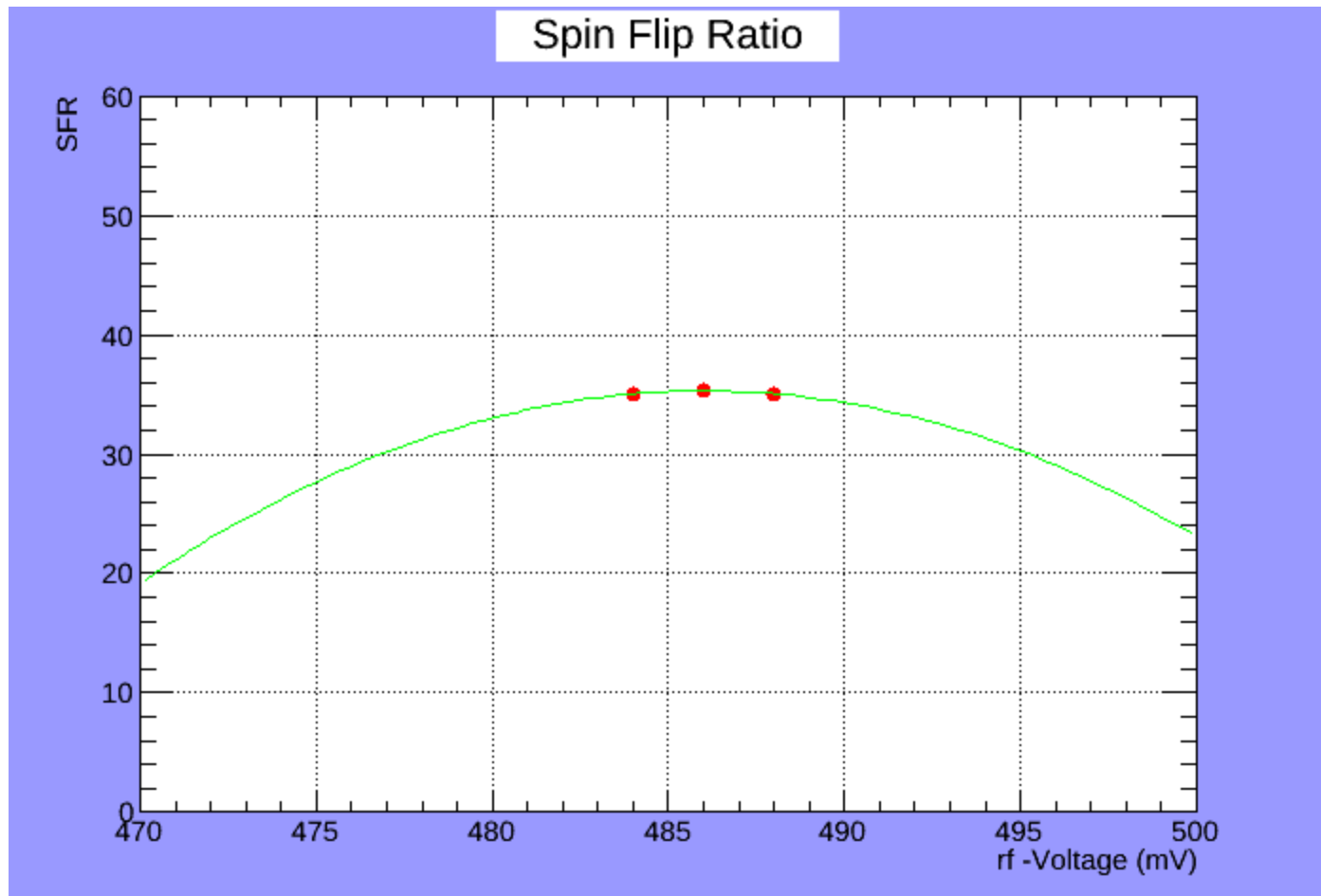
NCalls = 351

coefficient = 6625.21 +/- 352.233

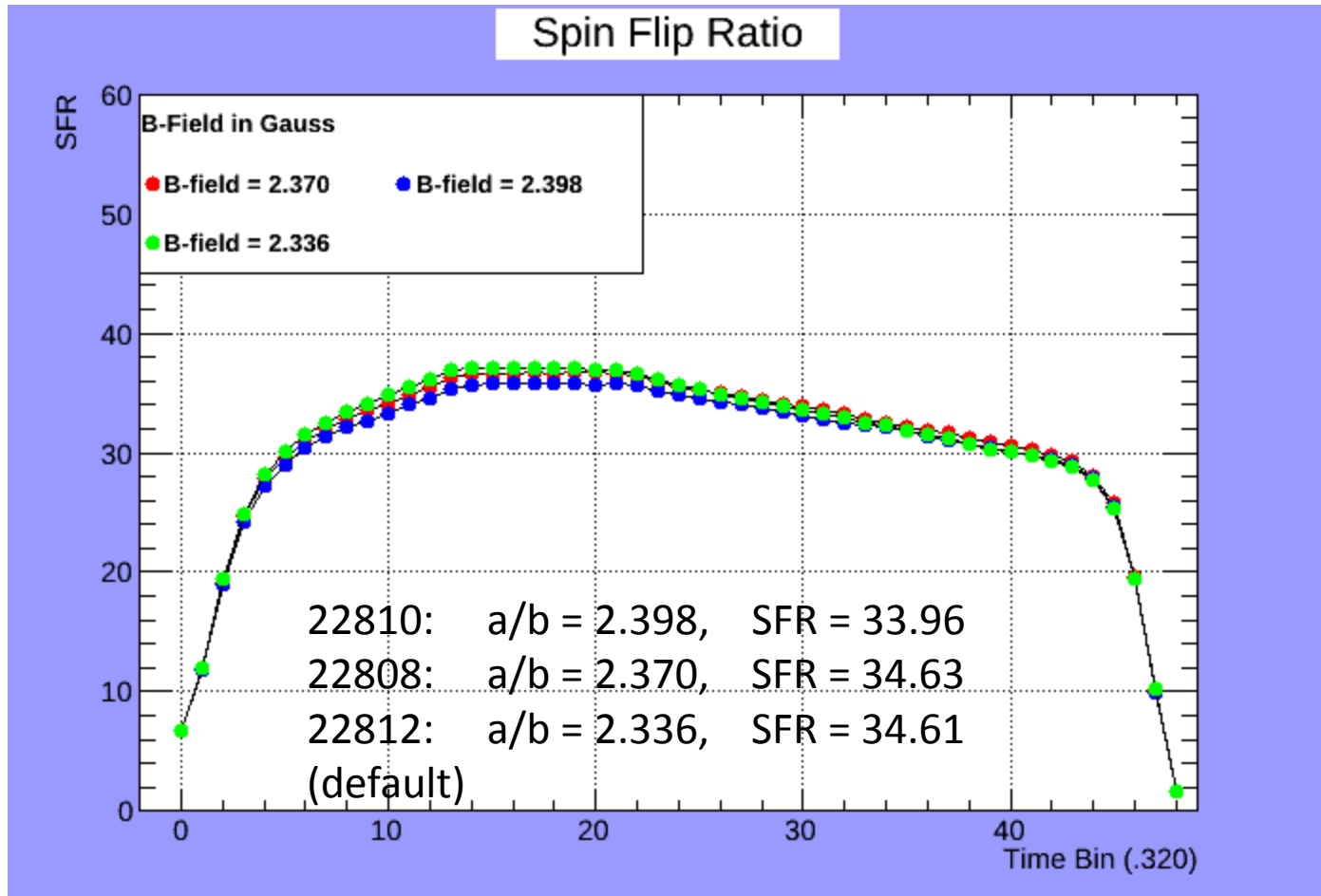
best_fit = 9.11855 +/- 0.000631018

best_sfr = 34.1731 +/- 0.300496

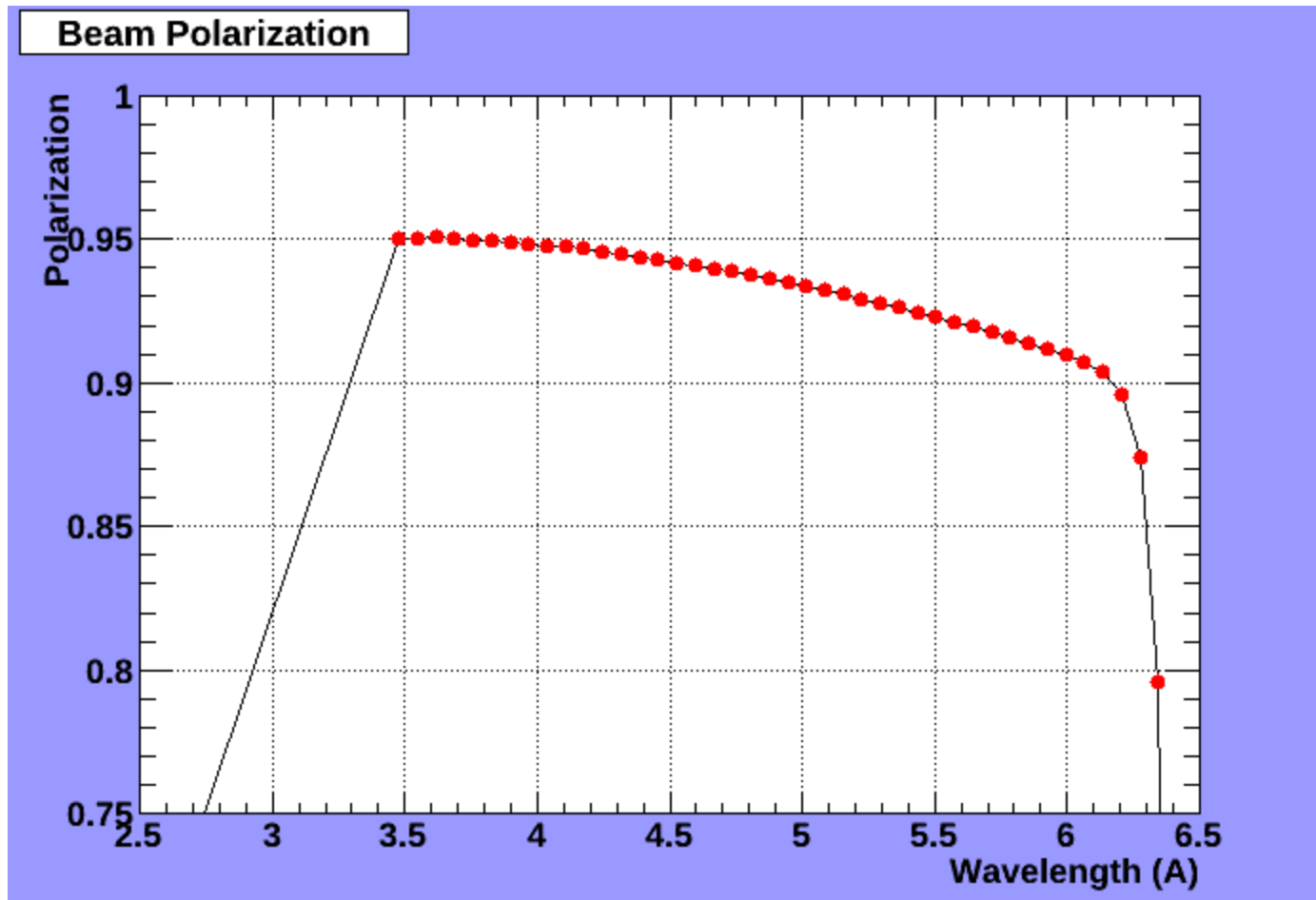
SFR versus FG Voltage



Modification to A/B ratio in FG

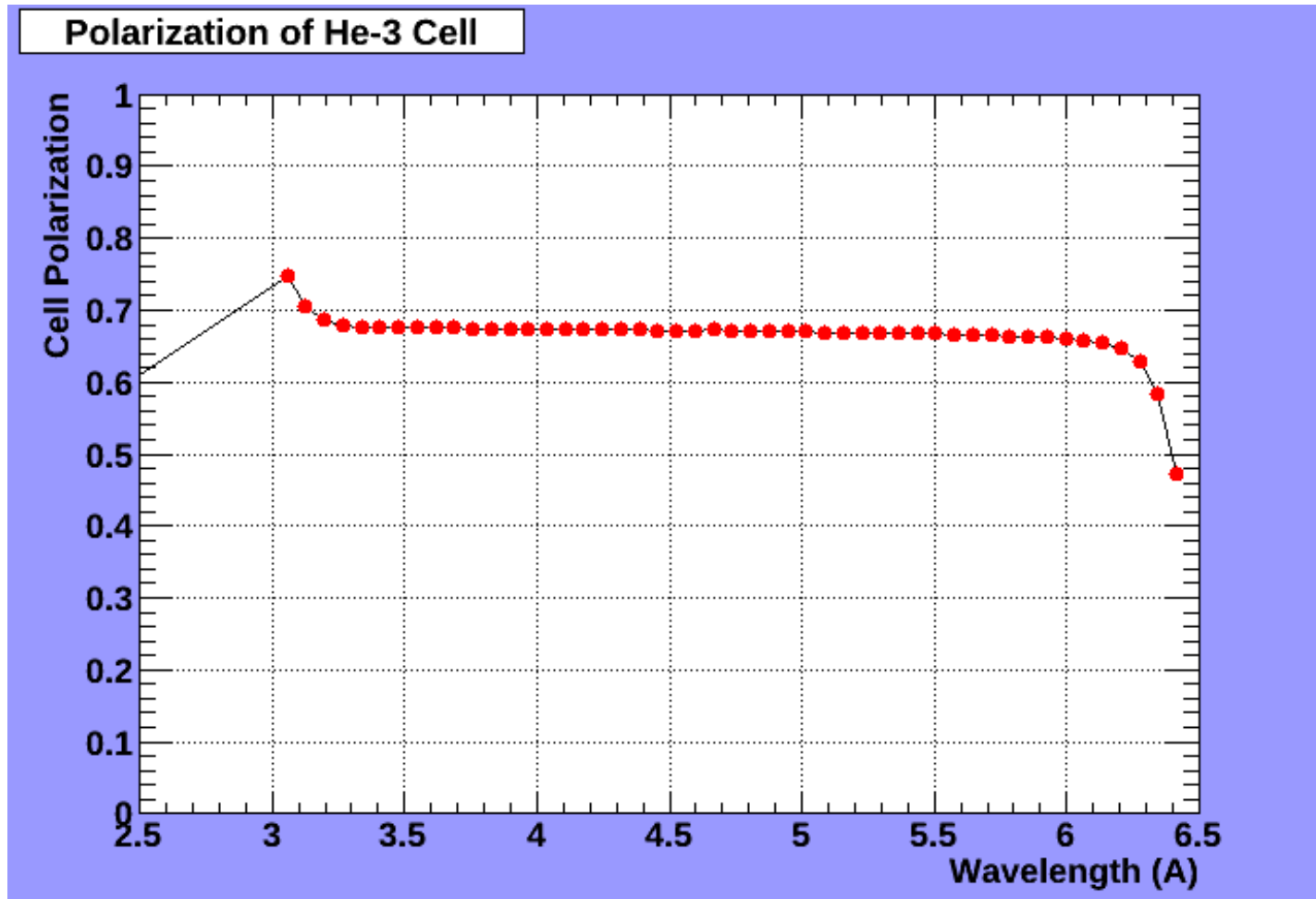


Beam Polarization



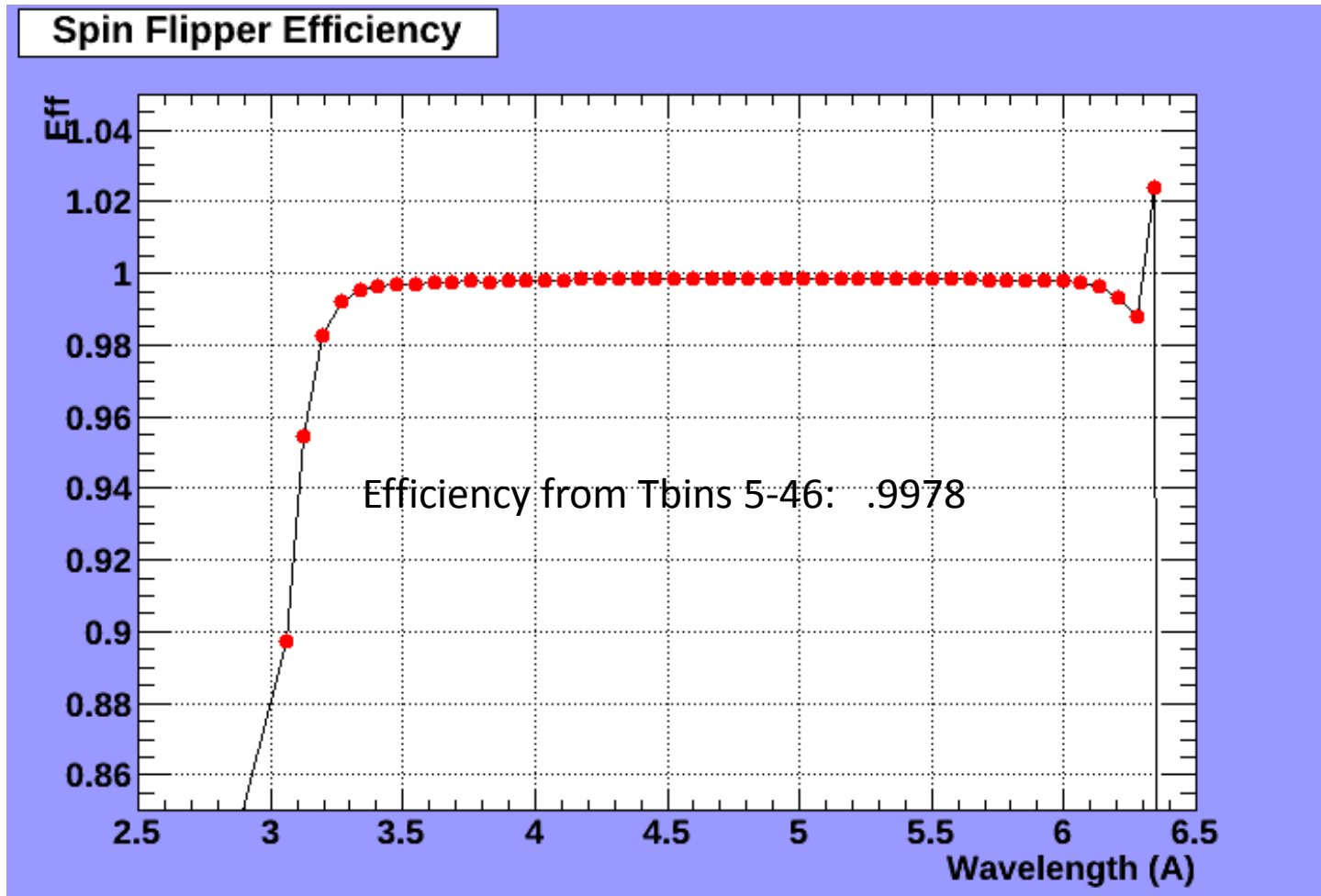
Dipol.cc(22790, 22819, 22779)

He-3 Cell Polarization



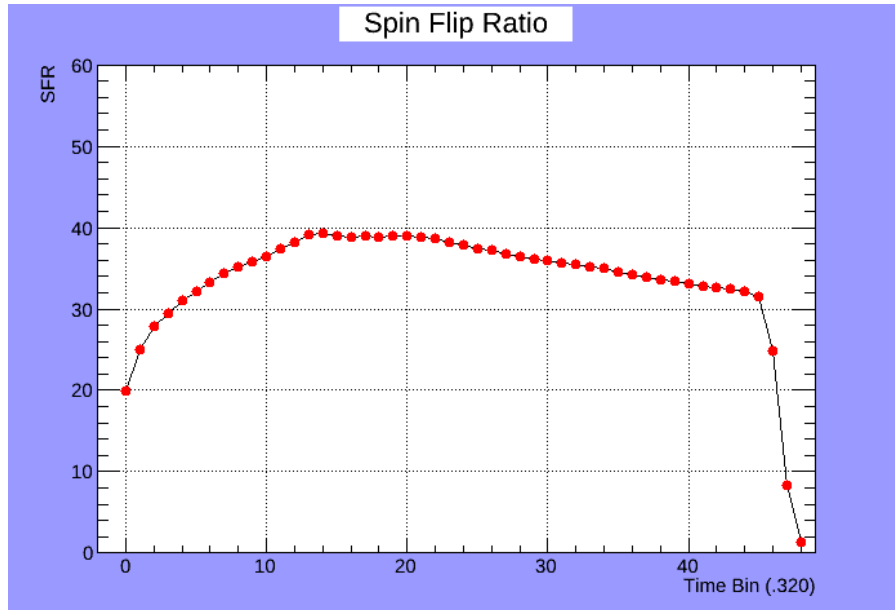
Dihep.cc(22790, 22819, 22779)

SF Efficiency

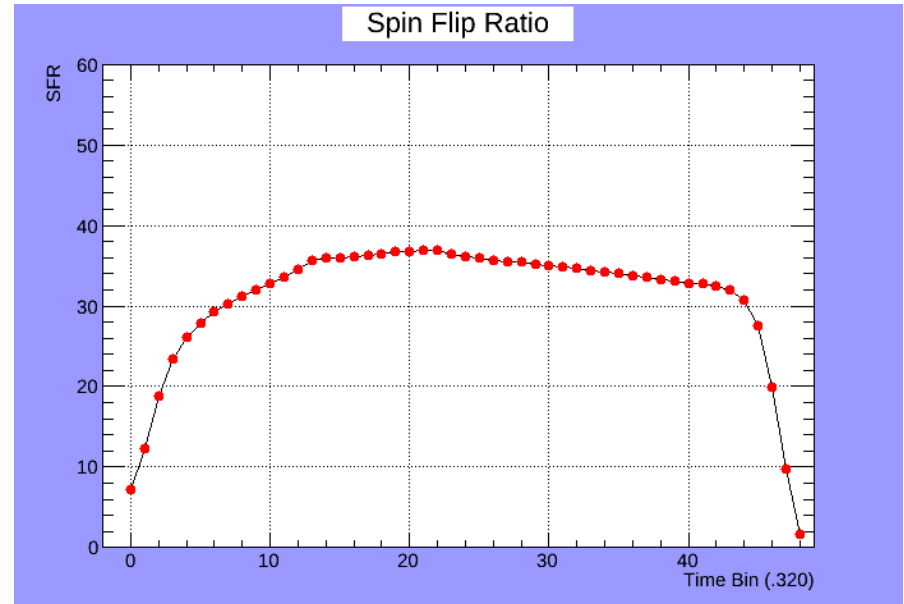


Dirfsf.cc(22812, 22815, 22817, 22779)

Plots of SFR after AFP Flips



1st spin flip: SFR = 37.23
Data run: 22815



2nd spin flip: SFR = 35.55
Data run: 22817

Plots indicate higher SFRs when AFP is used to flip spins of inside He-3 Cell. This phenomena was also apparent during 2-17-2015 polarimetry.