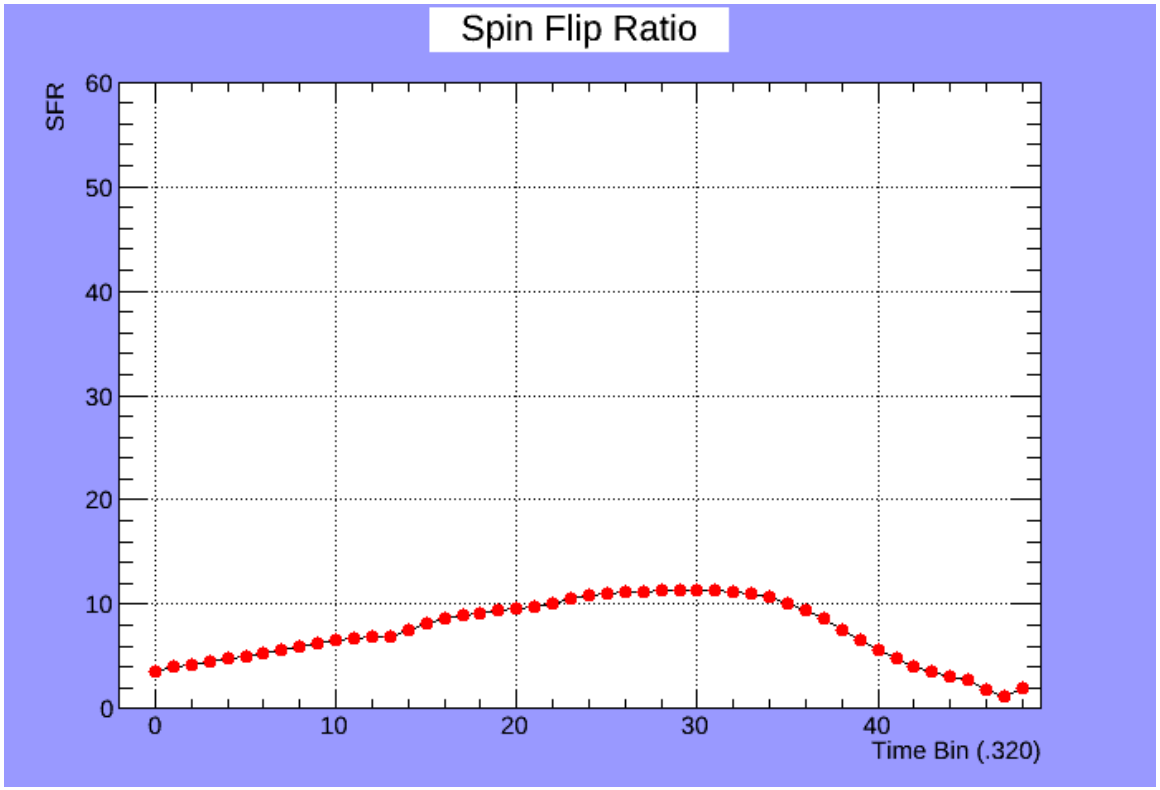
Polarimetry 2-25-2015

Data Runs for Polarimetry

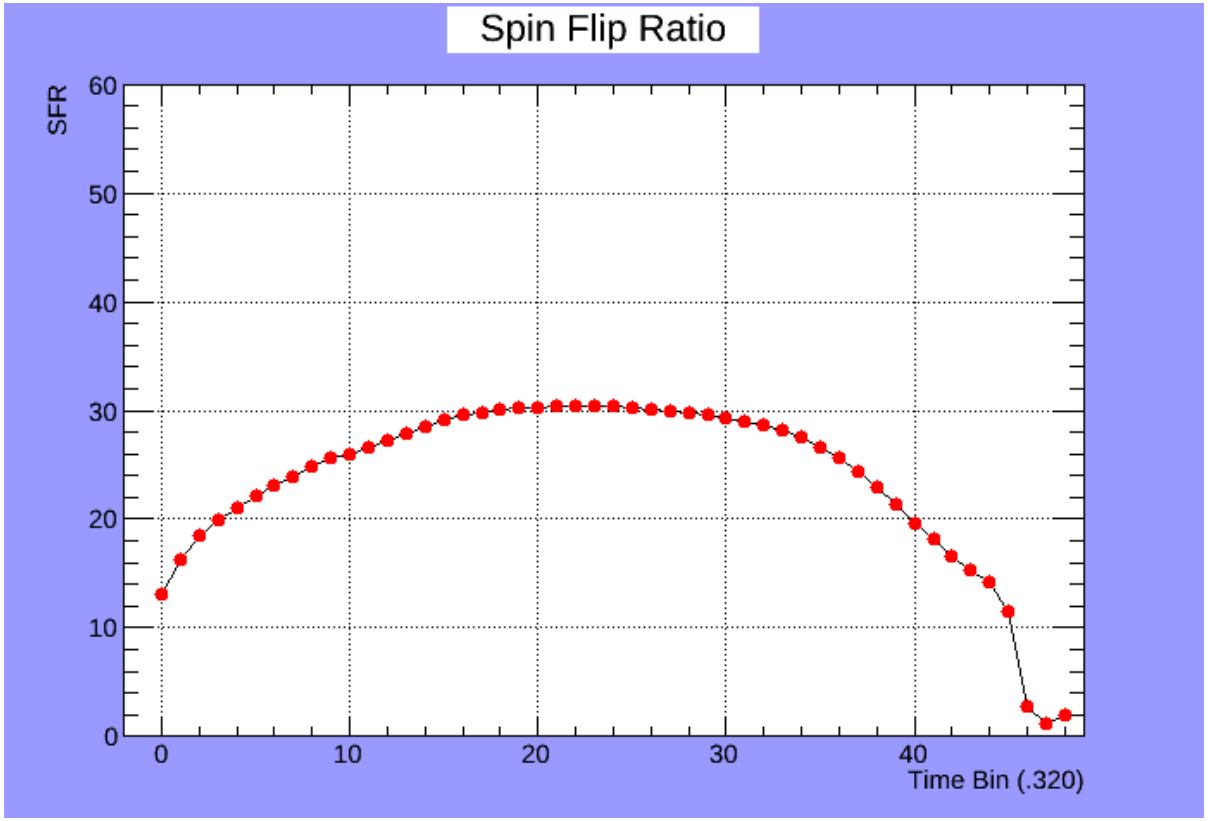
Date	Item	By2	Run Numbers	Description	Spin	SFR	FGV	Notes
2/25/2015	1		17933-17938	Pedestal	up			17933 is bad
2/25/2015	2	9.077	17939-17941	Polarized Cell	up		485	
2/25/2015	3	9.065	17942-17944	Polarized Cell	up		485	
2/25/2015	4	9.0852	17945-17947	Polarized Cell	up		485	Runs in yellow optimize SFR versus changes in guide field
2/25/2015	5	9.0989	17948-17950	Polarized Cell	up		485	All runs taken at voltage V=485 mV
2/25/2015	6	9.131	17951-17953	Polarized Cell	up		485	optimizes at 9.1009 Gauss/ Set to 9.1 Gauss
2/25/2015	7	9.118	17954-17964	Polarized Cell	up		485	
2/25/2015	8	9.101	17965-17967	Polarized Cell	up	34.45	480	
2/25/2015	9	9.101	17968-17971	Polarized Cell	up	33.35	475	Runs in grey optimize SFR versus changes in FGVoltage.
2/25/2015	10	9.101	17972-17974	Polarized Cell	up	34.87	485	V(MAX) = 486 mV
2/25/2015	11	9.101	17975-17977	Polarized Cell	up	34.71	490	
2/25/2015	12	9.101	17978-17980	Polarized Cell	up	33.91	495	
2/25/2015	13	9.101	17981-17999	Polarized Cell	uo		486	Short runs Choppers parked open
2/25/2015	14	9.101	18000-18003	Polarized Cell	up		486	10 min runs choppers open
2/25/2015	15	9.101	18004-18005	Polarized Cell	down		486	AFP flip --short runs--choppers parked open
2/25/2015	16	9.101	18006-18008	Polarized Cell	down		486	long runs--coppers parked open

SFR for Run 17981



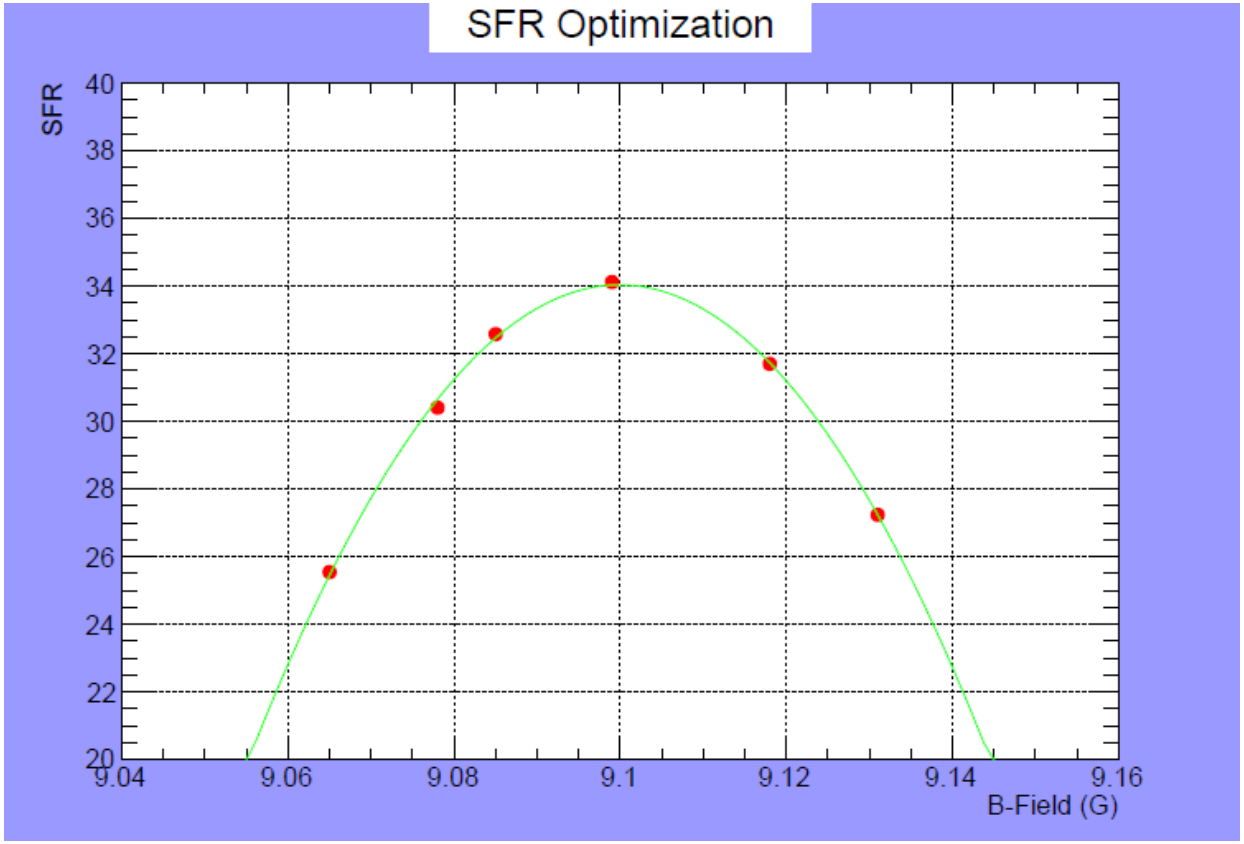
Runs 17981-17999 and 18000 -18003 are taken with choppers parked in open position. All runs yield SFR similar to plot above.

SFR for Run 18007



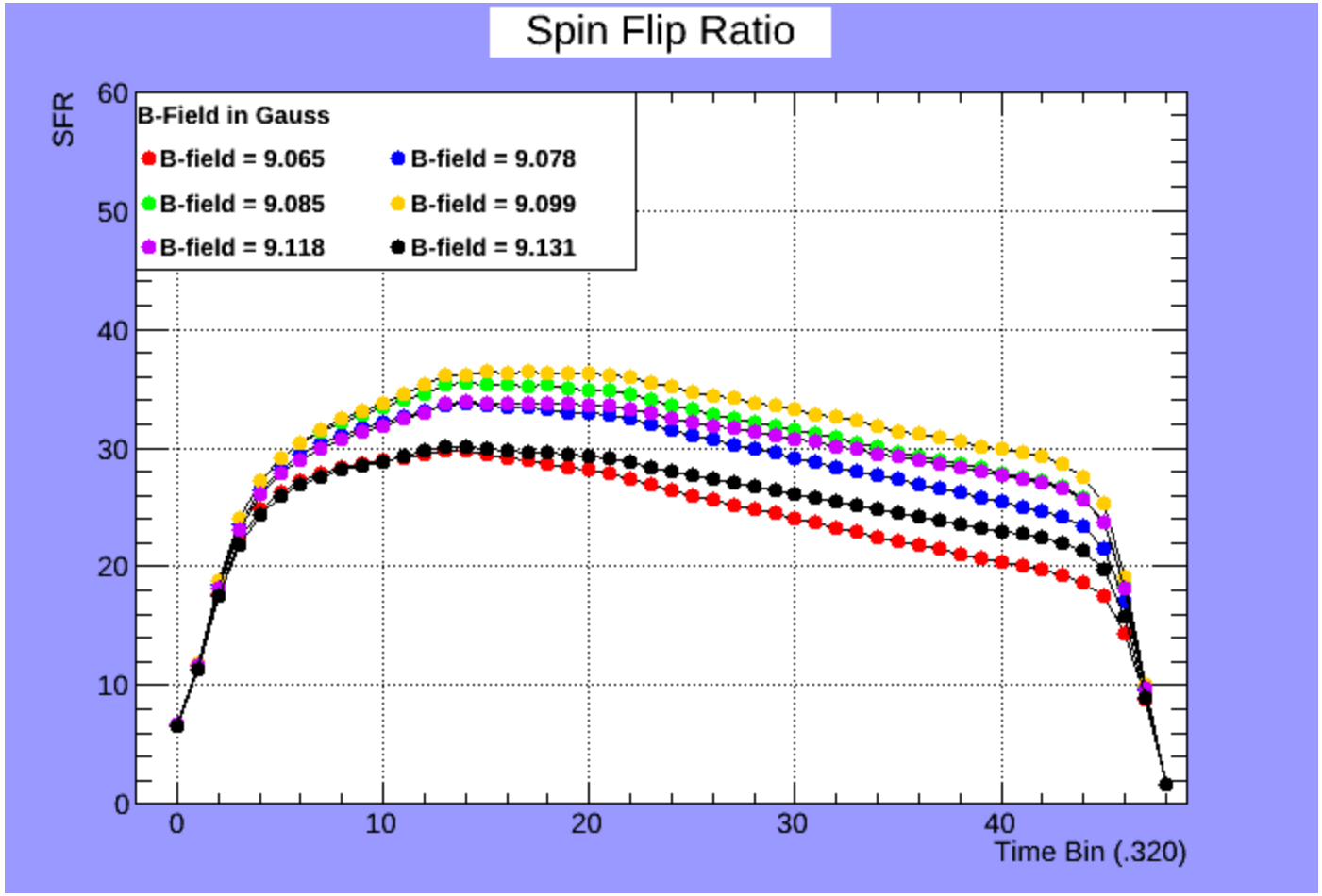
Runs 18004 - 18008 are taken with choppers parked in open position after a single AFP fLip. All runs yield SFR similar to plot above.

Optimizing SFR versus Guide Field



Best fit at 9.0999 Gauss giving optimal value of SFR=34.04 +/- 0.11

Plots of SFR Versus Guide Field

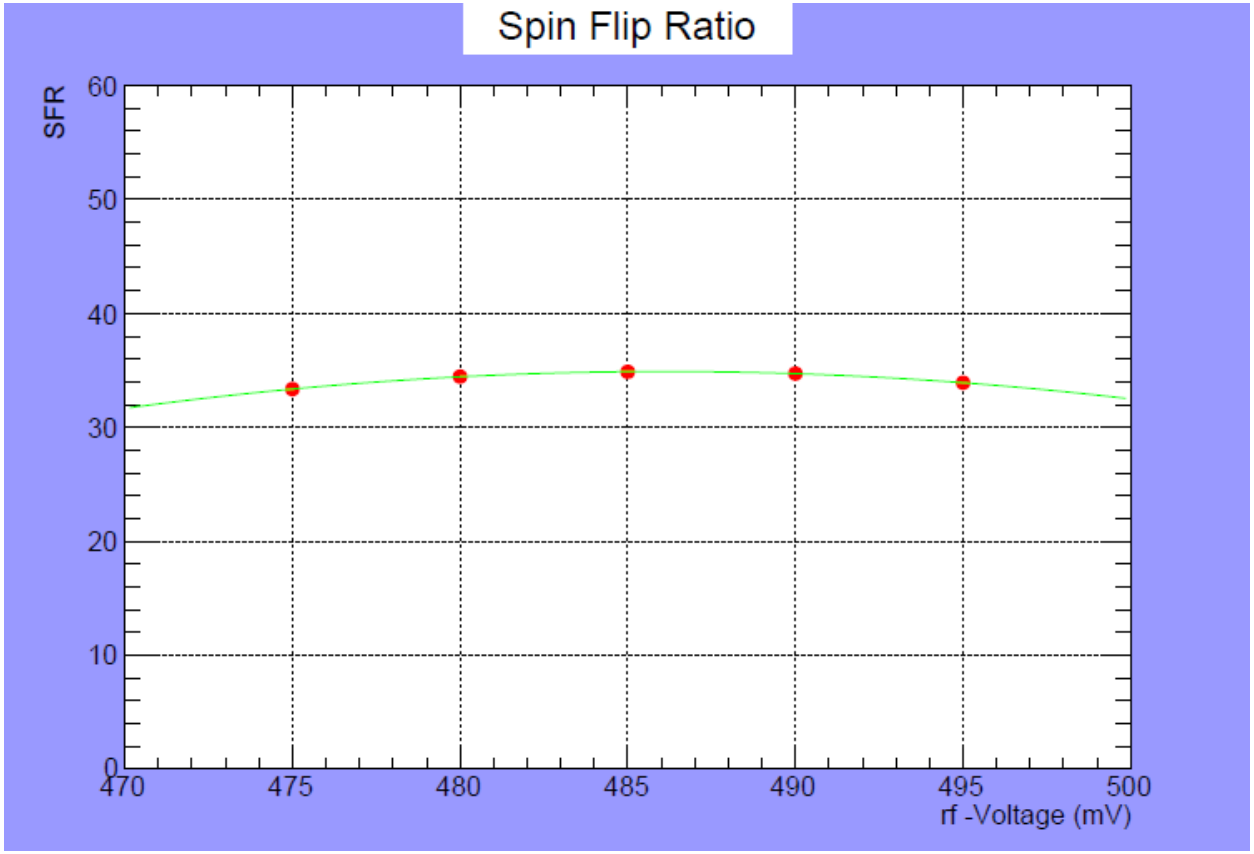


Data From Optimization

17942 9.065 25.5481
17939 9.078 30.4080
17945 9.085 32.5827
17948 9.099 34.1211
17954 9.118 31.7042
17951 9.131 27.2382
****

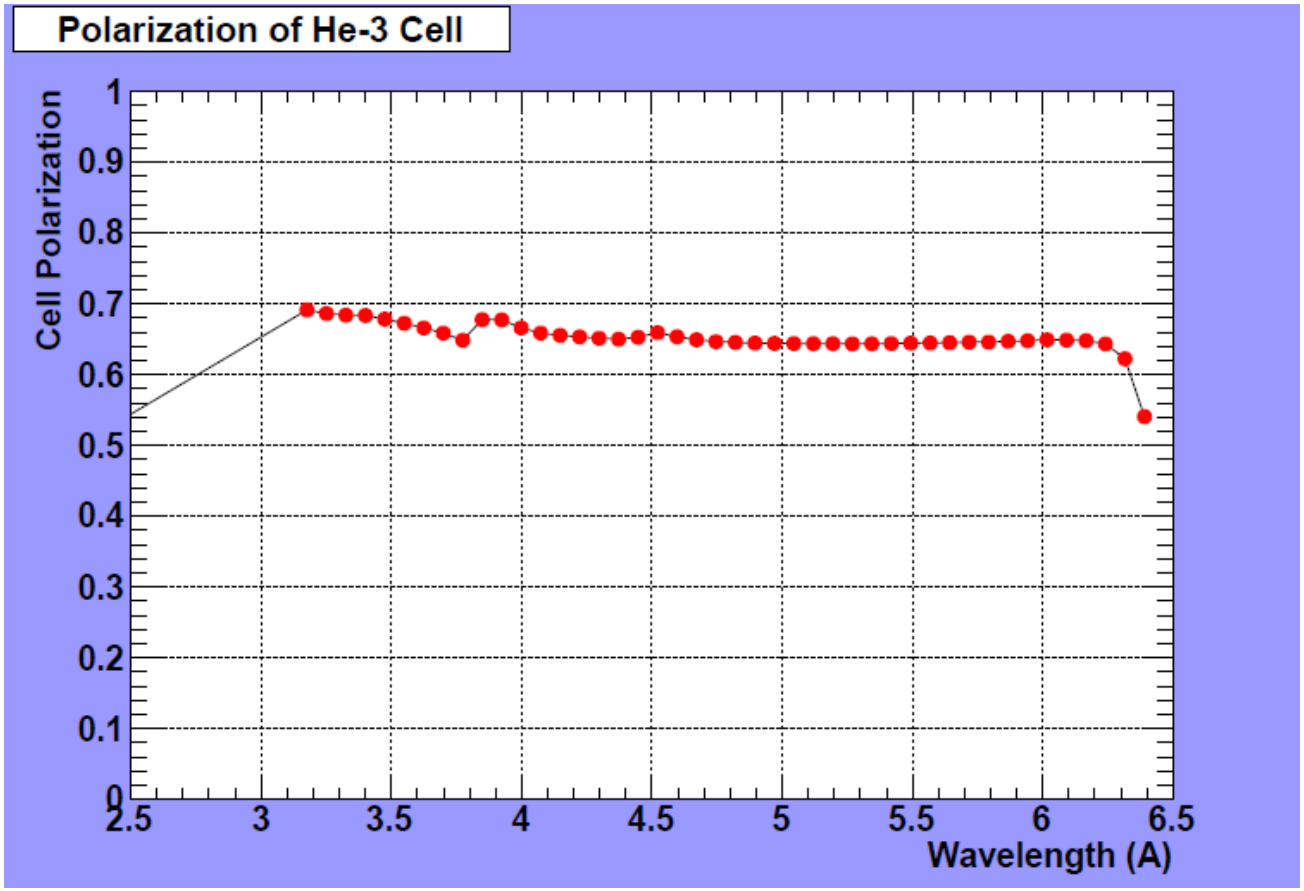
Minimizer is Minuit /Migrad
Chi2 = 0.0916359
NDf = 3
Edm = 6.63622e-07
NCalls = 294
coefficient = 7037.32 +/- 169.495
best_fit = 9.09992 +/- 0.000224254
best_sfr = 34.0393 +/- 0.114858

Optimizing SFR versus RF-Voltage



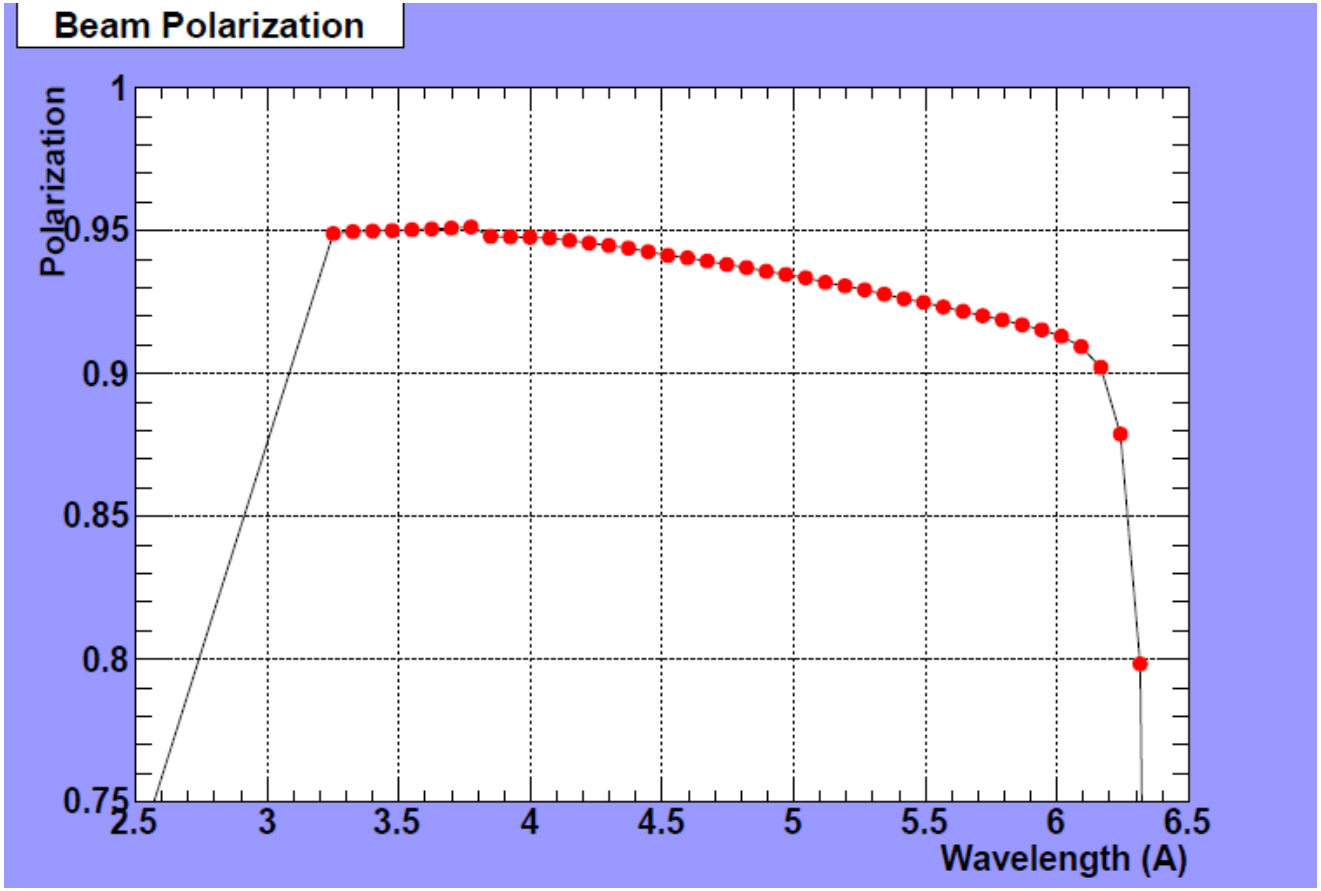
Best fit at 486 mV giving optimal value SFR= 34.9 +/-0.11

Polarization of the He-3 Cell



No de-polarized cell and pedestal runs exist for 2-25 polarimetry. This plot was therefore made with pedestal/de-polarized runs from 2-17 polarimetry.

Beam Polarization



No de-polarized cell and pedestal runs exist for 2-25 polarimetry. This plot was therefore made with pedestal/de-polarized runs from 2-17 polarimetry.