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Message ID: **4834** Entry time: **Thu Jul 22 11:04:50 2010**

Run:	1001
Author:	TP
Type:	Info
System:	General
Subject:	Change to Konti-2/Ag-coated sample plate: energy and B scan

Thu Jul 22 11:04:24 2010

- End of MCP2 tests. Change to Konti-2 with a "recycled" Ag-coated sample plate
- remove moderator
- 11:00: Konti-2 with new Ag-coated sample plate mounted; **note:** Konti-2 has at the moment a sapphire disk with narrow holes for the Vespel screws; new sapphire disks with the right hole size are ordered.
- change DAQ to Event2, disable TOFAnaModule in analyzer and restart analyzer
- 14:00: new moderator, Ar/N2 238/13AA  
 The XTC is a bit strange: measured thickness jumps sometimes by 12-18AA...

Fig.1: first run (1002), 100K, 15kV transport, 14.1 keV implantation energy, 100GTF (WEW), new APD spectrometer.  
 - the asymmetry is rather high, 0.284, with a low exponential damping rate 0.006/us  
 - the alpha parameters are very close to one, as expected from beam measurements: alphaLR = 1.008, alphaTB = 0.982.

Sample HV < -4kV doesn't work, bkg on TD starts to increase.

Asymmetry and depolarization data are plotted in Figs. 2 and 3.  
 The alpha parameters are plotted in Figs. 4 and 5. alphaTB indicates a down-shift of the beam at low implantation energies, whereas alphaLR is nearly independent on energy.

Run	energy (keV)	asym	rate	alphaLR	alphaTB
1011	2.0	0.217(2)	0.041(5)	0.998(3)	1.022(3)
1010	3.0	0.236(2)	0.021(4)	1.002(3)	1.006(3)
1004	4.0	0.252(2)	0.010(4)	1.002(3)	0.999(3)
1005	6.0	0.264(2)	0.008(3)	1.004(3)	0.988(3)
1006	8.0	0.273(2)	0.012(3)	1.001(3)	0.988(3)
1007	10.0	0.272(2)	0.007(3)	1.004(3)	0.986(3)
1008	12.0	0.278(2)	0.006(3)	1.003(3)	0.979(3)
1002	14.1	0.284(2)	0.007(3)	1.008(3)	0.982(3)
1009	16.0	0.287(2)	0.005(3)	1.005(3)	0.979(3)
1003	18.0	0.289(2)	0.006(3)	1.003(3)	0.982(3)

**LEM event rates:**(15kV transport, WEW setup with APD spectrometer)  
 With a new moderator and centred p-beam (MCP1 = 80k/mAs, PosM1 = 76k/mAs):  
 with MCP2 (Run 903): 660/mAs  
 with Konti2 (Run 1003): 520/mAs

For the old WEW detectors we had Konti/MCP2 ~ 0.86, now, the ratio is 0.79.  
 With the old detectors we had an event rate with cryostats of about 600/mAs. Now, we have about 13% less.  
 However, the figure of merit doesn't change:  
 old detectors, asymmetry for Ag ~ 0.27.  
 new detectors, asymmetry for Ag ~ 0.29.

figure-of-merit = A^2 N  
 For the ratio old/new detectors, we then obtain:  
 0.29^2/0.27^2 \* 0.87 ~ 1

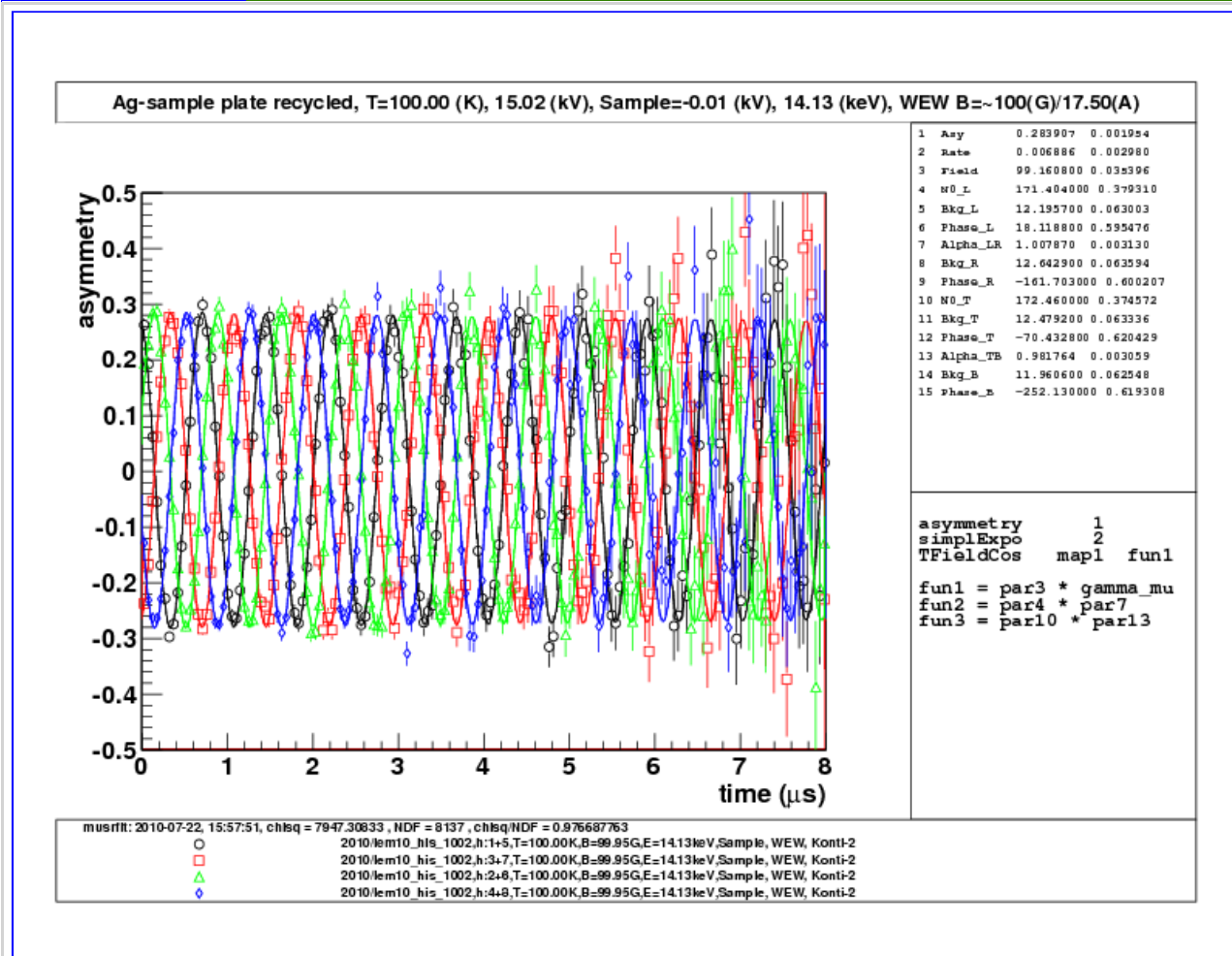
**Field scan at 15kV, L3=9.75kV:**

L3 = 9.75kV, E=14.1 keV
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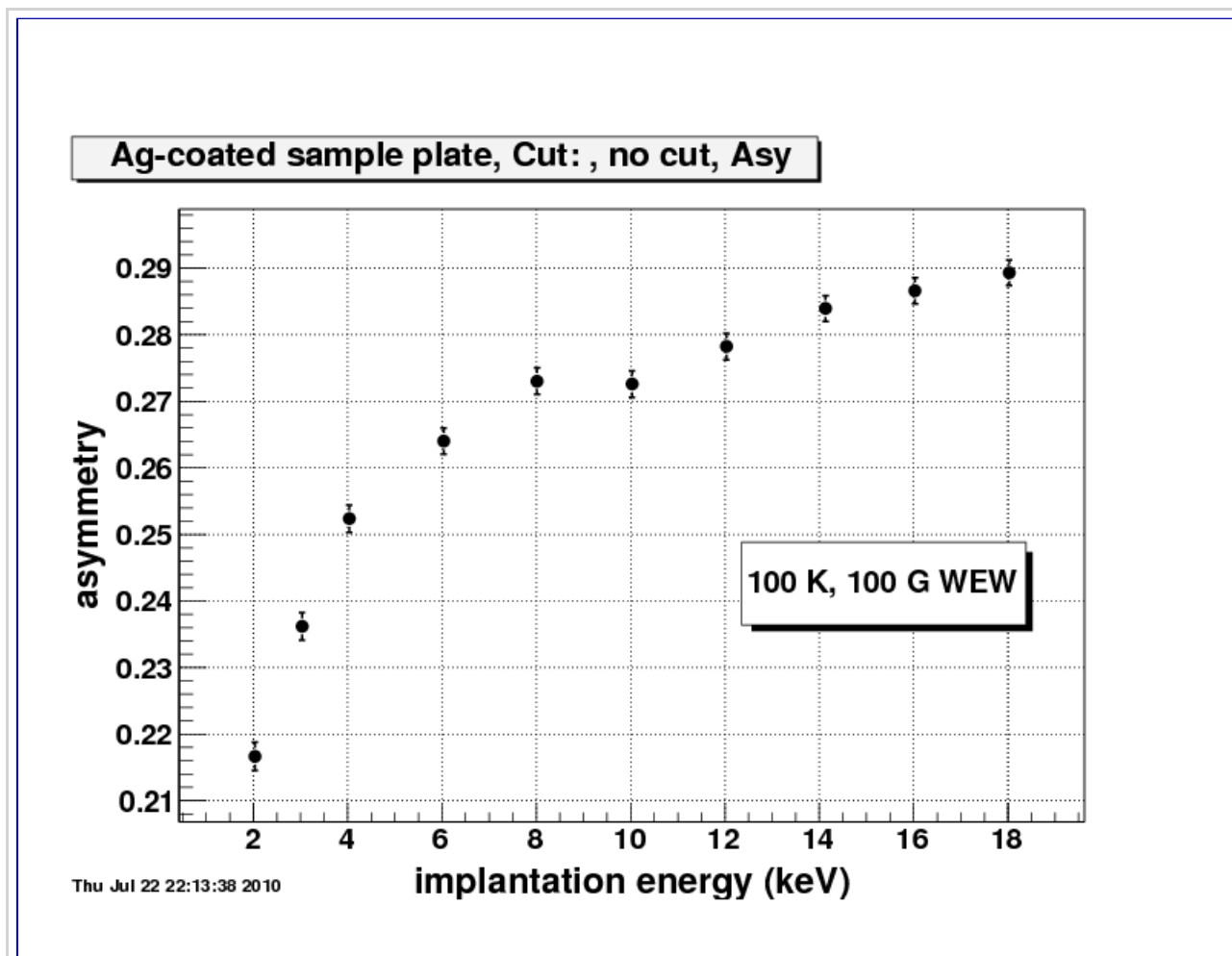
Run	Field (G)	RA-L	RA-R	RA-T	RA-B	alphaLR	alphaTB
1014	100	0.0	0.0	0.5	0.0	0.984(3)	0.952(3)
1015	500	0.0	0.0	0.5	0.0	0.992(3)	0.994(3)
1016	750	0.0	0.0	0.3	0.0	0.984(3)	0.994(3)
1017	1000	0.0	0.0	0.0	0.0	0.982(3)	0.977(3)
1018	1250	0.25	0.0	0.0	0.4	0.997(3)	0.981(3)
1019	1500	0.5	0.0	0.0	0.8	0.999(3)	0.979(3)
1020	1750	0.7	0.0	0.0	0.6	0.956(3)	0.965(3)
1021	2000	0.9	0.0	0.0	0.7	0.963(2)	0.929(3)
1022	2250	0.9	0.0	0.0	0.6	0.983(3)	0.907(3)
1023	2500	0.7	0.0	0.0	0.5	1.016(3)	0.894(3)
1024	2850	0.0	0.0	0.0	0.0	1.022(3)	0.911(3)

- RA steering ok up to 1500G. At higher fields, the RA steering doesn't center the beam anymore. See also Figs. 6+7.
  - Depolarization rate as a function of field in Fig. 8.
  - Asymmetry as a function of field/frequency in Figs. 9+10.
- The time resolution seems to be a bit better for the APD spectrometer**, compared to the old PM based spectrometer, see Fig. 10 and [eLog:LEM\\_Experiment/4474](http://lem00:8000/LEM_Experiment/4474), although the prompt peak has a larger width due the analog mixing of 4 detector segments.
- On the other, the shorter scintillators counteracts this "jitter".

Attachment 1: [1002\\_fit.png](#) 184 kB Uploaded Thu Jul 22 17:20:54 2010 | [Hide](#) | [Hide all](#)

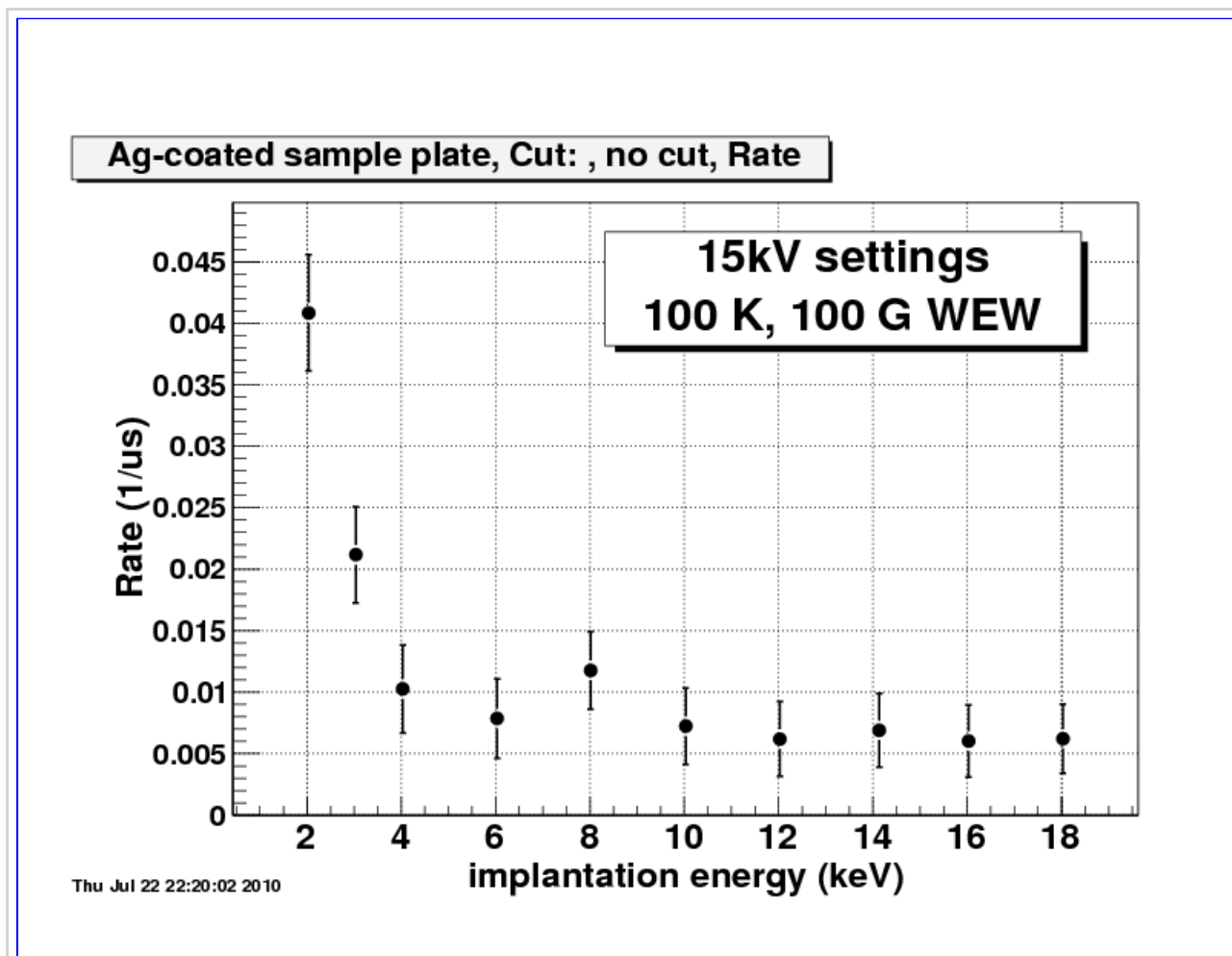


Attachment 2: [Ag\\_100K\\_EnergyScan\\_Asymmetry.png](#) 16 kB Uploaded Thu Jul 22 23:15:53 2010 | [Hide](#) | [Hide all](#)

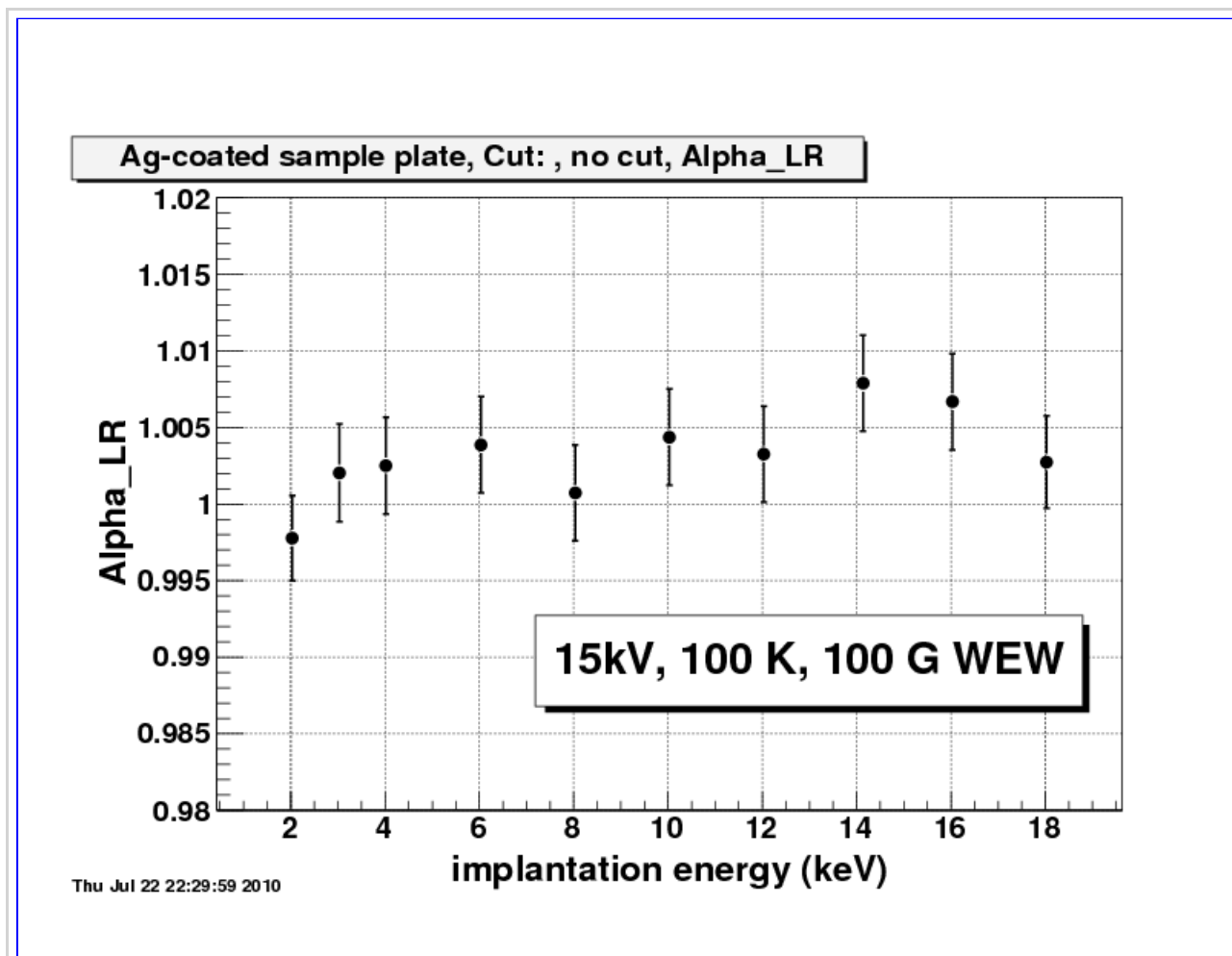


Attachment 3:

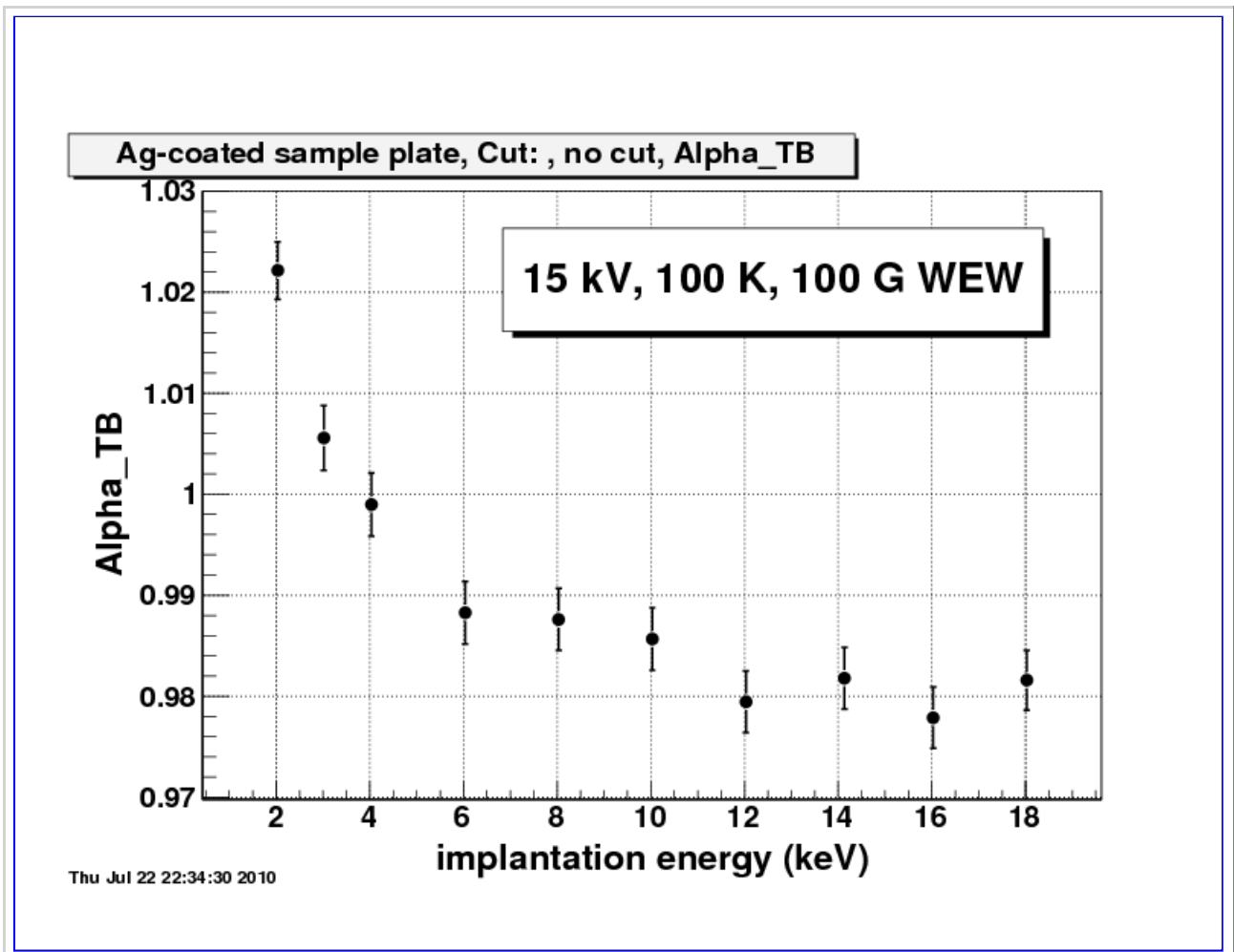
[Ag\\_100K\\_EnergyScan\\_Rate.png](#) 18 kB Uploaded Thu Jul 22 23:21:08 2010 | [Hide](#) | [Hide all](#)



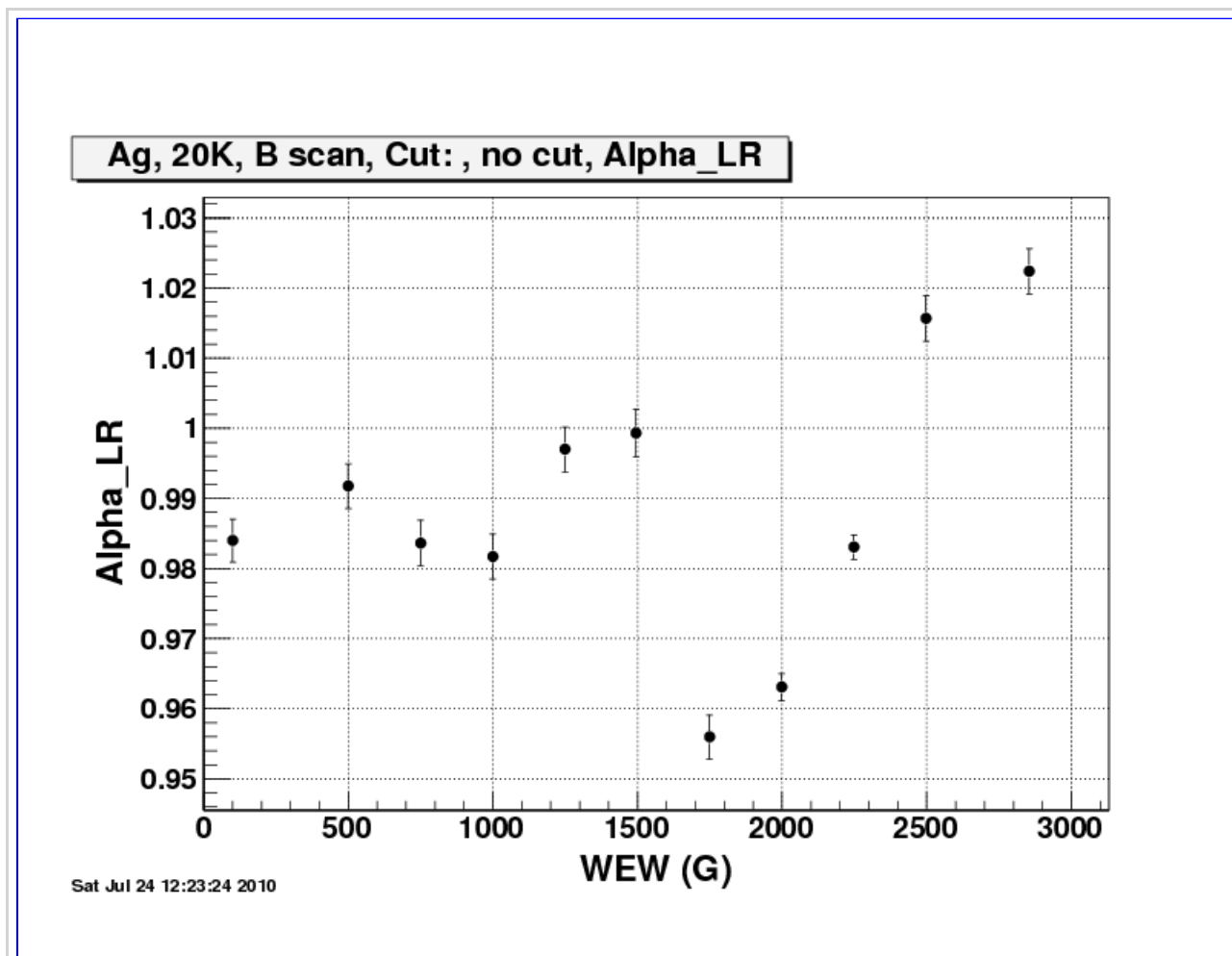
Attachment 4: [Ag\\_100K\\_EnergyScan\\_AlphaLR.png](#) 16 kB Uploaded Thu Jul 22 23:35:58 2010 | [Hide](#) | [Hide all](#)



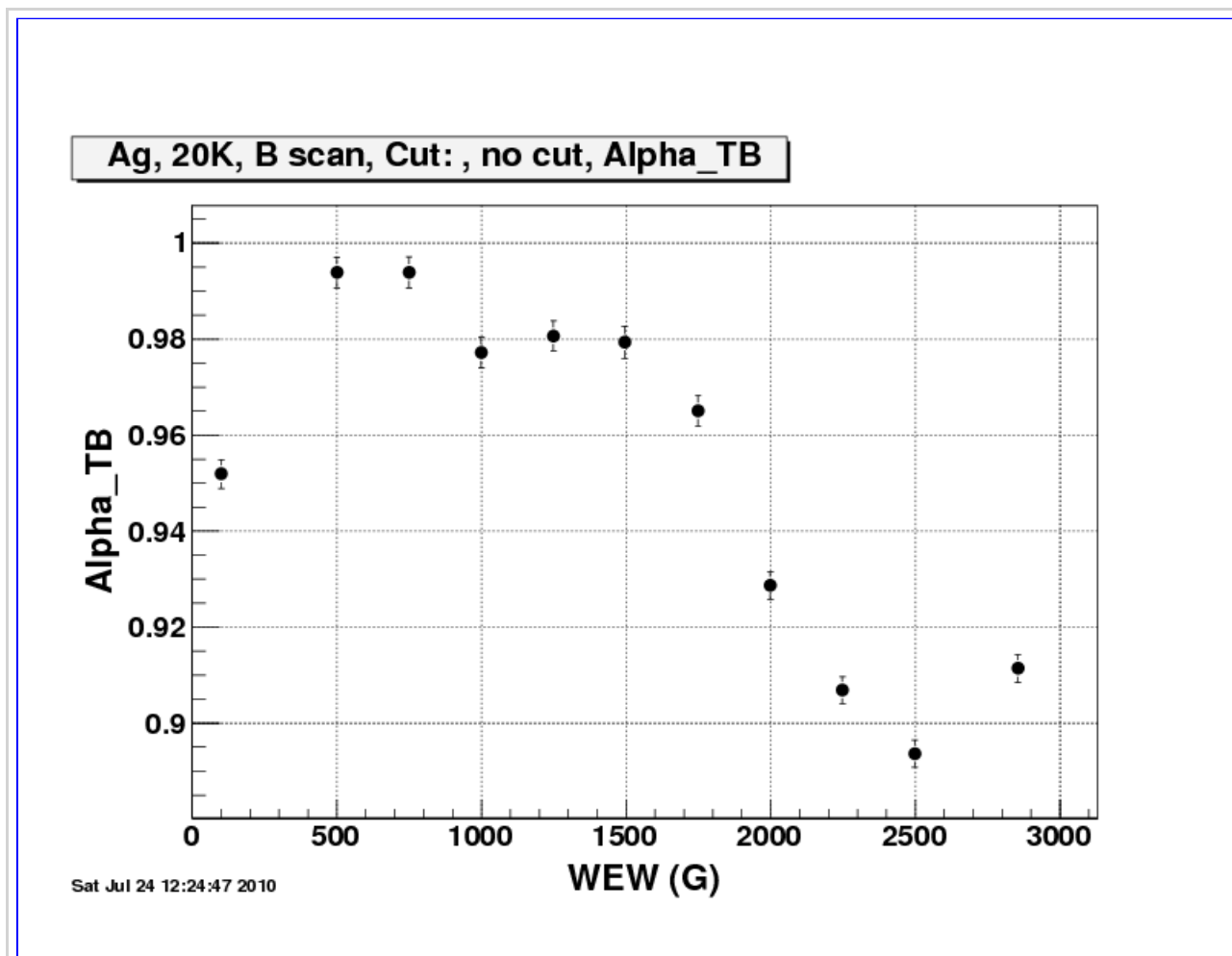
Attachment 5: [Ag\\_100K\\_EnergyScan\\_AlphaTB.png](#) 16 kB Uploaded Thu Jul 22 23:36:13 2010 | [Hide](#) | [Hide all](#)



Attachment 6: [Ag\\_20K\\_FieldScan\\_AlphaLR-vs-B.png](#) 15 kB Uploaded Sat Jul 24 13:56:52 2010 | [Hide](#) | [Hide all](#)

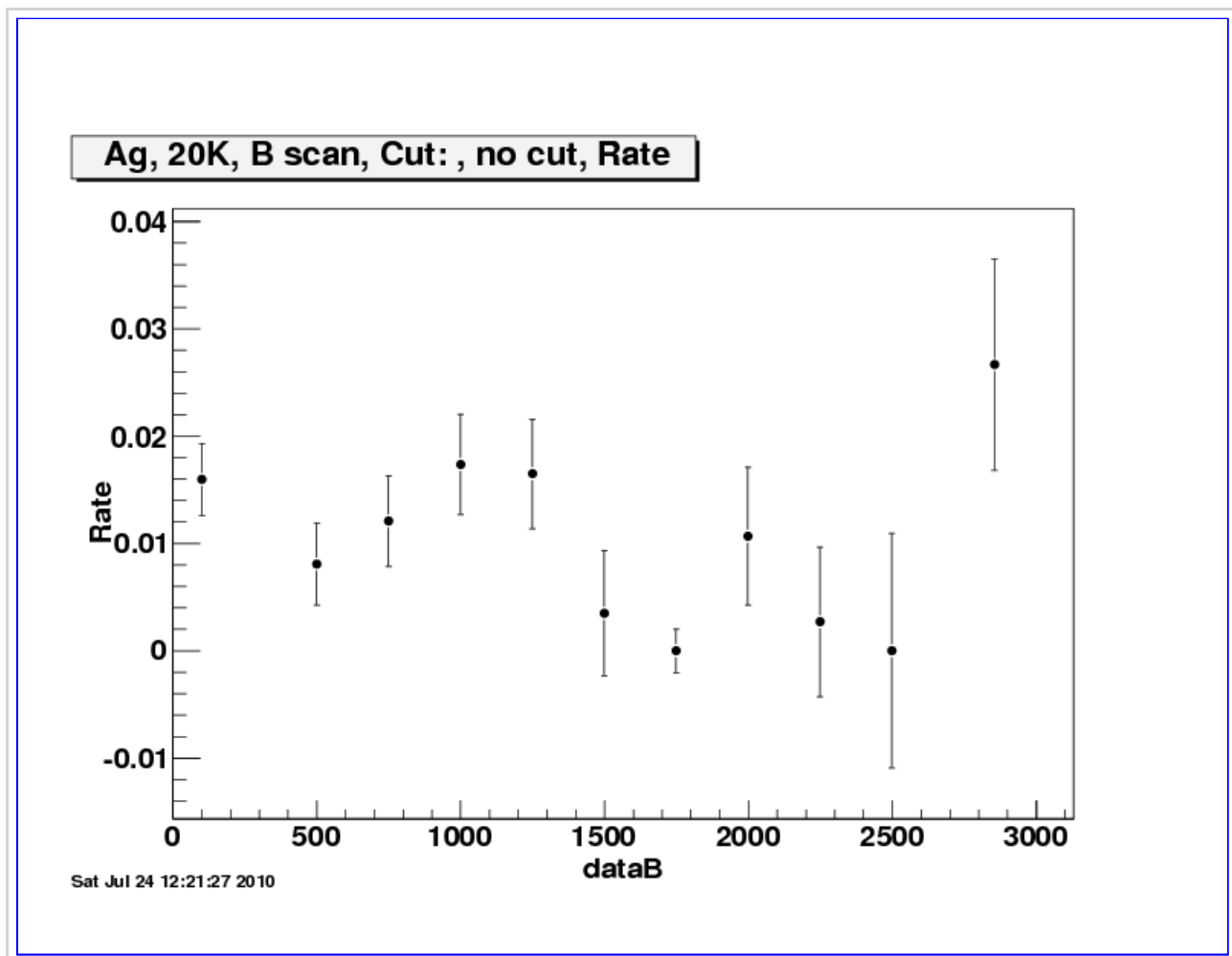


Attachment 7: [Ag\\_20K\\_FieldScan\\_AlphaTB-vs-B.png](#) 14 kB Uploaded Sat Jul 24 13:57:04 2010 | [Hide](#) | [Hide all](#)

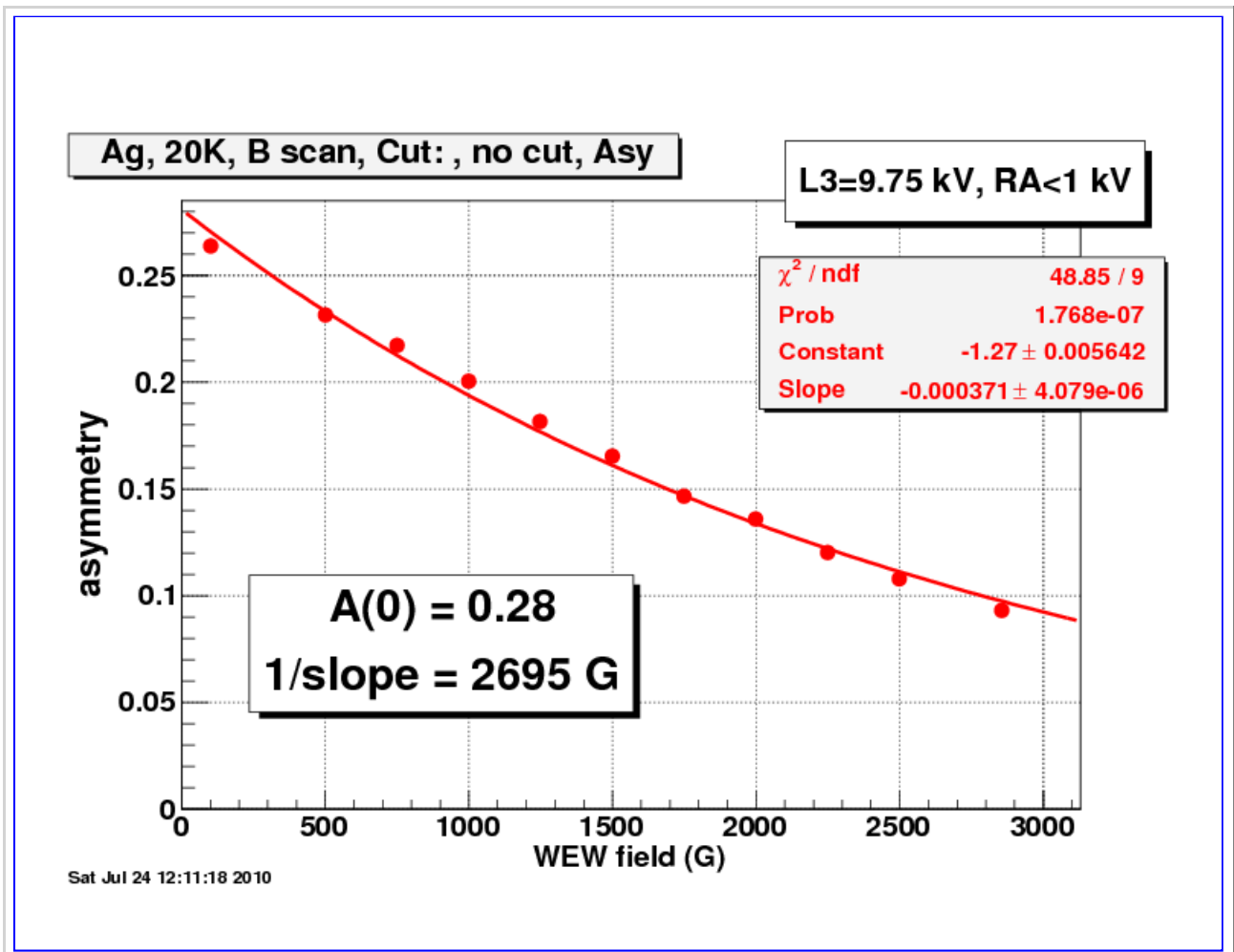


Attachment 8: [Ag\\_20K\\_FieldScan\\_Rate-vs-B.png](#) 10 kB Uploaded Sat Jul 24 13:59:17 2010 | [Hide](#) | [Hide all](#)

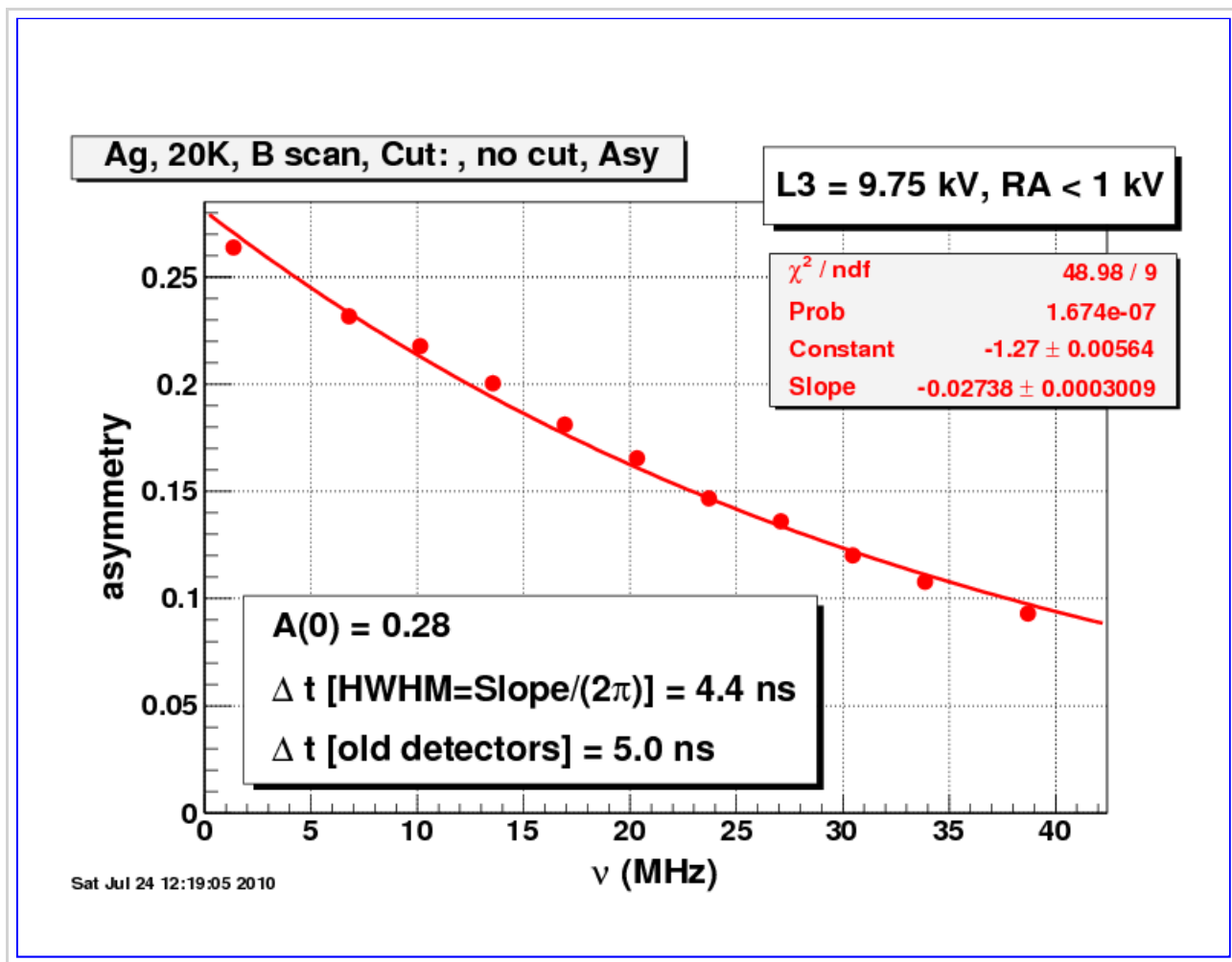




Attachment 9: [Ag\\_20K\\_FieldScan\\_A-vs-B.png](#) 47 kB Uploaded Sat Jul 24 13:59:30 2010 | [Hide](#) | [Hide all](#)



Attachment 10: [Ag\\_20K\\_FieldScan\\_A-vs-Frequency.png](#) 49 kB Uploaded Sat Jul 24 13:59:45 2010 | [Hide](#) | [Hide all](#)



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