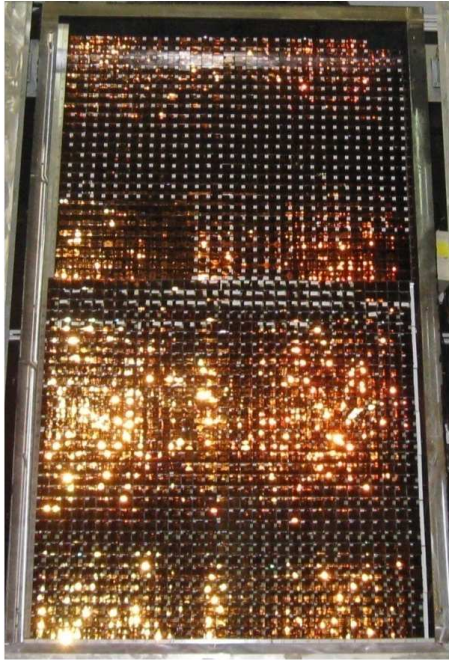# BigCal UV Light Curing

Wei Luo

UV curing

The UV light box stayed at 4 positions, each postion for 3.5, 3.25, 2.75, 2.33 days.
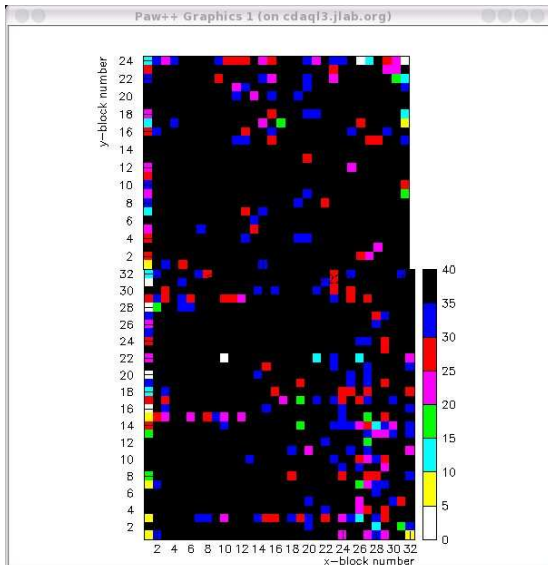
- 🔴 Before and after curing

UV curing

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- Before and after curing
- LED monitor system

$$(1) \qquad \frac{ADC_{mid\_before}}{ADC_{mid\_after}} = \frac{15.0}{45.48}$$

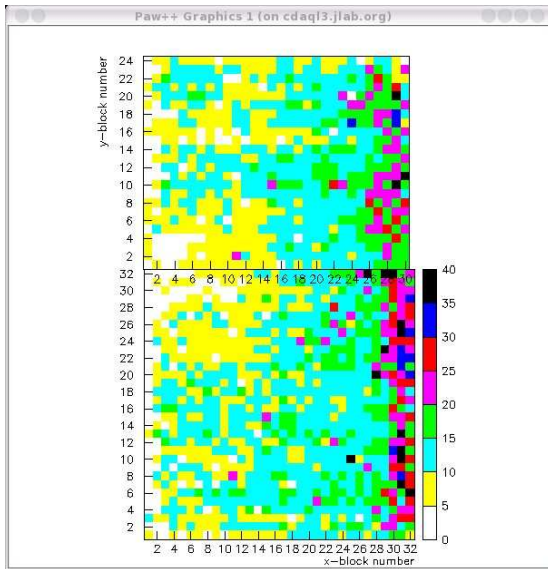LED ADC signal at beginning: 57.0, LED showed the transparancy recoved from 0.19 to 0.56.

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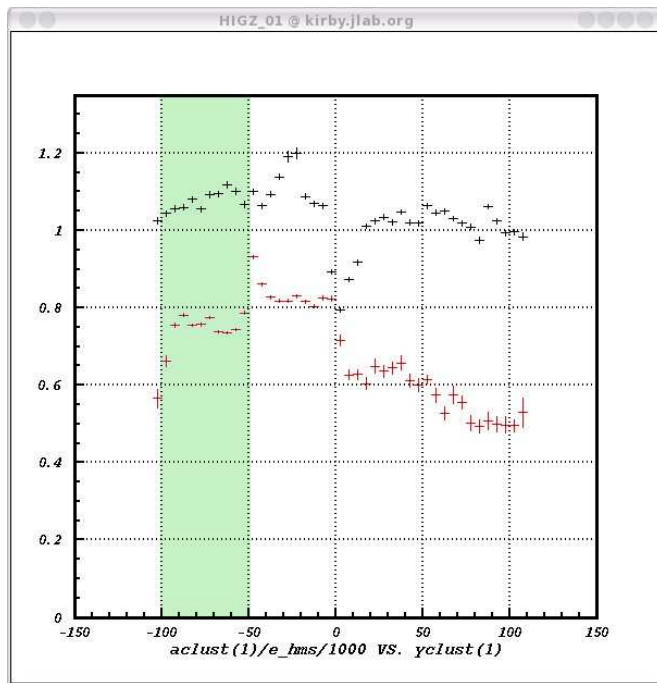

- Before and after curing
- LED monitor system

$$(1) \qquad \frac{ADC_{mid\_before}}{ADC_{mid\_after}} = \frac{15.0}{45.48}$$

LED ADC signal at beginning: 57.0, LED showed the transparancy recoved from 0.19 to 0.56.

- Elastic electrons gain

  with the same HV, the gain recovered about 30% or more
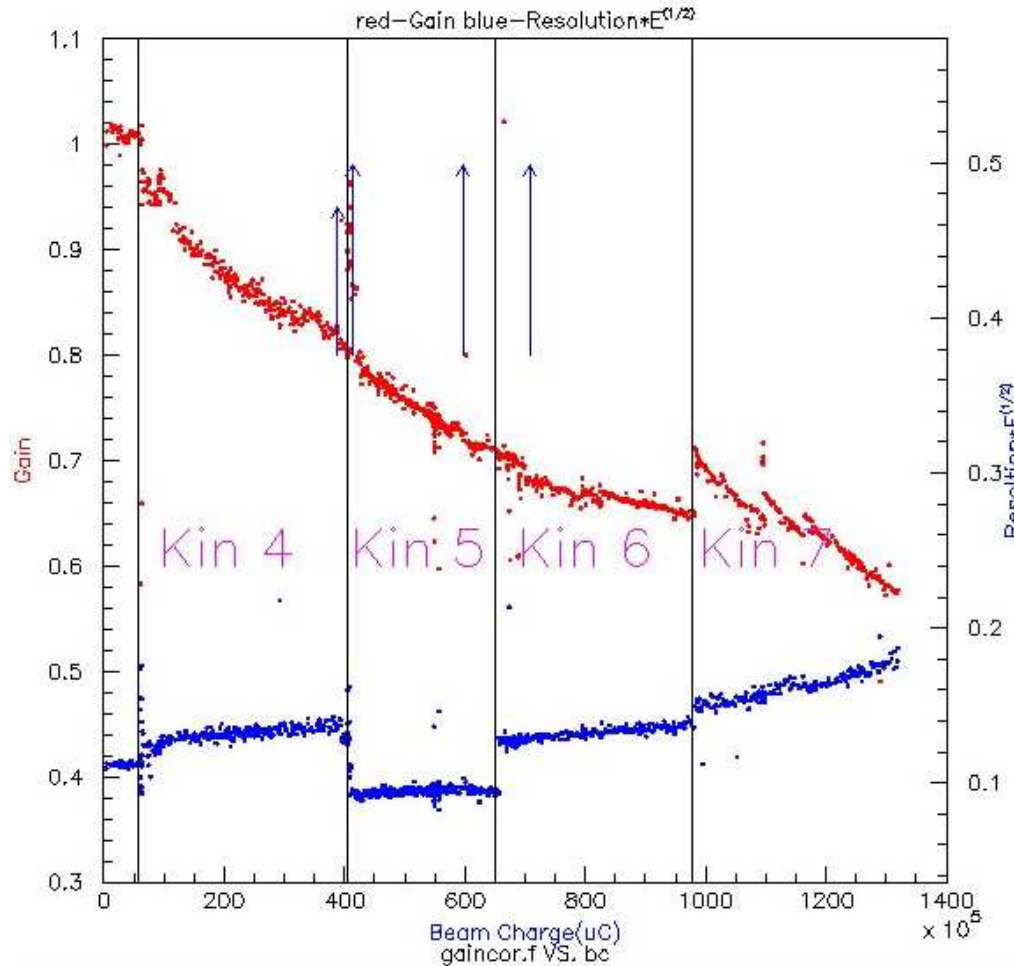
  The energy resolution at end of RCS experiment >19% for Protovino part glass.(Ee=2.3GeV)

  The energy resolution after curing 14%.(Ee=1.2Gev)

  All with 4 absorber

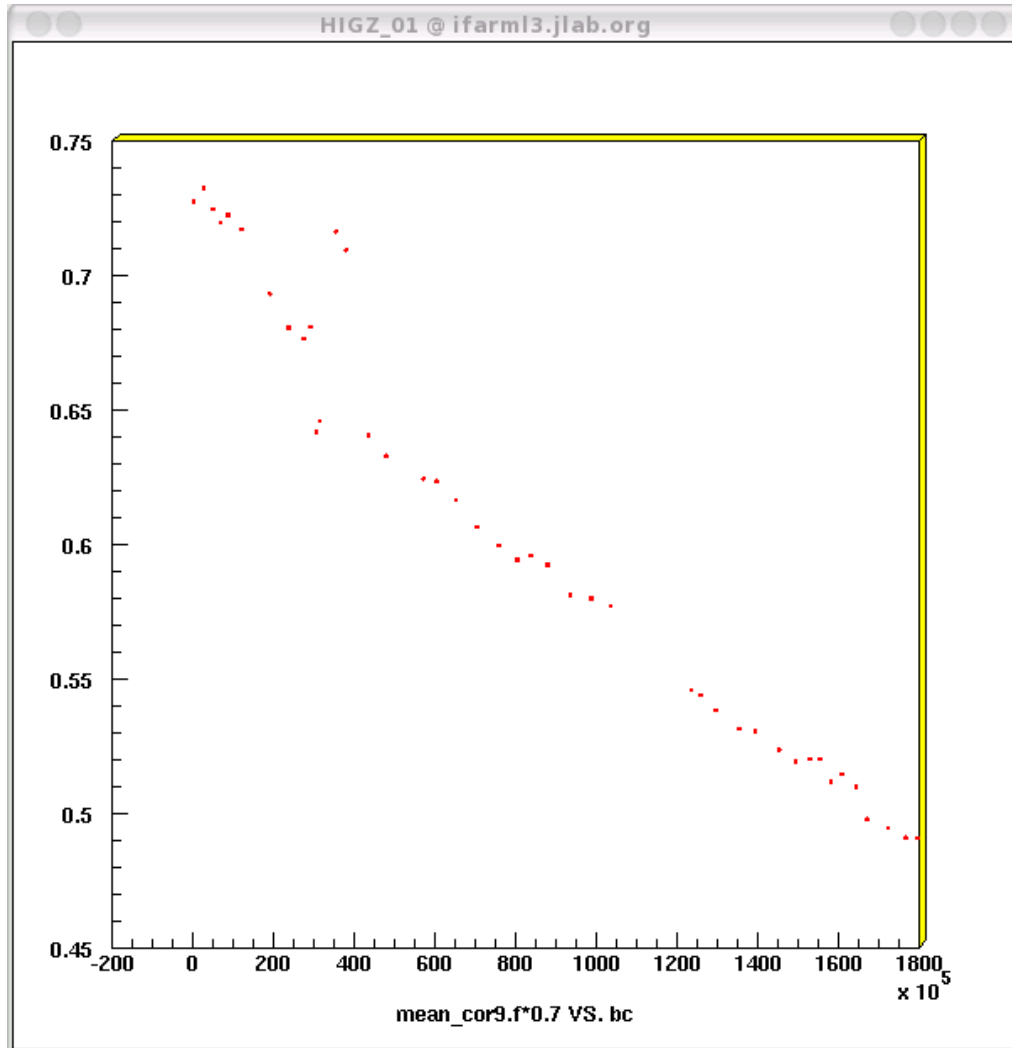 Best resolution for 4 absorber is 11%, and one absorber is 7%

BigCal Gain

(2) $$\frac{\delta}{E} = A + \frac{B}{\sqrt{E}} + \frac{C}{E}$$

The gain and resolution
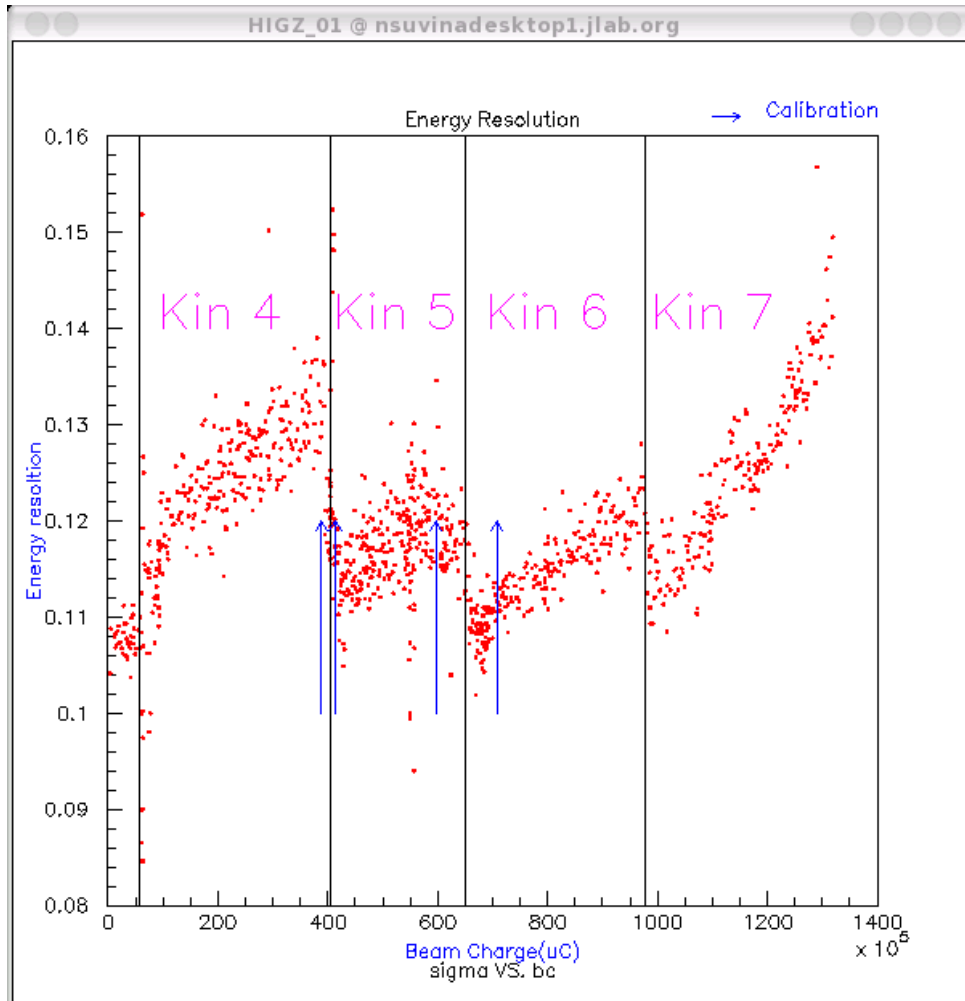
● Oct. 2007 to Jan. 2008

BigCal Gain

$$(2) \quad \frac{\delta}{E} = A + \frac{B}{\sqrt{E}} + \frac{C}{E}$$

The gain and resolution

- Oct. 2007 to Jan. 2008
- April 4 to May 27

BigCal Gain
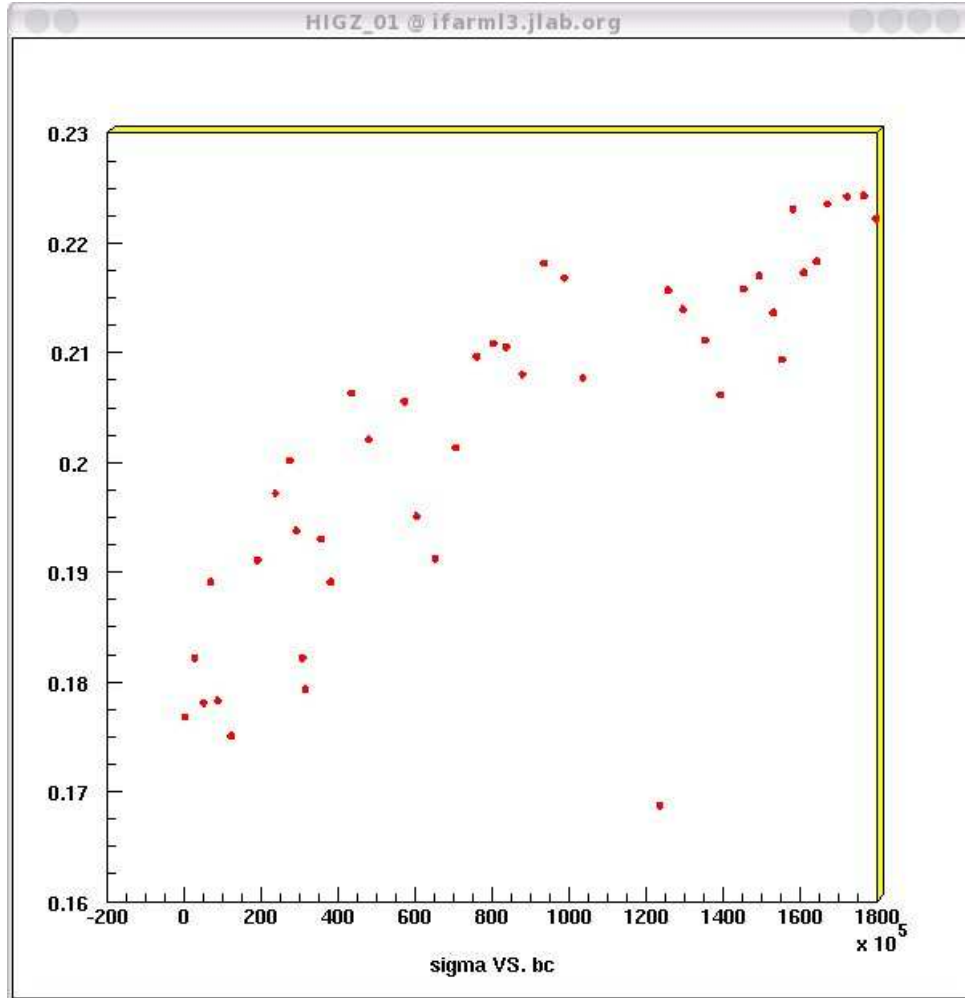

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The gain and resolution

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- energy resolution

BigCal Gain

(2) $\dfrac{\delta}{E} = A + \dfrac{B}{\sqrt{E}} + \dfrac{C}{E}$

The gain and resolution

- Oct. 2007 to Jan. 2008
- April 4 to May 27
- energy resolution
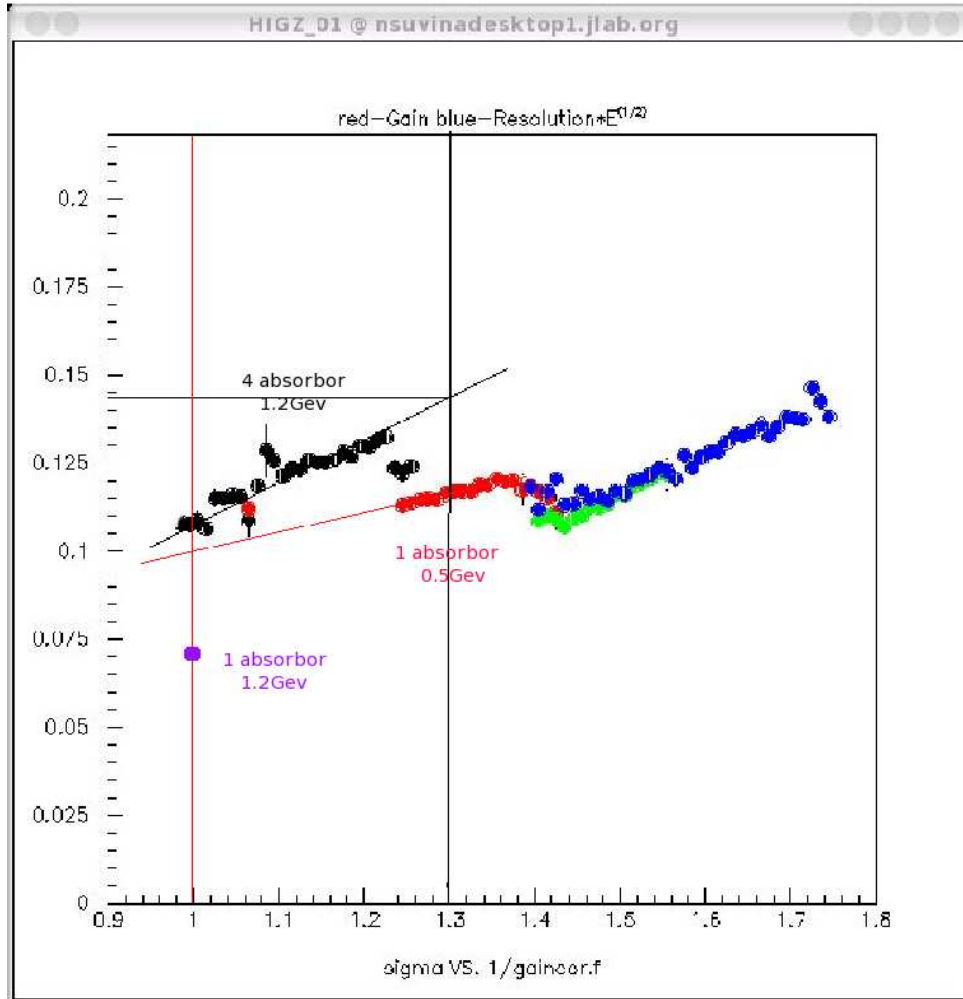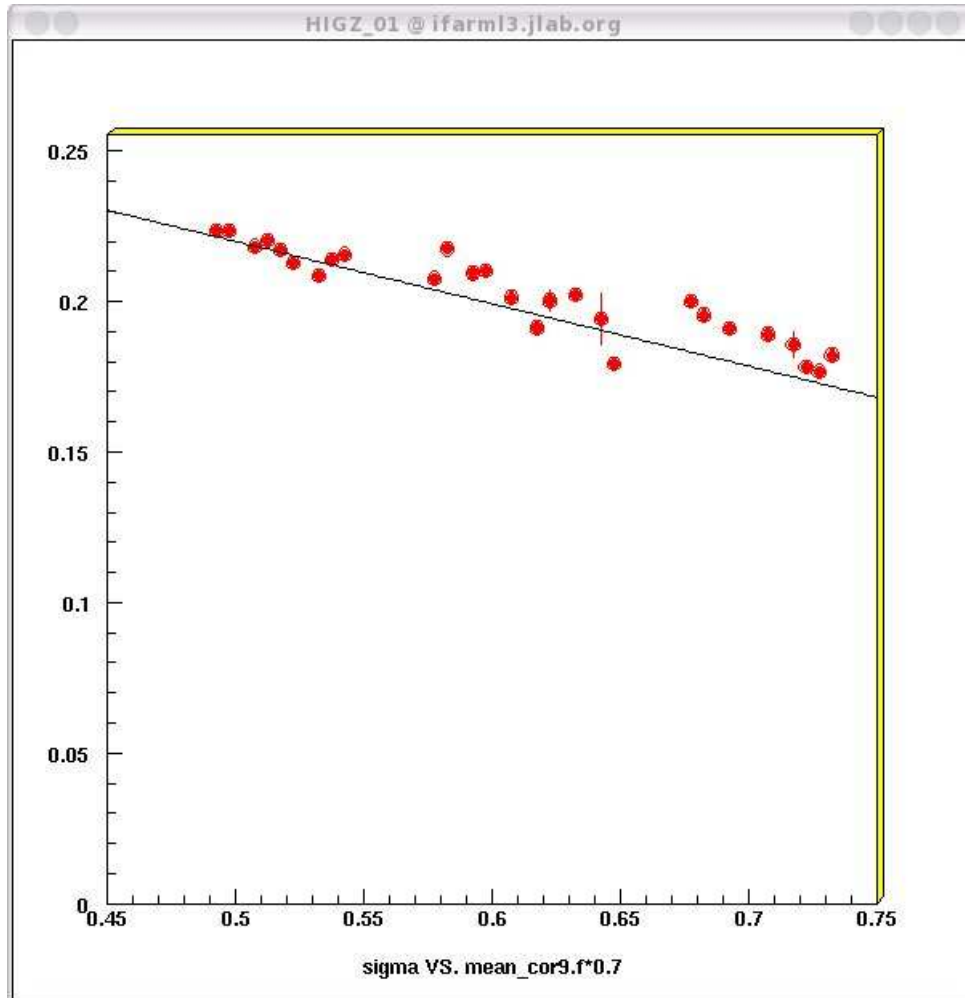- energy resolution kine9

BigCal Gain

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The gain and resolution

- Oct. 2007 to Jan. 2008
- April 4 to May 27
- energy resolution
- energy resolution kine9
- 1/T. vs resolution

BigCal Gain

sigma VS. mean_cor9.f*0.7
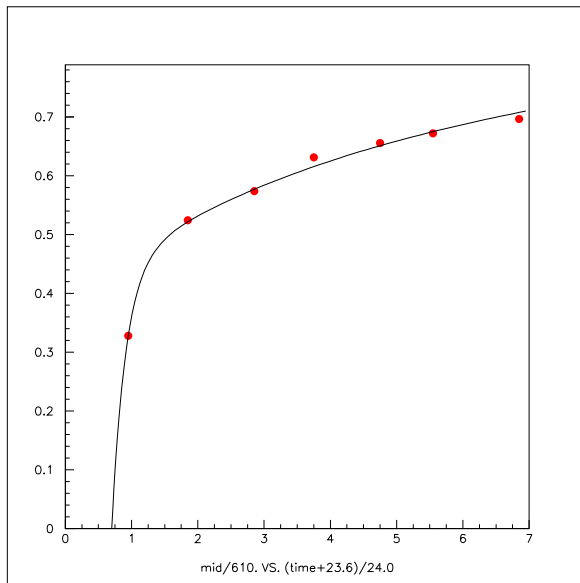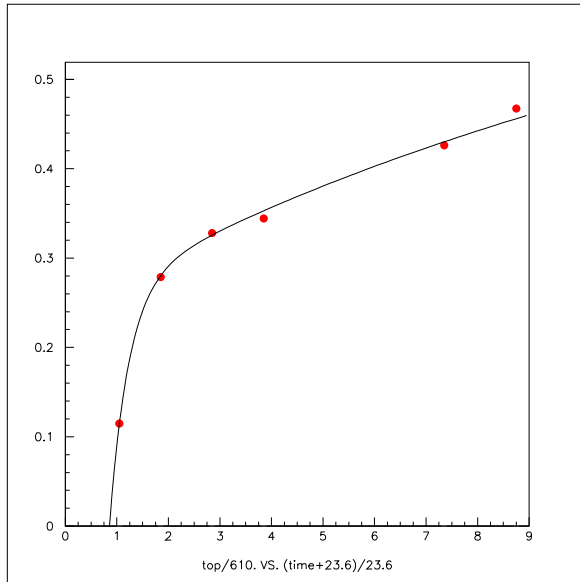
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The gain and resolution

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- April 4 to May 27
- energy resolution
- energy resolution kine9
- 1/T. vs resolution
- T. vs resolution kin9

prototype data fit

top/610. VS. (time+23.6)/23.6

mid/610. VS. (time+23.6)/24.0

Two lead glass blocks were used to do the prototype UV curing. One was uniformly irradiated and the other was taken out of BigCal in Jan. 2008.

Fit function:

$$(3) \qquad T(t) = 1 - Ae^{-\frac{t}{B}} + \frac{C}{t + D}$$

Where T(t) is the transparancy, t is the curing time in days,A,B,C,D are fit paramters.

- fit of data in 6 days

prototype data fit

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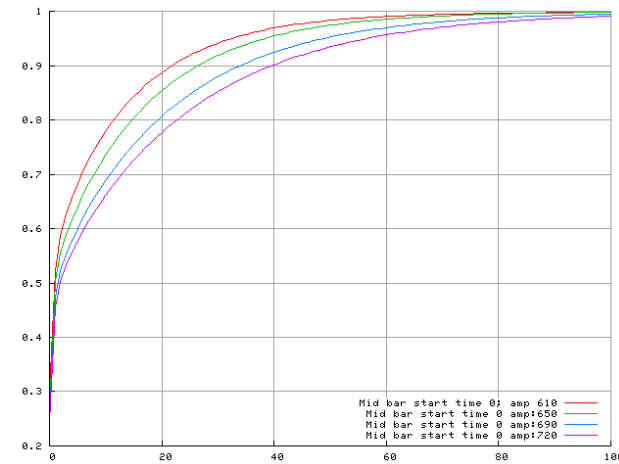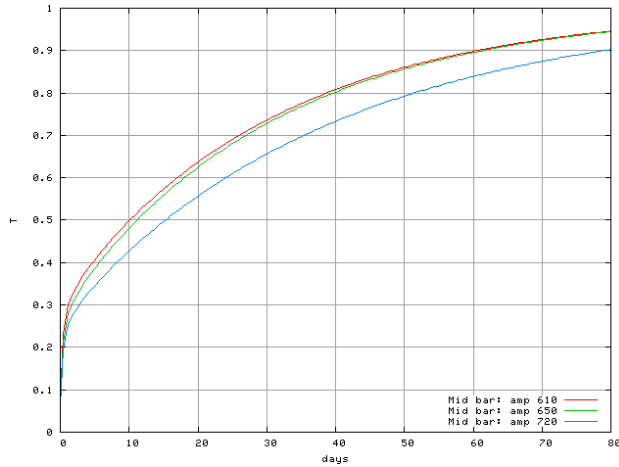
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- fit of data in 6 days

- prediction of curing curve