Status Update
Feb 25 - 29

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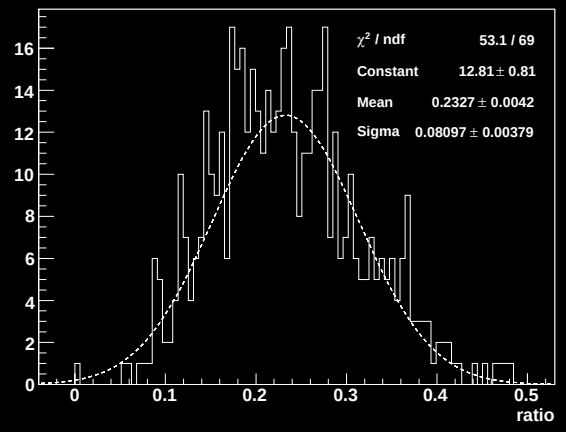
February 29, 2008

topics

1. SSL_LX5093SRC/E
2. LED591E
   - Measurements
   - Simulation
3. LED525E

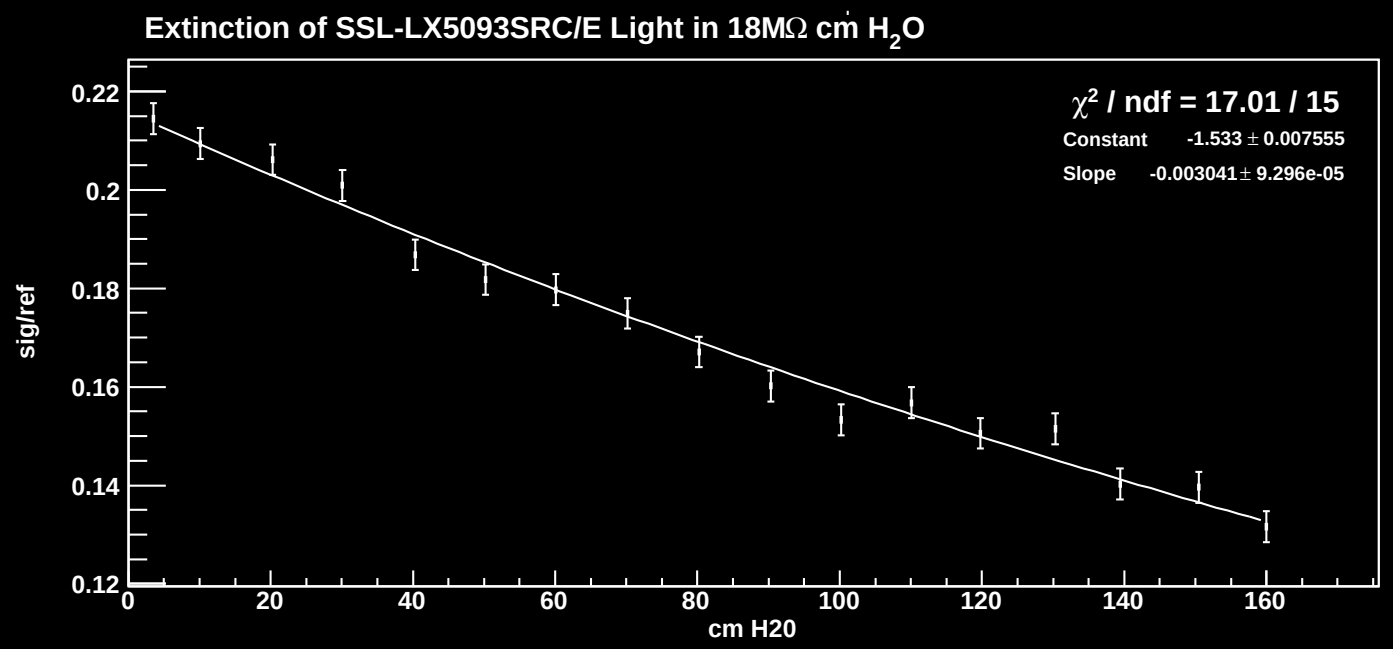
Relating Photo-statistics to the signal ratio



$$\sigma_R^2 = \alpha N + \beta N$$

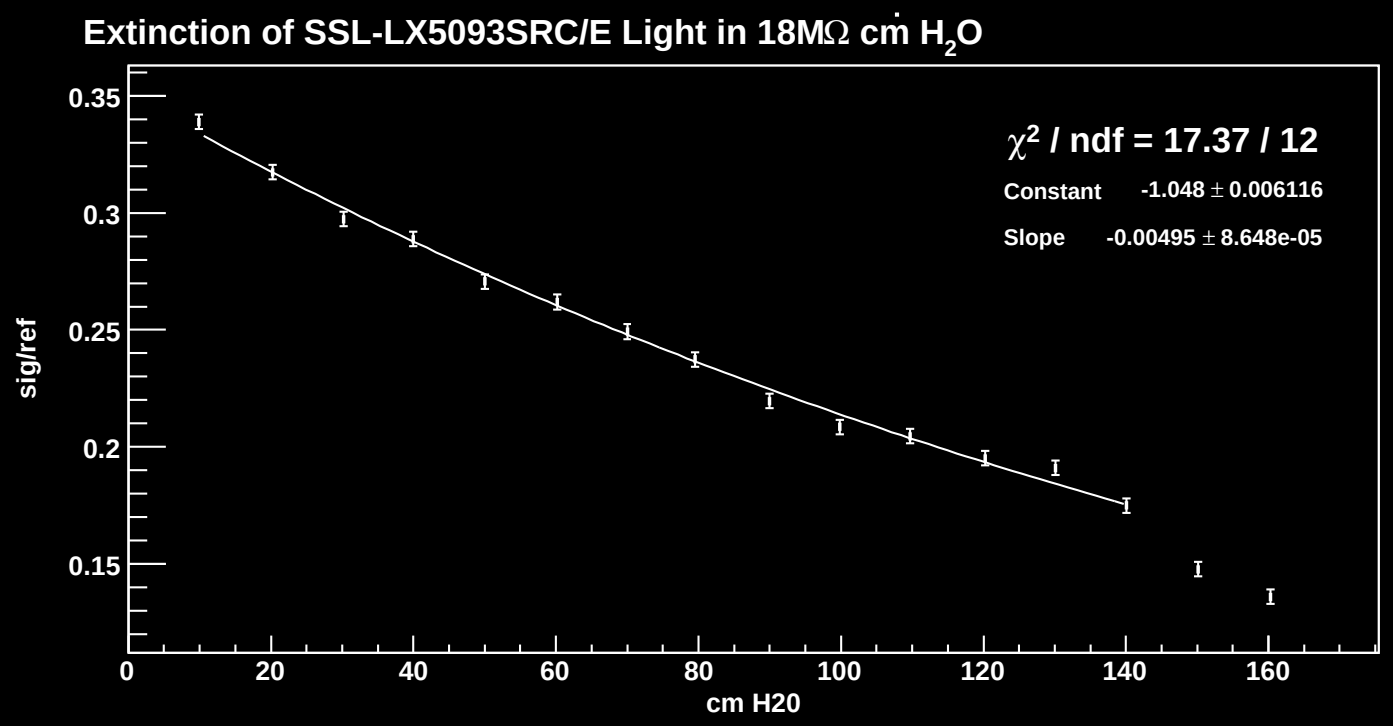
$$\frac{\sigma_R^2}{R^2} = \frac{(\alpha + \beta)N}{N^2} = \frac{1}{N}$$

$$N \; \alpha \; \frac{R^2}{\sigma_R^2}$$



Thorn-EMI 1307:

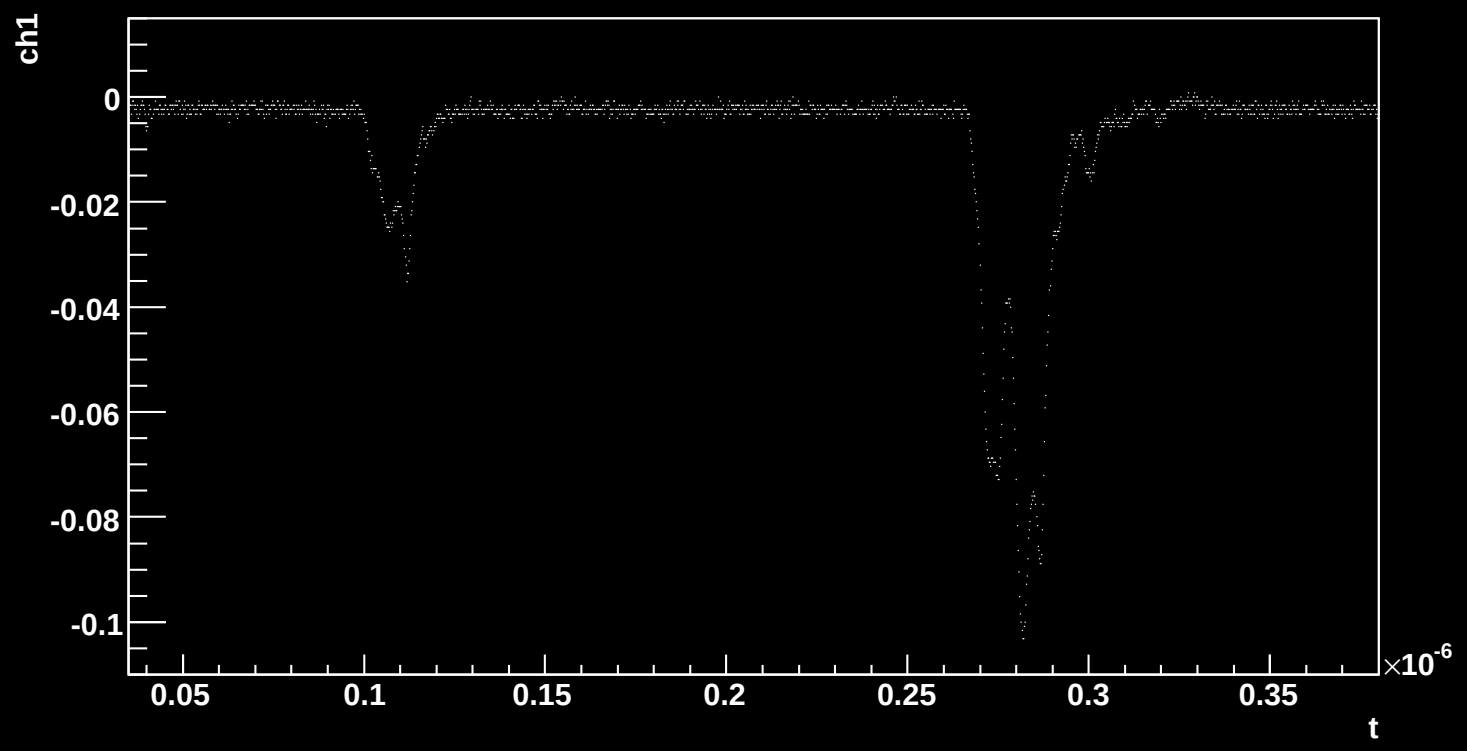
$328.8^{+10.4}_{-9.8}$ cm



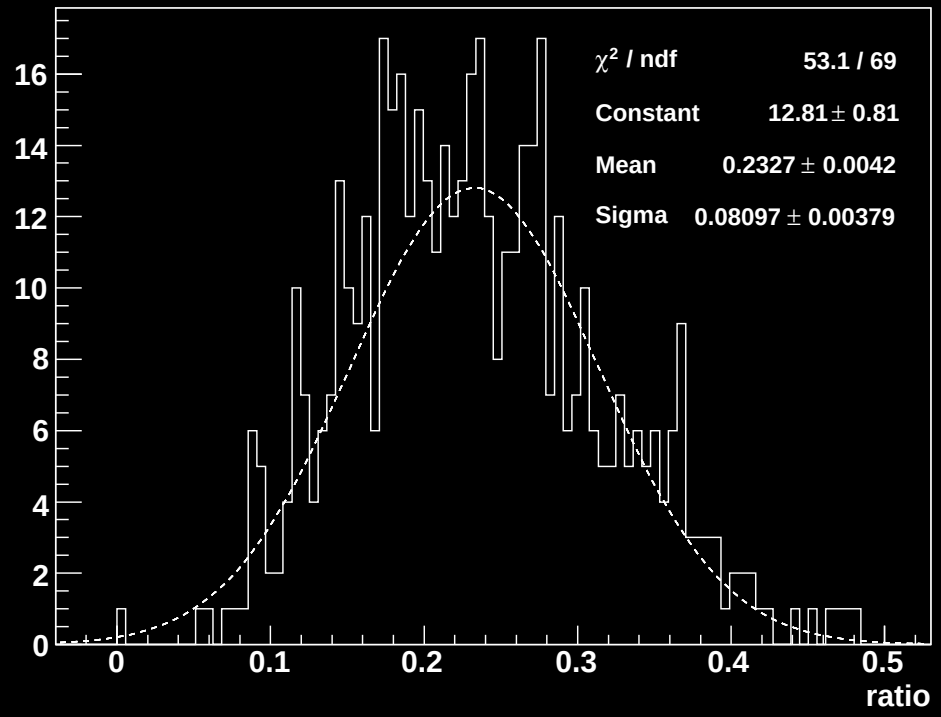
Hamamatsu H3178-61 "green extended":

$202.0^{+3.6}_{-3.5}$ cm

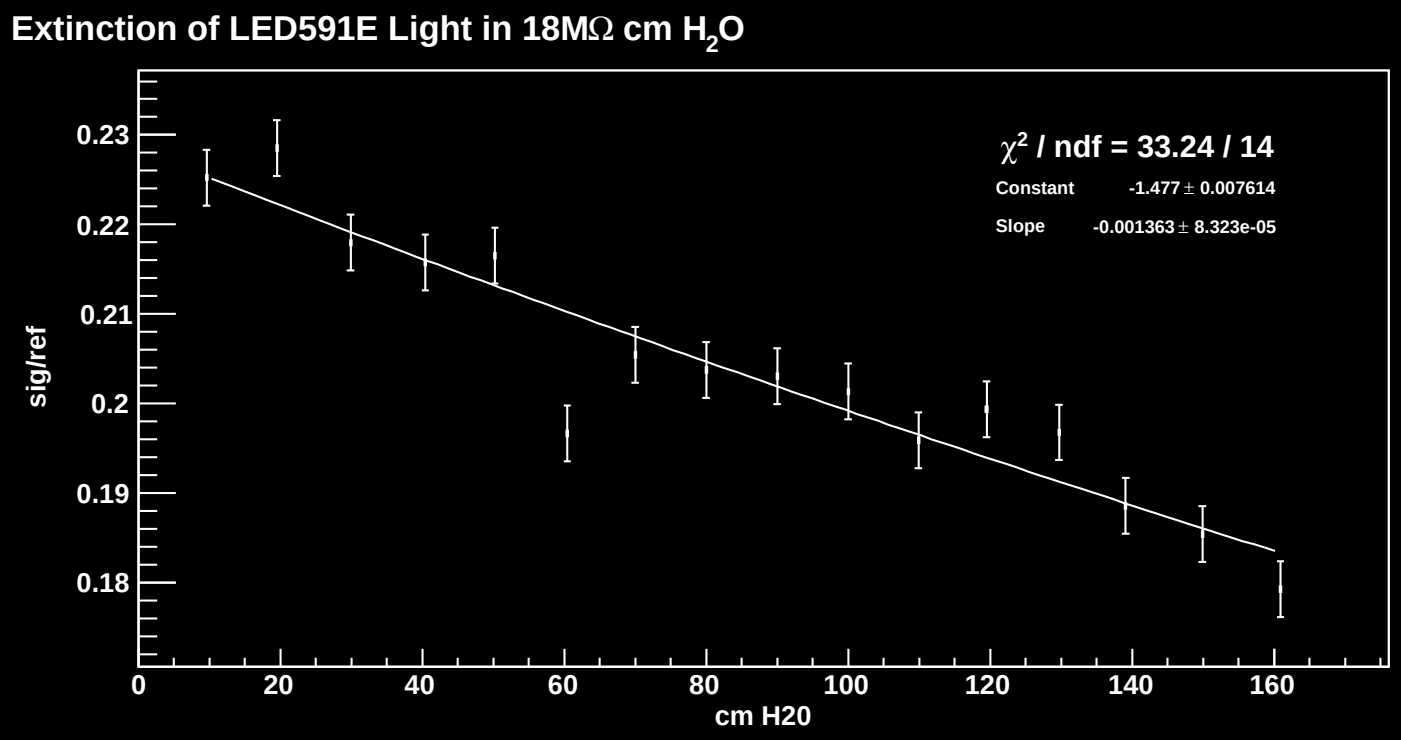
Single trigger trace



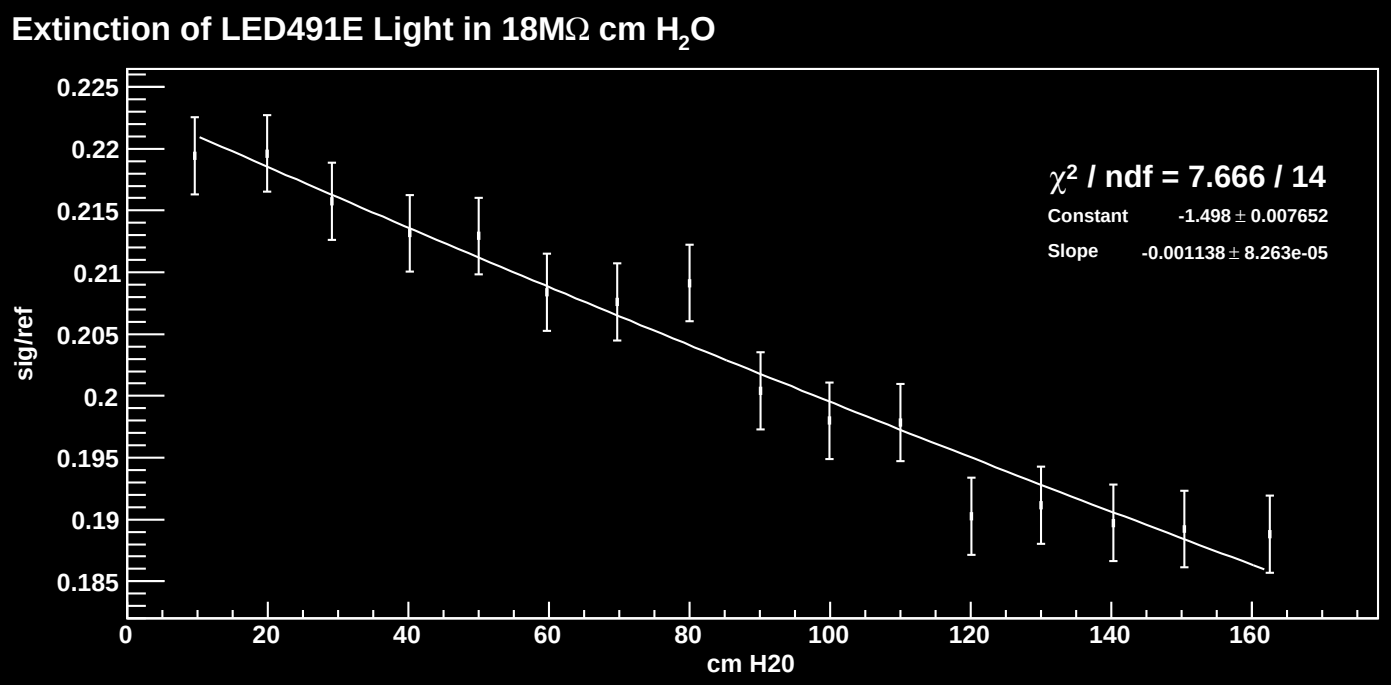
Sample Distribution of Ratios for 512 triggers



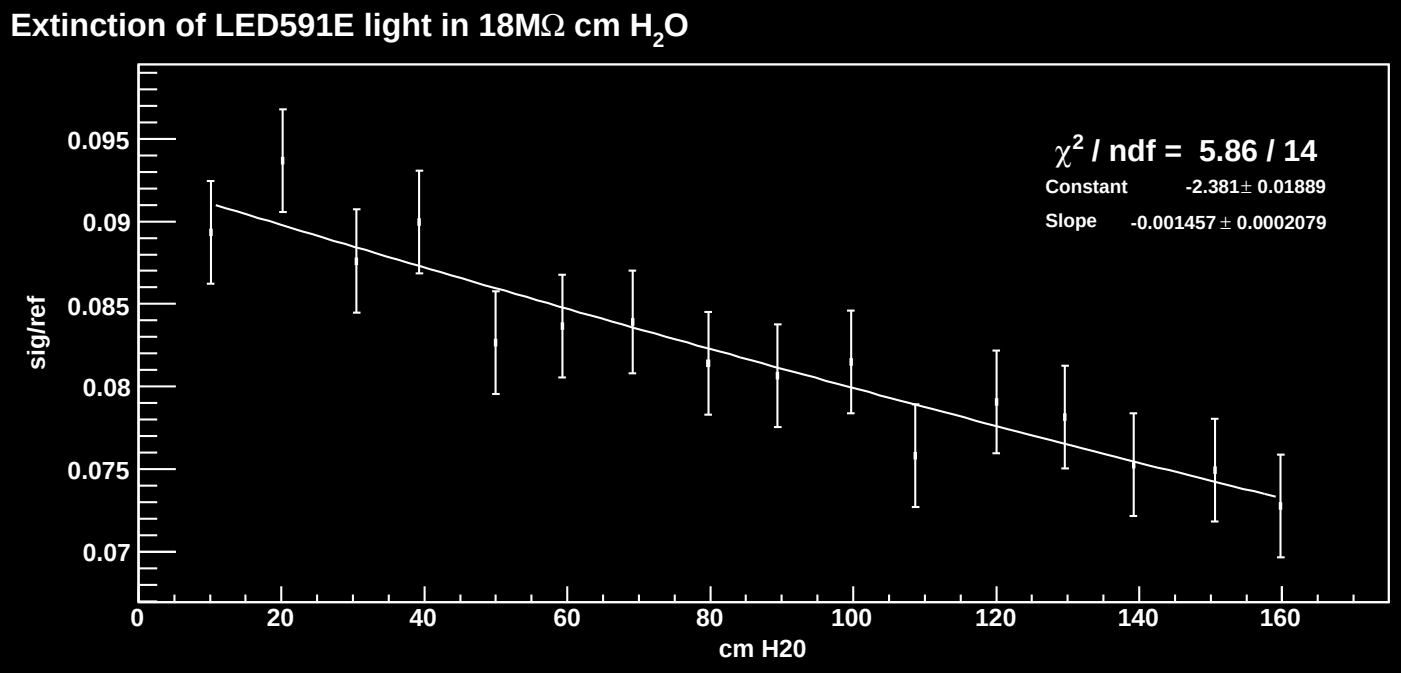
$$N = \frac{Ratio^2}{\sigma_R^2} = 8 \text{ photons}$$



$733.7^{+47.7}_{-42.2}$ cm

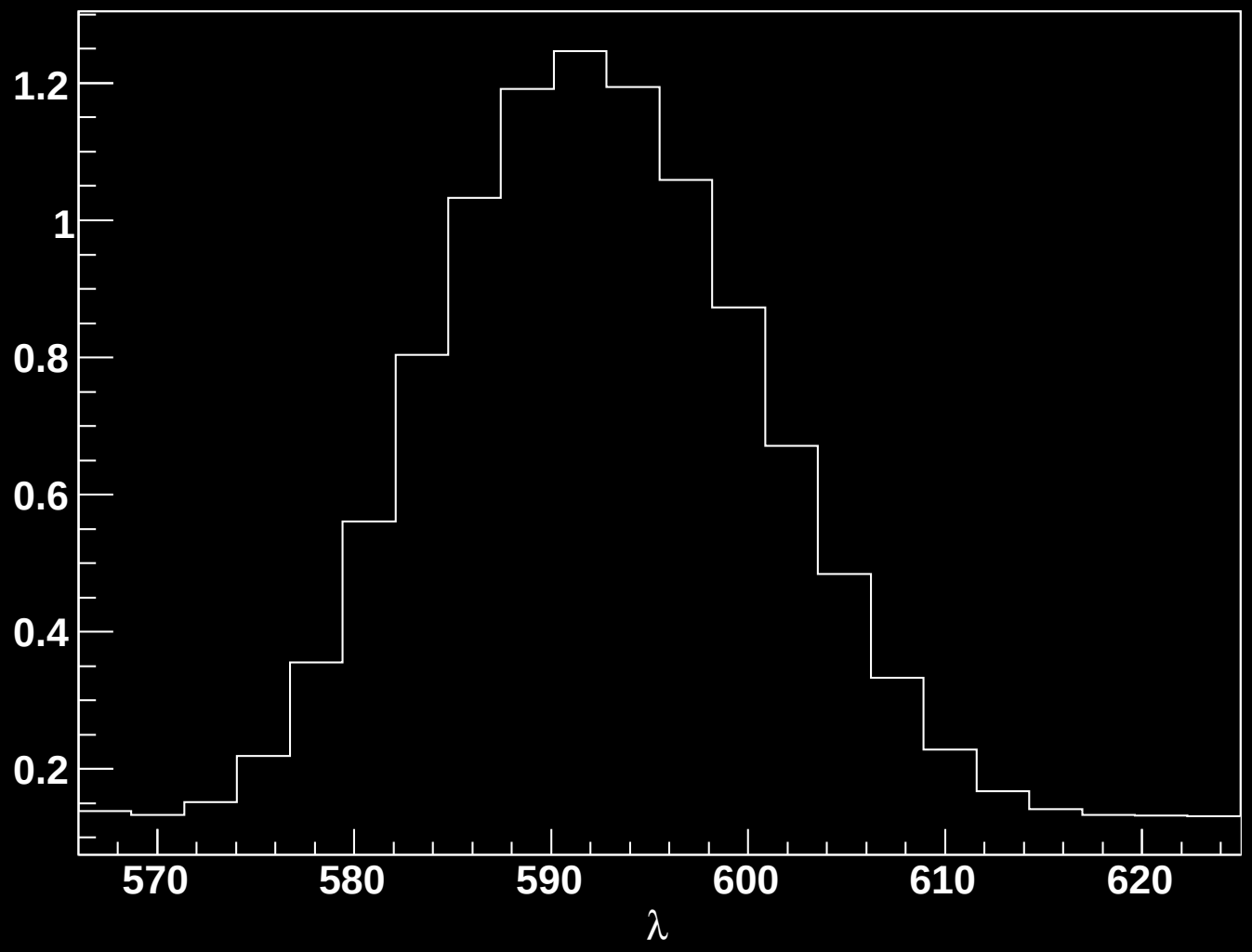


$878.6^{+68.8}_{-59.5}$ cm

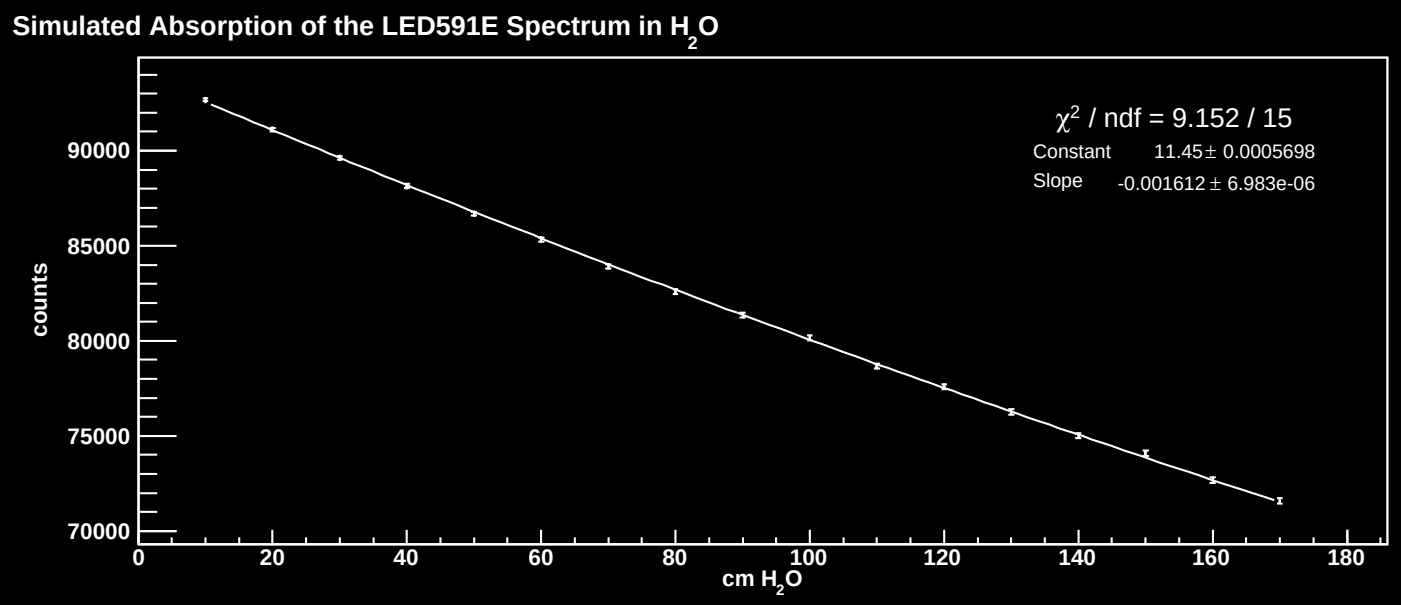


$686.3^{+114.3}_{-85.7}$ cm

Simulated Profile

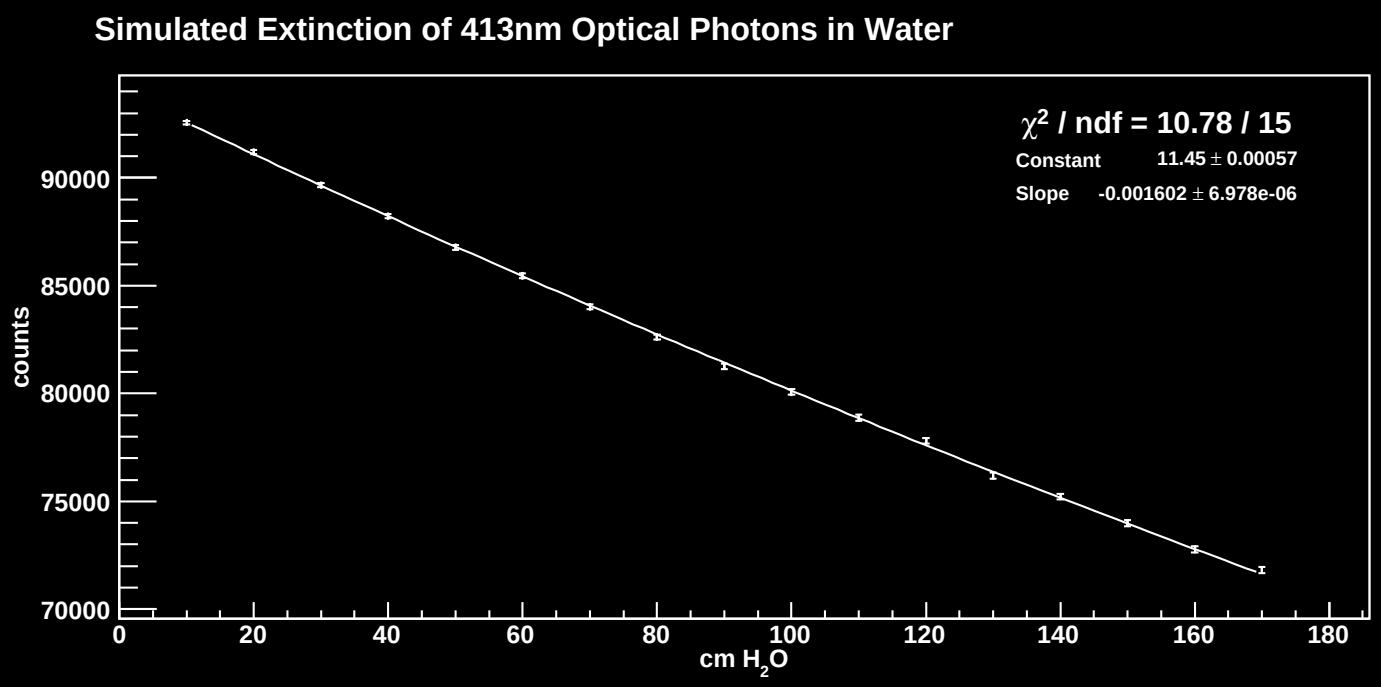


Simulated Absorption



$$620.3^{+2.7}_{-2.7}\ \text{cm}$$

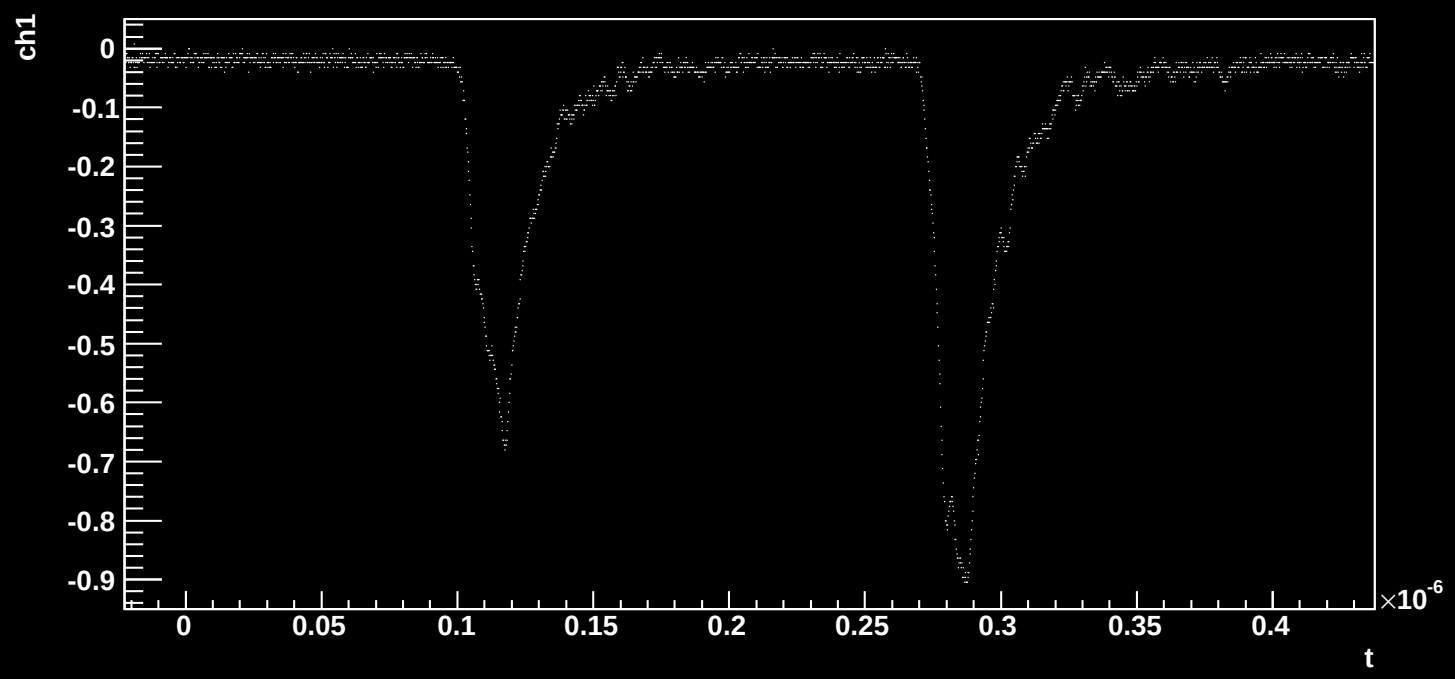
Simulated Extinction



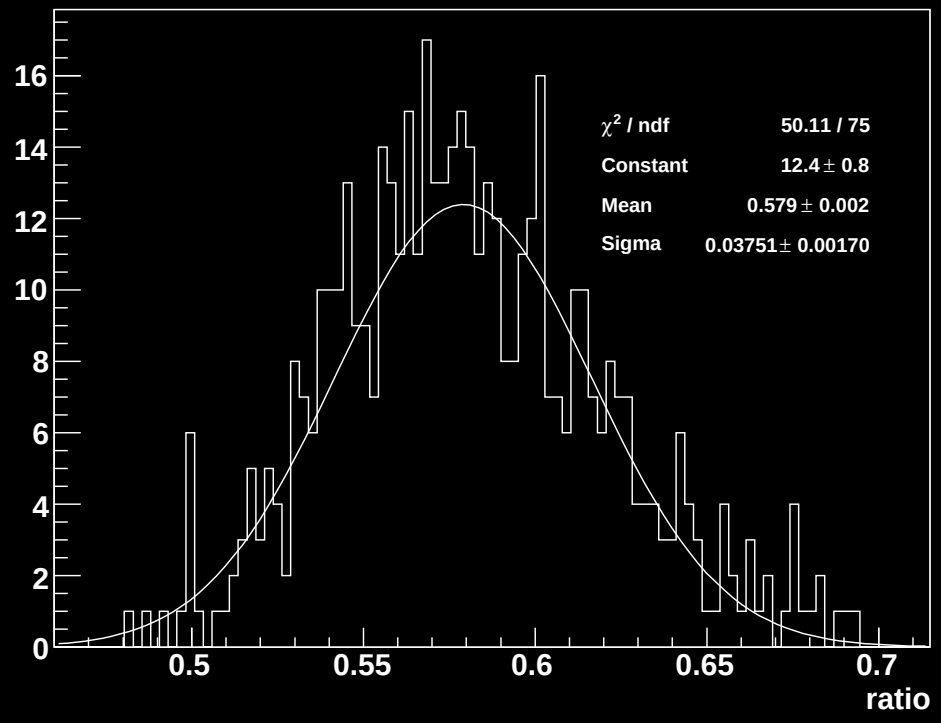
Extinction = Absorption + Rayleigh Scattering

$$624.0^{+2.7}_{-2.7} \text{ cm}$$

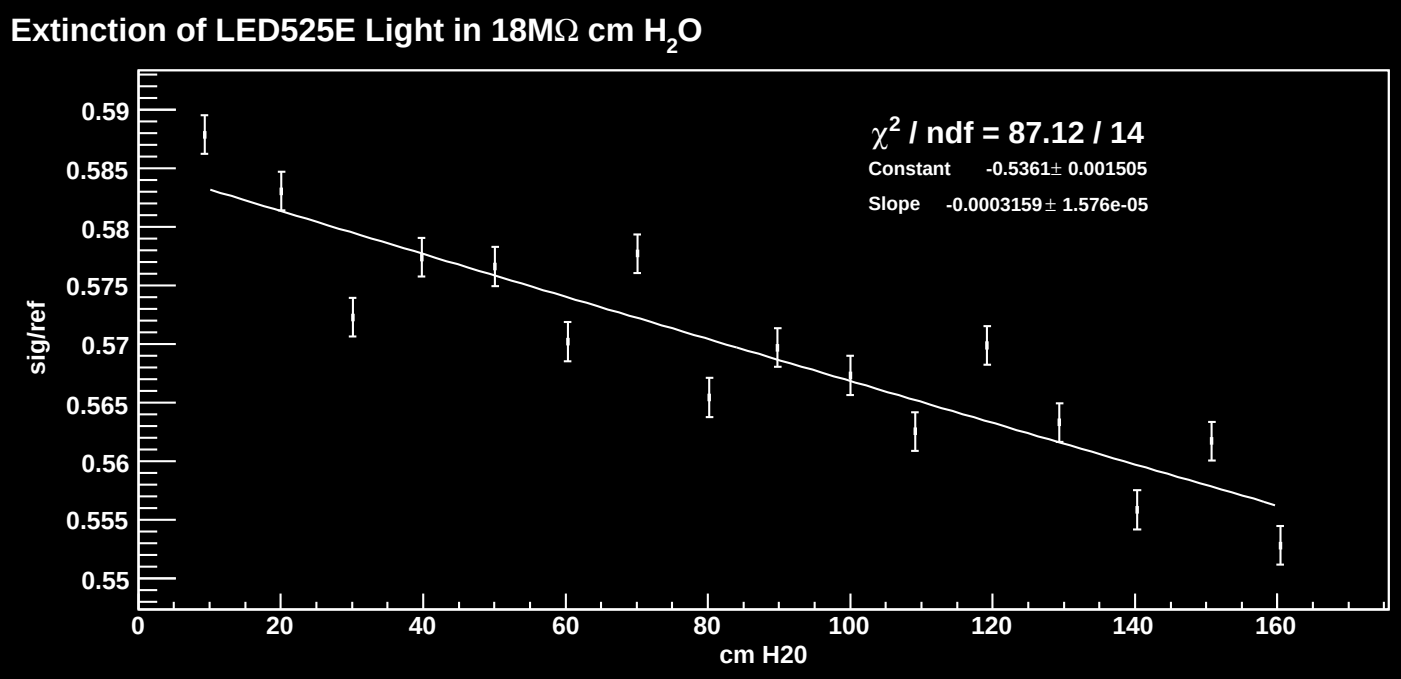
Single trigger trace



Sample Distribution of Ratios for 512 triggers



$$N = \frac{Ratio^2}{\sigma_R^2} = 238 photons$$



$3165^{+166.3}_{-150.5}$ cm