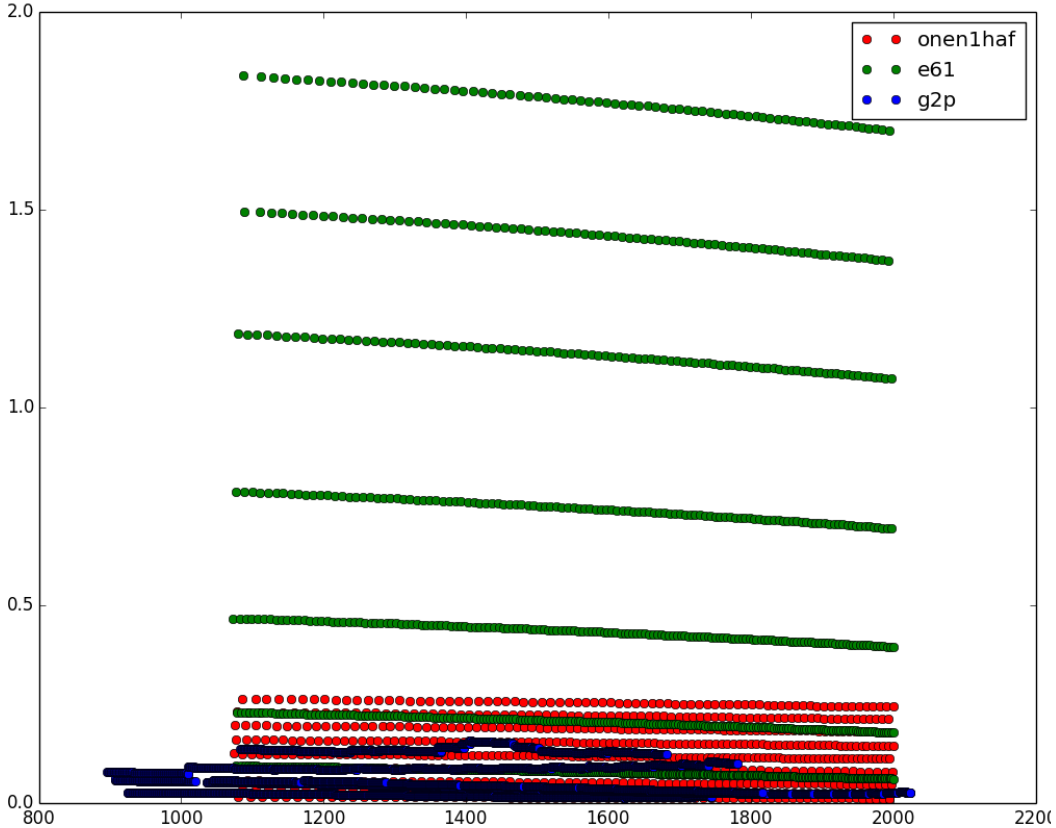
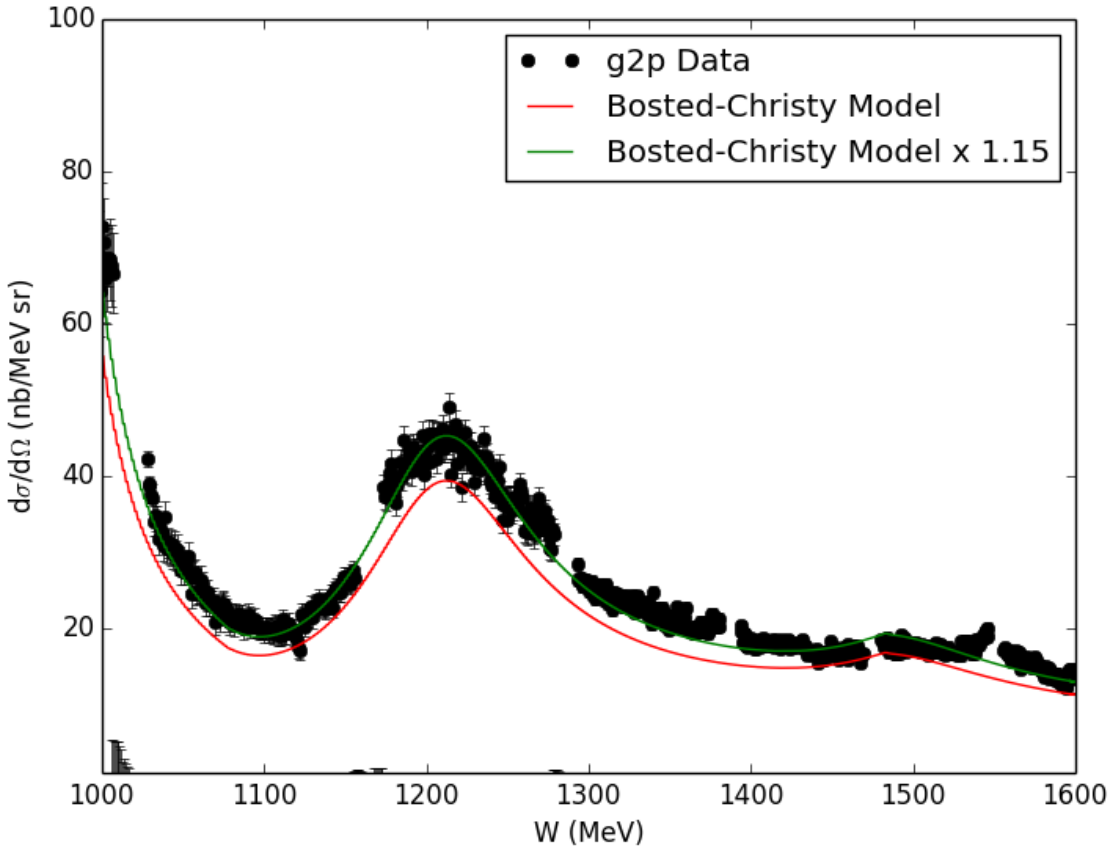
Possible Points of Contention & Resolutions

- Bosted Model 1.15 Scaling Factor
- g1 tension with EG4 and MAID
- Gamma 2 BC Sum Rule tension
- Large error bar on Delta LT
- Is the systematic propagation for the Model test right or should it be linear?

Bosted Model

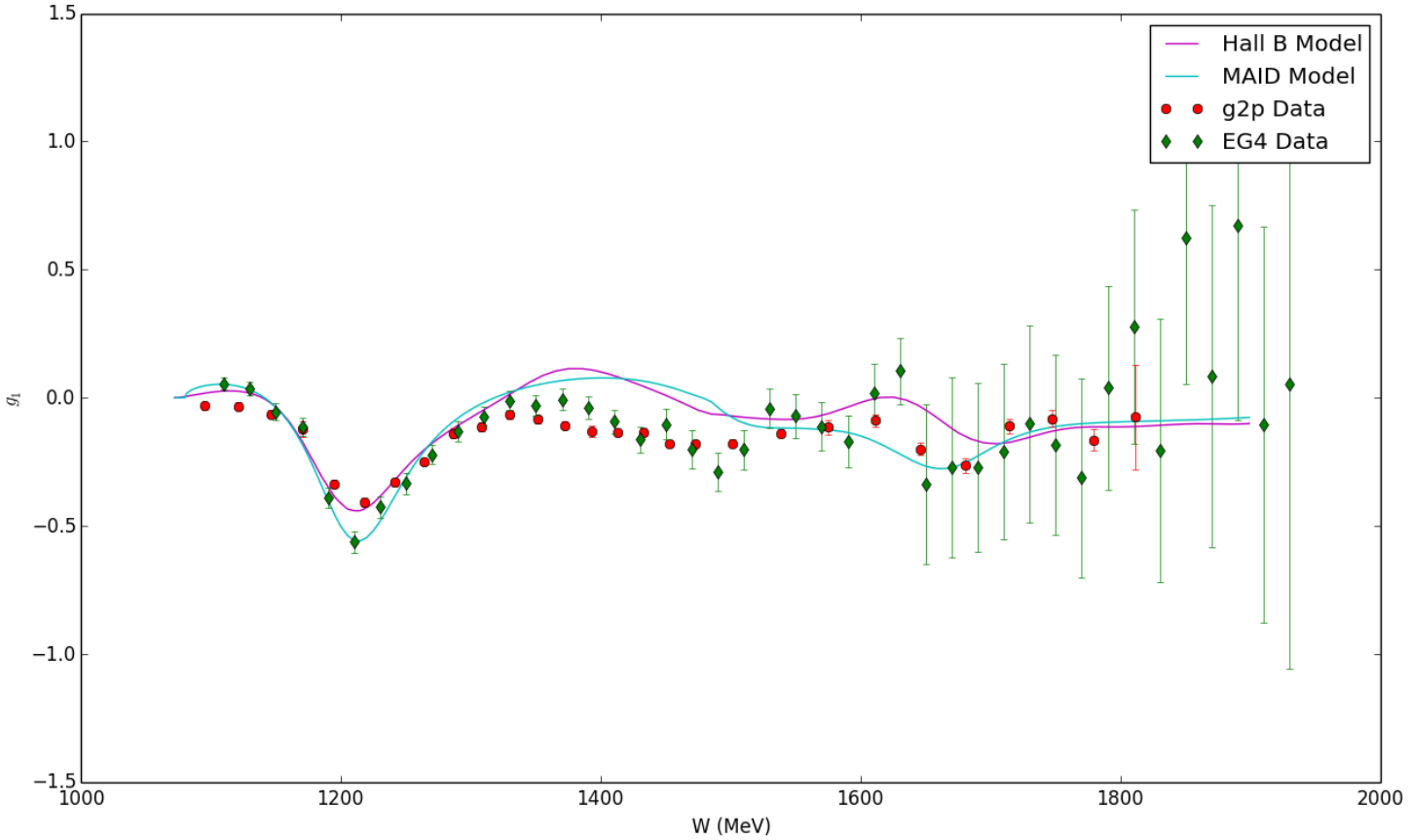
“The Model does not and perhaps could not incorporate a large amount of low Q^2 data"

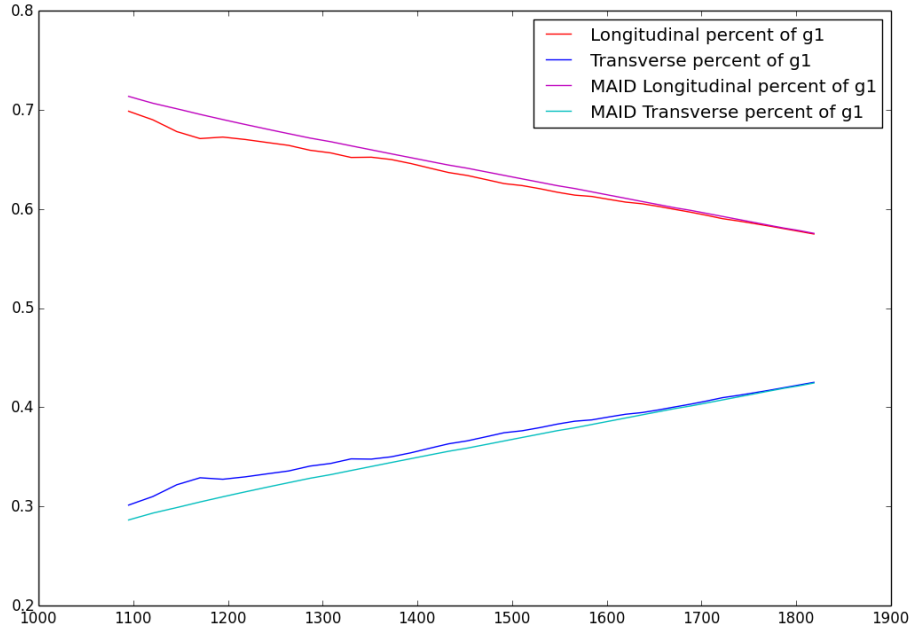




g1 Tension

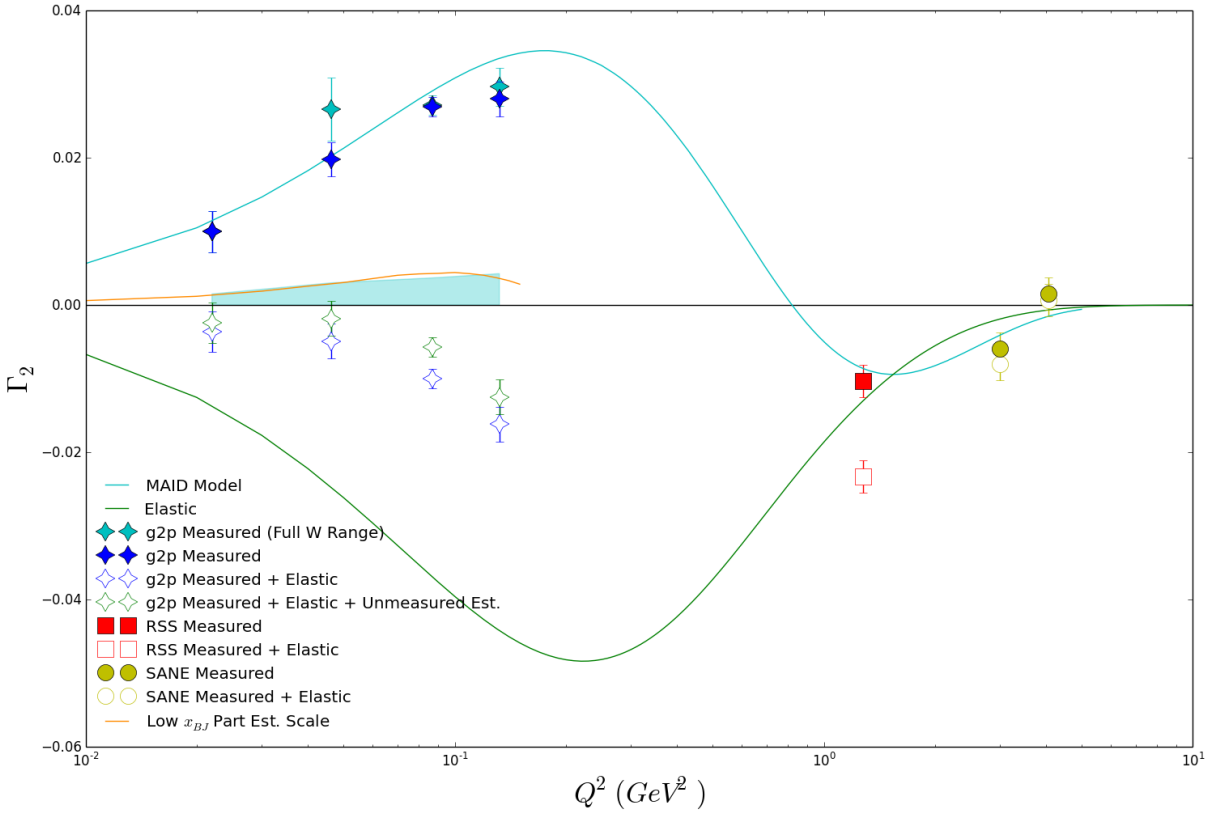
“The g2 part of g1, which comes from our data, is bigger than the models expect in the threshold region"





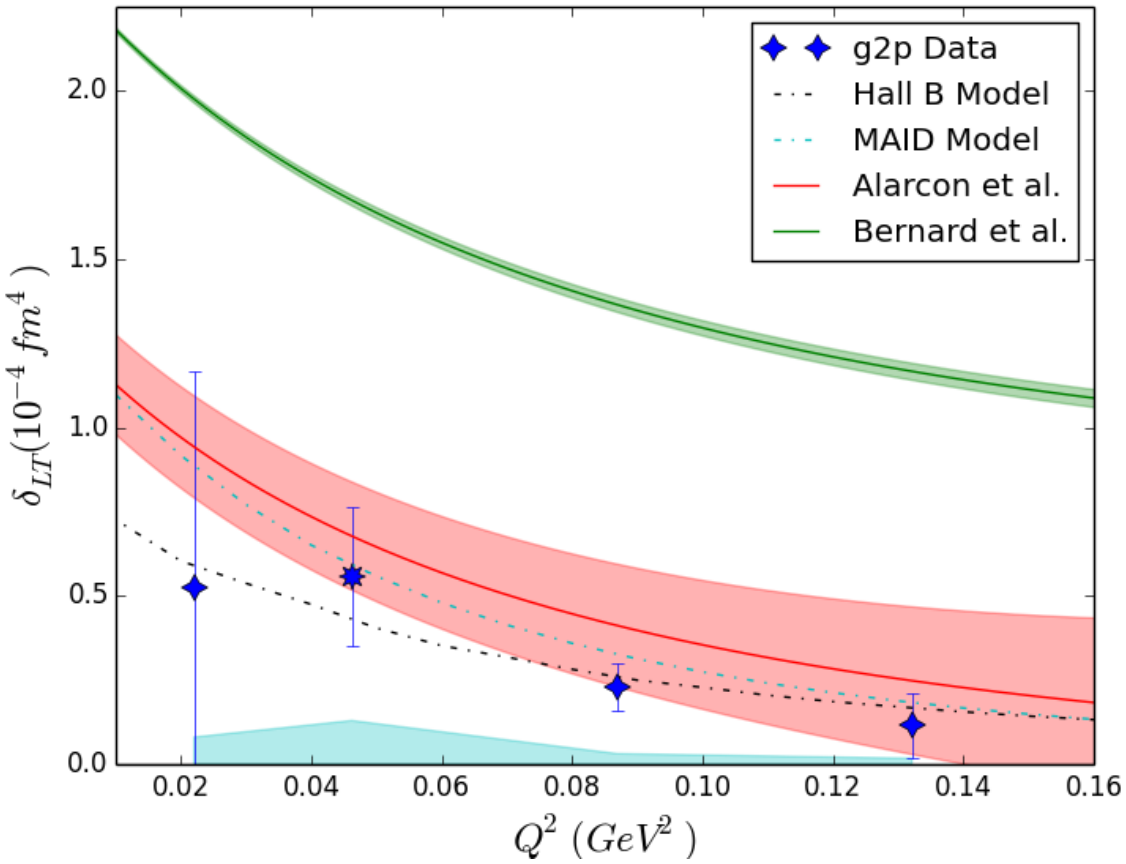
Gamma 2 BC Sum Rule Tension

“The g2ww method cannot be trusted in this region and estimates too small a contribution"



Large Delta LT Error Bar

"The Q^6 weighting is strong enough that any scaling factor creates an inflated error bar somewhere"

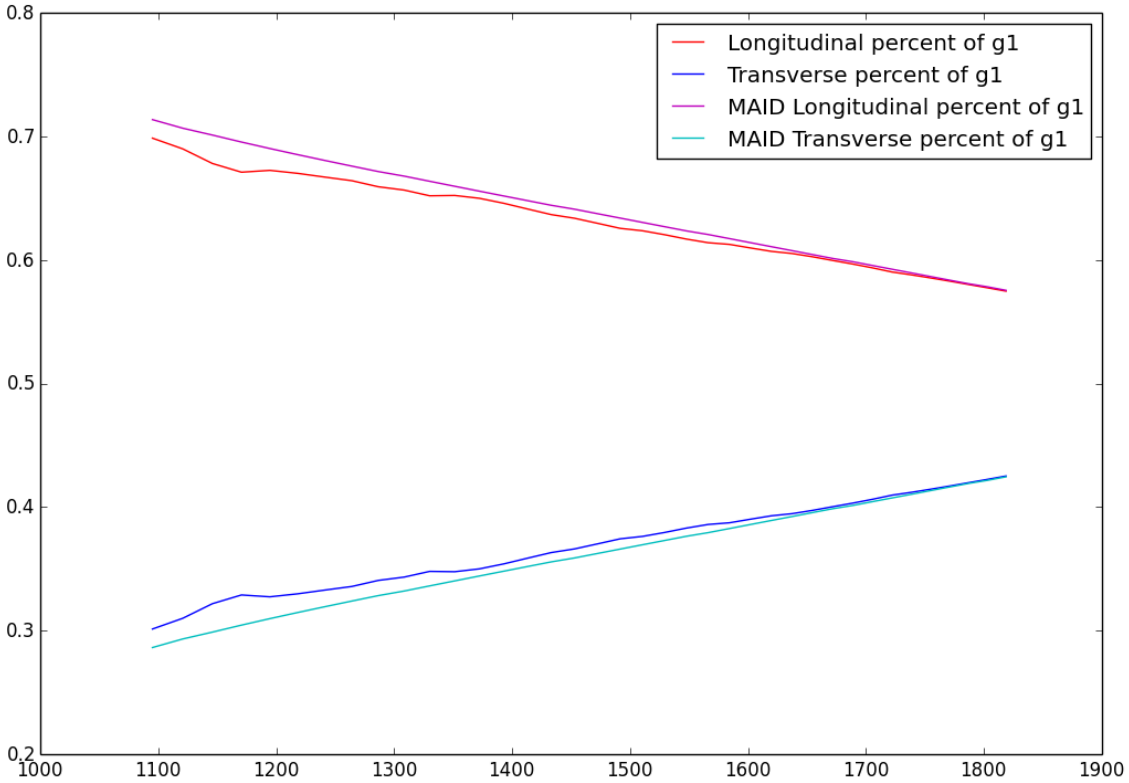


Cross Section Error Propagation

$$\Delta\sigma_{\parallel} = 2A_{\parallel}\sigma_0$$
$$x\Delta\sigma_{\parallel} = 2A_{\parallel}x\sigma_0$$
$$g_1(x,Q^2) = K_1\left[\Delta\sigma_{\parallel}\left(1+\frac{1}{K_2}\tan\frac{\theta}{2}\right)\right] + \frac{2g_2(x,Q^2)}{K_2 y}\tan\frac{\theta}{2}$$

$$g_1{}'(x,Q^2) = xK_1\left[\Delta\sigma_{\parallel}\left(1+\frac{1}{K_2}\tan\frac{\theta}{2}\right)\right] + \frac{2g_2(x,Q^2)}{K_2 y}\tan\frac{\theta}{2}$$

$$\Gamma_1{}' = \int_0^{x_{max}} g_1'(x,Q^2)dx$$



As a toy model: if long term is 60 everywhere, and trans term is 40 everywhere,
9% error on XS is 5.4 error on long term
Error on g1 and Gamma1 = 5.4/105.4 = ~5%

Conclusion: it is indeed possible for change on 0th moment to be lower than that of XS ONLY because we are using model for one part