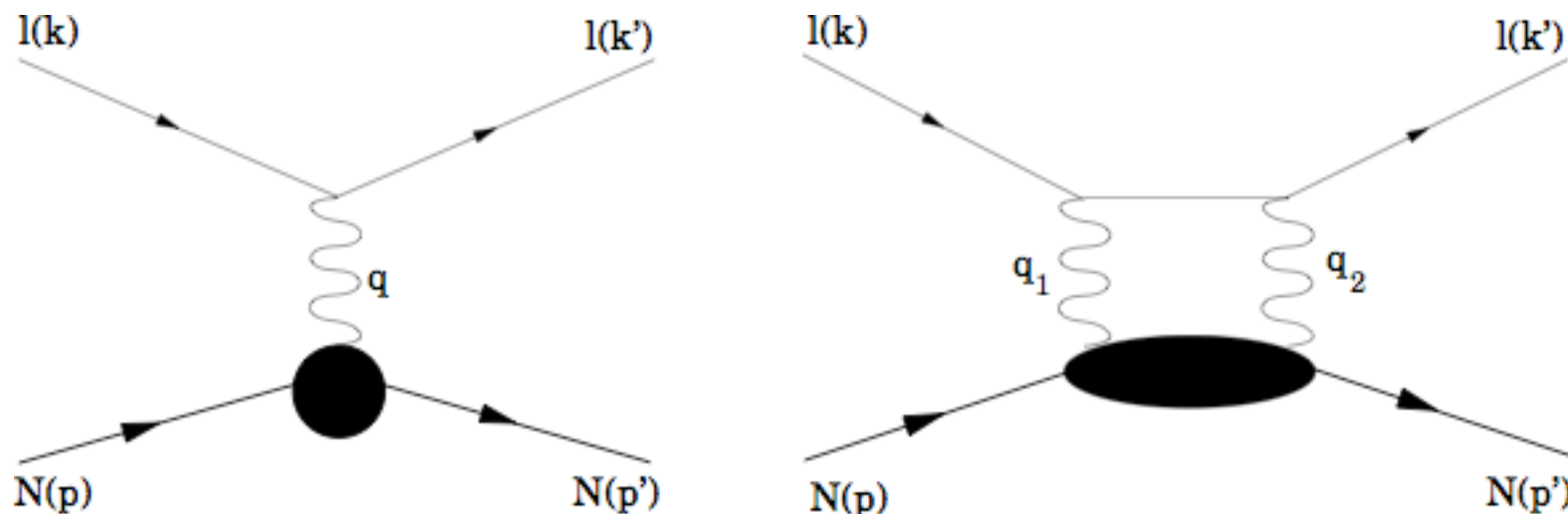


# $A_y$ experiment--QE scattering, two photon exchange



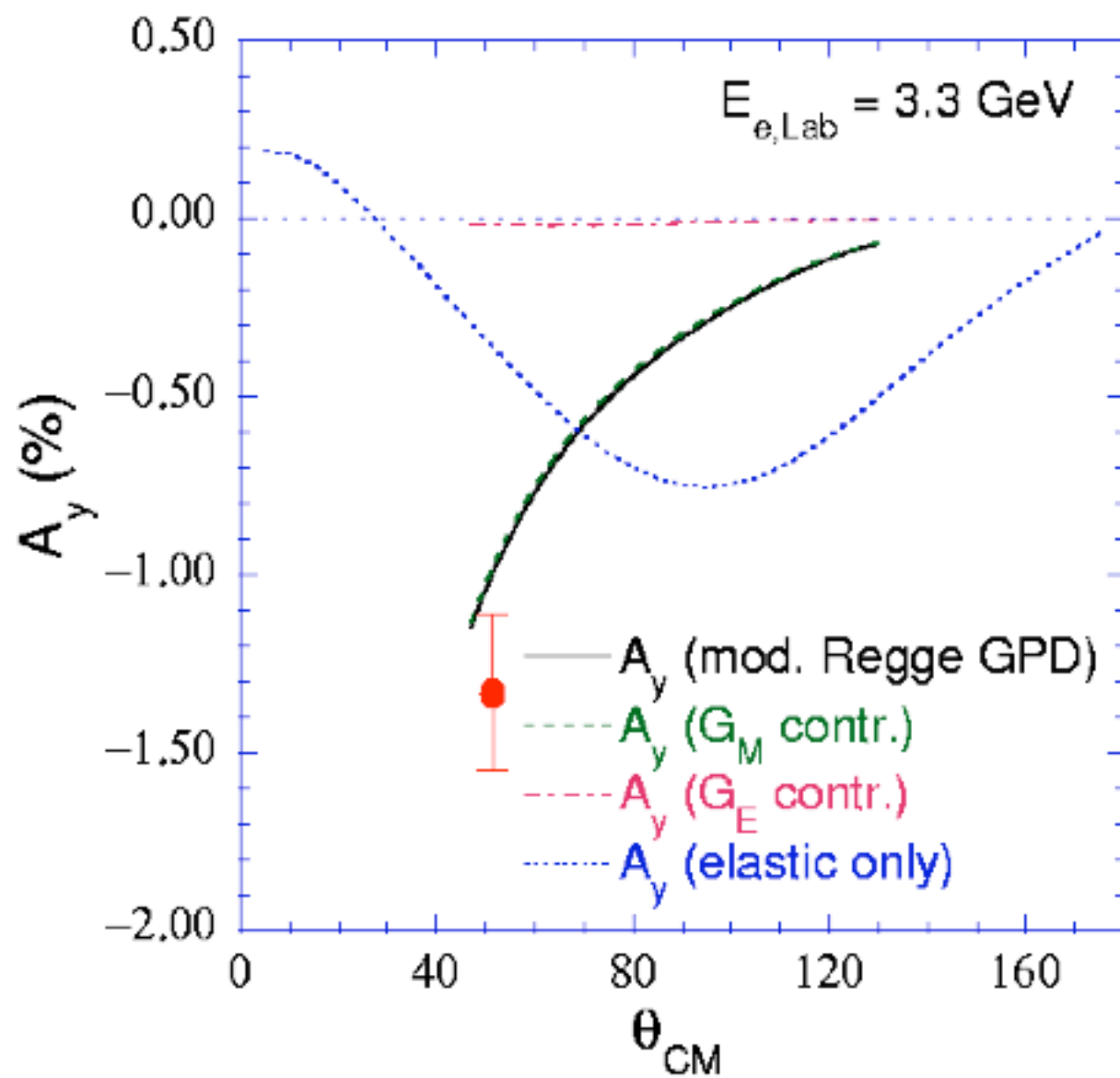
Measure inclusive target SSA with vertically polarized target.

$A_y=0$  for 1-photon exchange

Two-photon intermediate state includes full-response of nucleon.

Model using GPD's or by inserting specific resonances, etc.

### Normal analyzing power - neutron



# Requirements for $A_y$ (E05-015)

- Approved for 7 days of running
- Spectrometers: Both HRS in singles mode

$E_0$ (GeV)	$Q^2$ (GeV <sup>2</sup> )	$E'$ (GeV)	$\theta_e$ (deg)	$\theta_e^{cm}$ (deg)	$e^-$ rate (10 <sup>6</sup> /day)	Time (days)	$\delta A_y^n$ ( $\times 10^{-3}$ )
3.30	0.50	3.03	12.85	35.4	405.0	1	1.2
3.30	1.01	2.76	19.15	51.1	28.6	6	2.1

- Detectors: elastic electron detection
- Target: Vertically polarized target
- Beam: Unpolarized
- Systematics: Need fast target spin reversal, accurate relative luminosity monitoring,  $10^{-3}$  level

# W&M Target Lab Update

- Total of 5 usable  $G_E^n$  cells produced.
- Small pumping chambers.
- Characterizing cells to begin soon at UVa, JLab.
- Developing system at W&M using monochromator and FAP system to do pressure broadening.
- Joe Katich now at JLab full-time on  $^3\text{He}$ .
- Most effort now at JLab for  $G_E^n$ .

### Comparison of the Standard-GEN Hybrid cells

	<a href="#">Bubba</a>	<a href="#">Eva</a>	<a href="#">Carlos</a>	<a href="#">Simone</a>	<a href="#">Dale</a>	<a href="#">Engelbert</a>
<b>Glassblower</b>	Mike	Willy	Mike	Willy	Mike	Mike
<b>Maximum Polarization</b>	38.93%	53.45% (60 W); 53.34% (75 W)	43.2%	44.5%	38.9%	39.2%
<b>Laser Power (Watts)</b>	60	8/29/05: 60 W; 10/10/05: 75 W	60	60	90	60
<b>Lifetime (hours)</b>	19.7	33.1	24.3	31.7	15.8	24.6
<b>Fill density (amagats)</b>	11.52	7.52	8.56	8.53	8.43	8.02
<b>Alkali / Mix</b>	K/Rb	K/Rb	K/Rb	K/Rb	K/Rb	K/Rb
<b>Density Ratio</b>	15.72	17.13	20.72	21.38	24.6	24.59

[Back to the target cell summary](#)

New W&M Polarized  $^3\text{He}$  Website:  
<http://dilbert.physics.wm.edu/pol3he>