Status Report on CP Violating TGC Coupling

07 June 1998

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ERATO W Production Distribution

The problem with the cut off in the W production distribution has been solved. The W has mass hence the production angle does not equal Pz/E.

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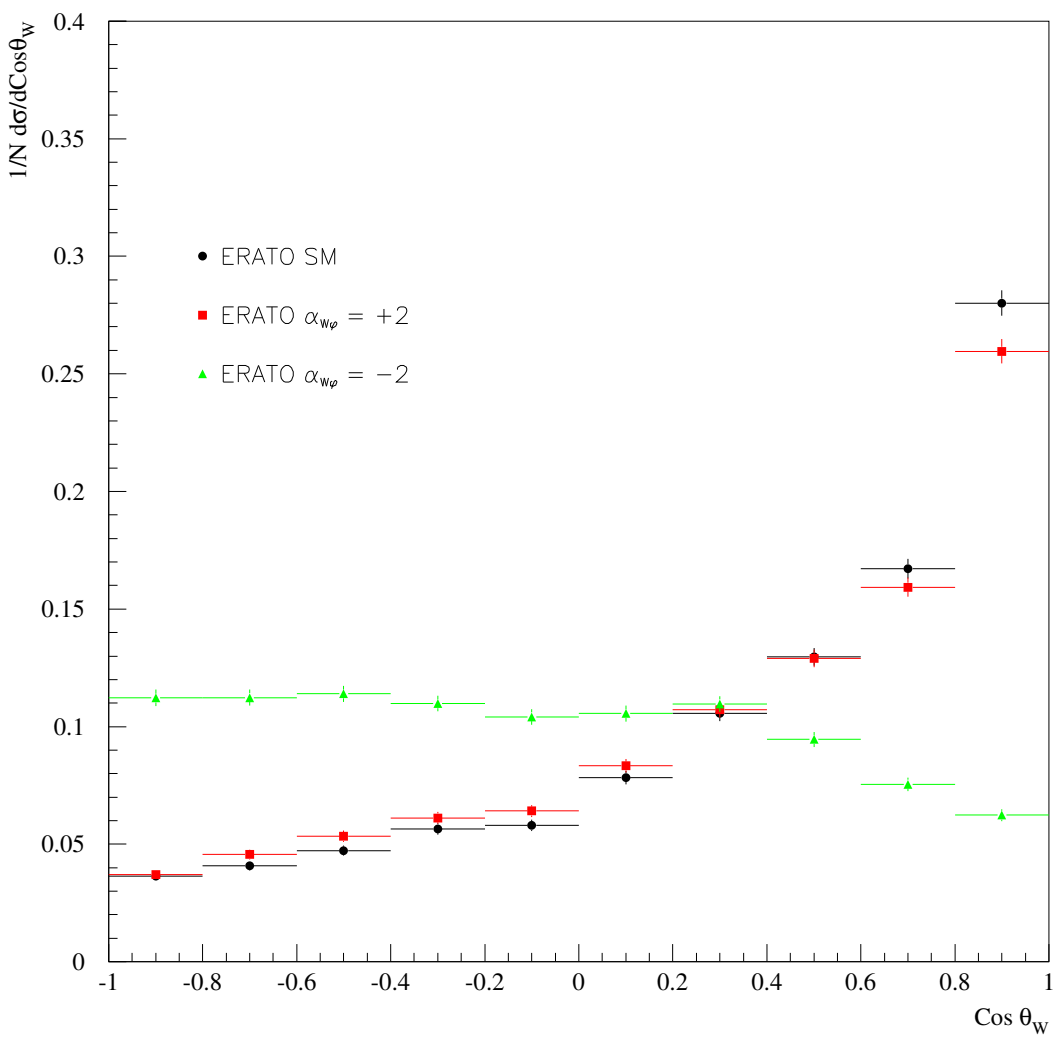
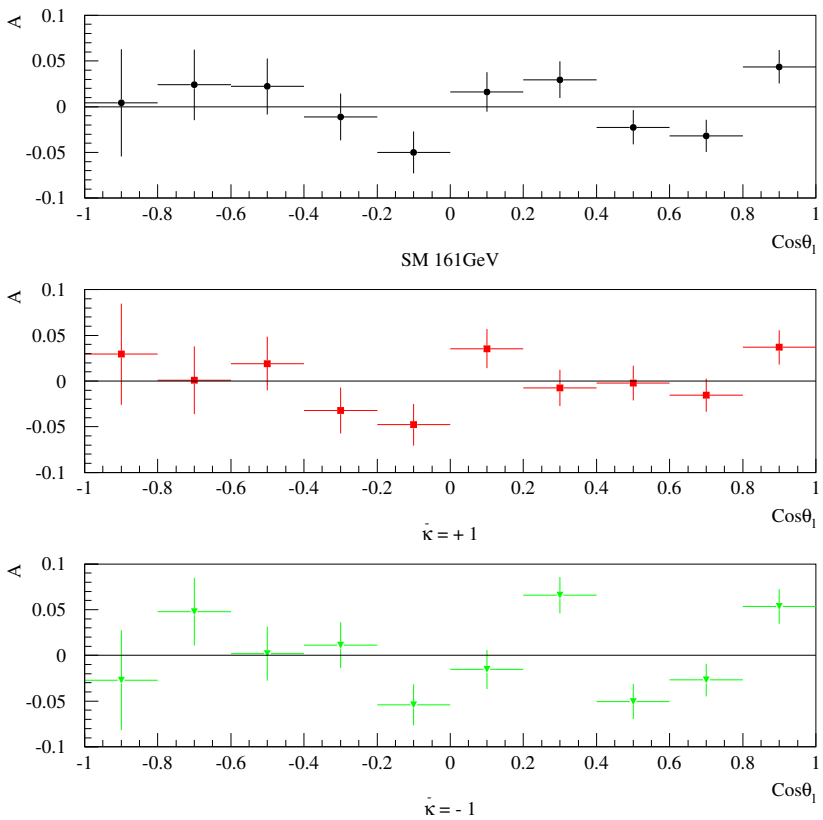


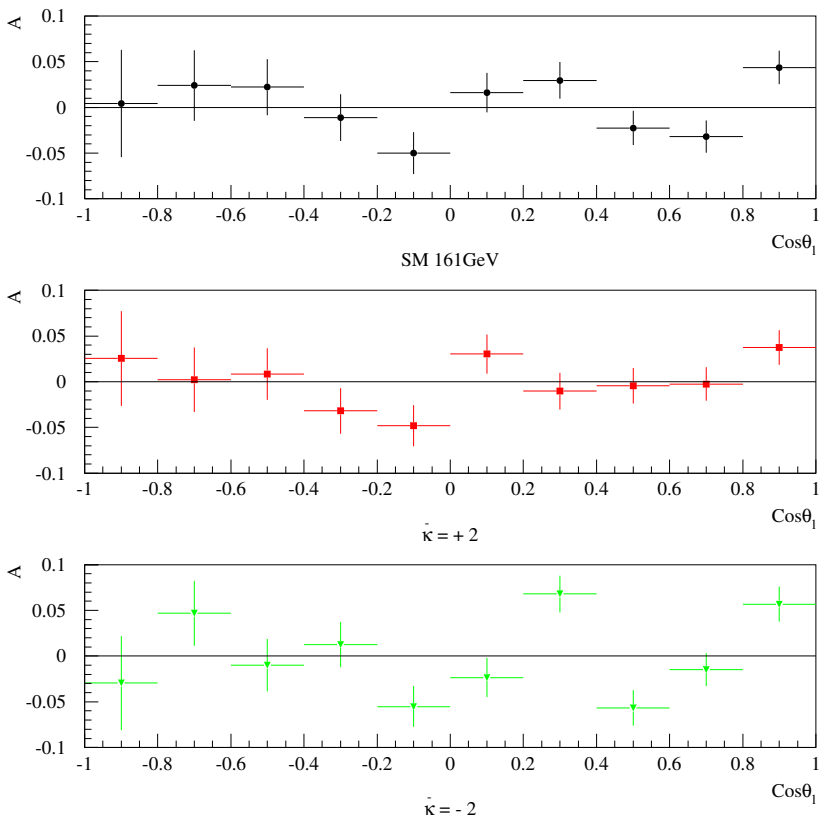
Lepton Polar Angle Distributions

Remember there should be an asymmetry in these distributions if CP-violating coupling are turned on.



No Asymmetry here!

Lepton Polar Angle Distributions



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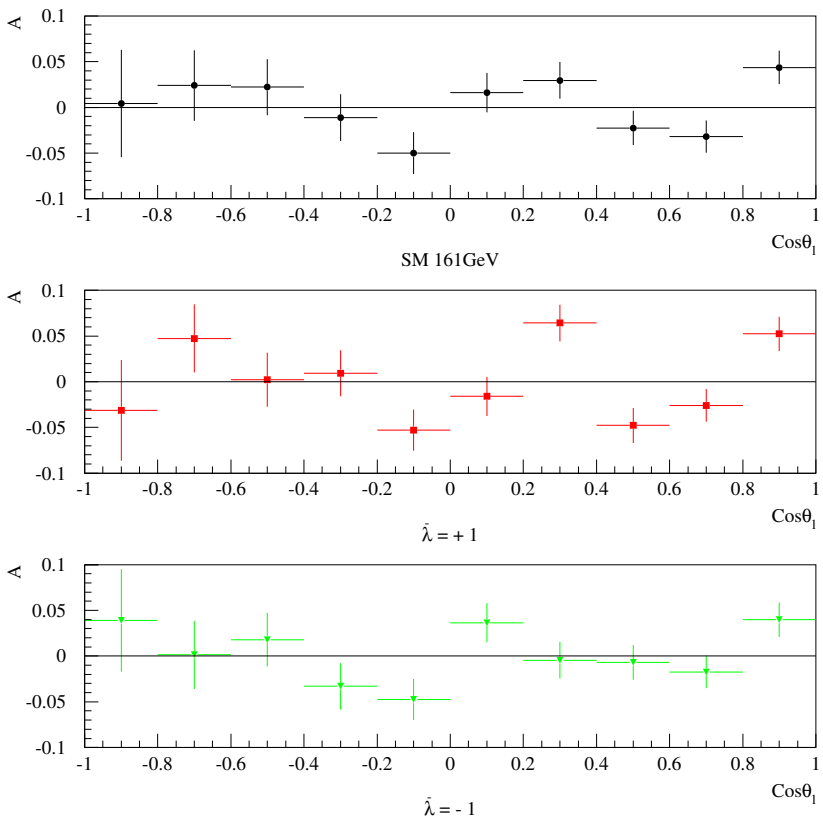
No Asymmetry here!

Lepton Polar Angle Distributions



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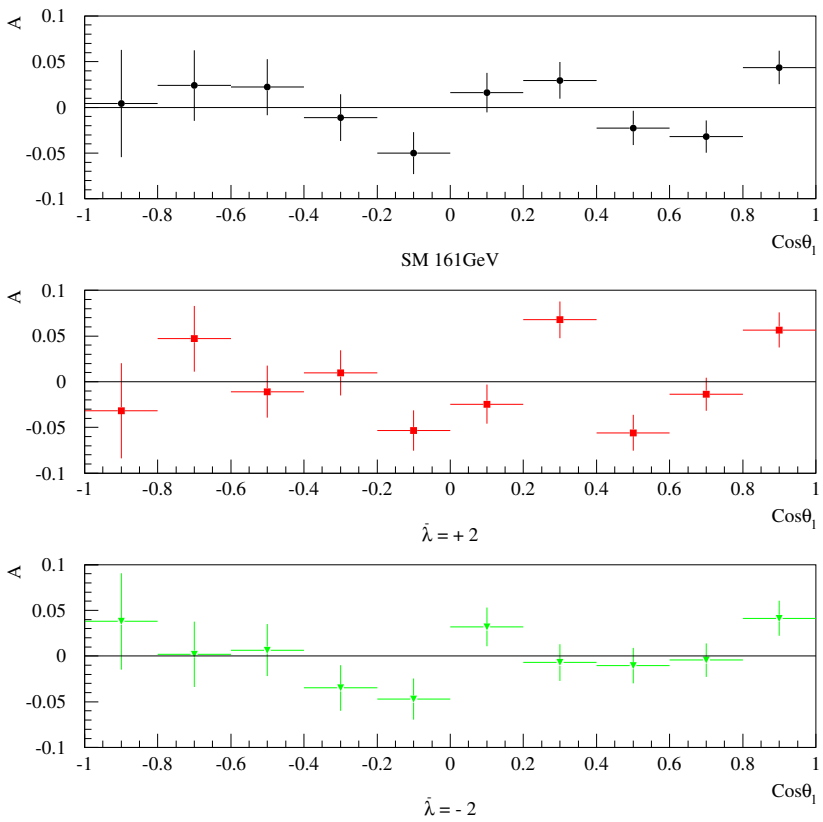
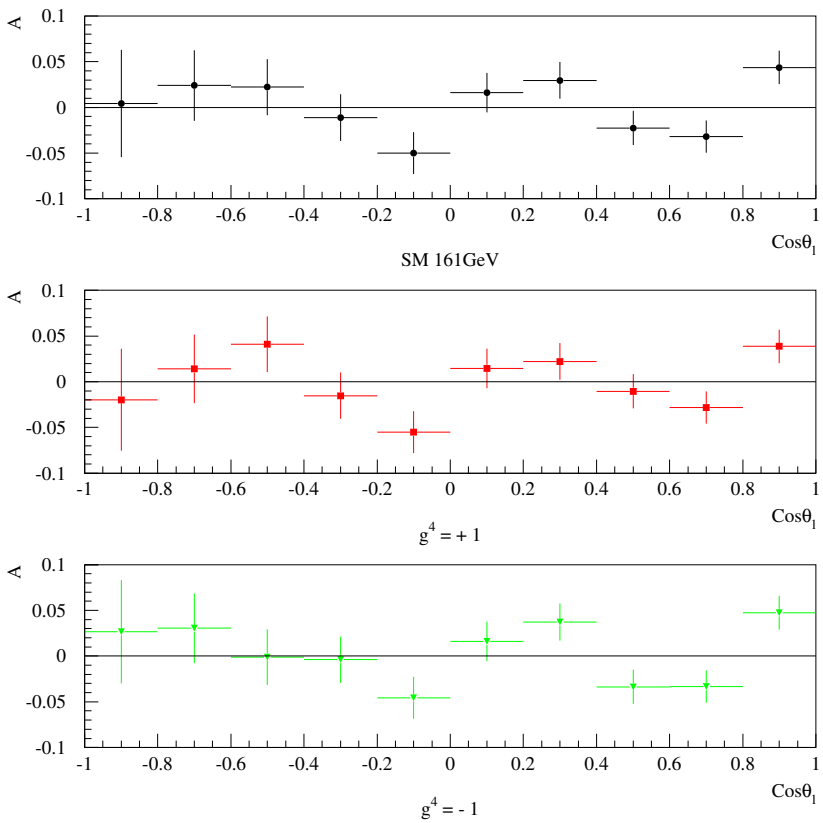
No Asymmetry here!

Lepton Polar Angle Distributions



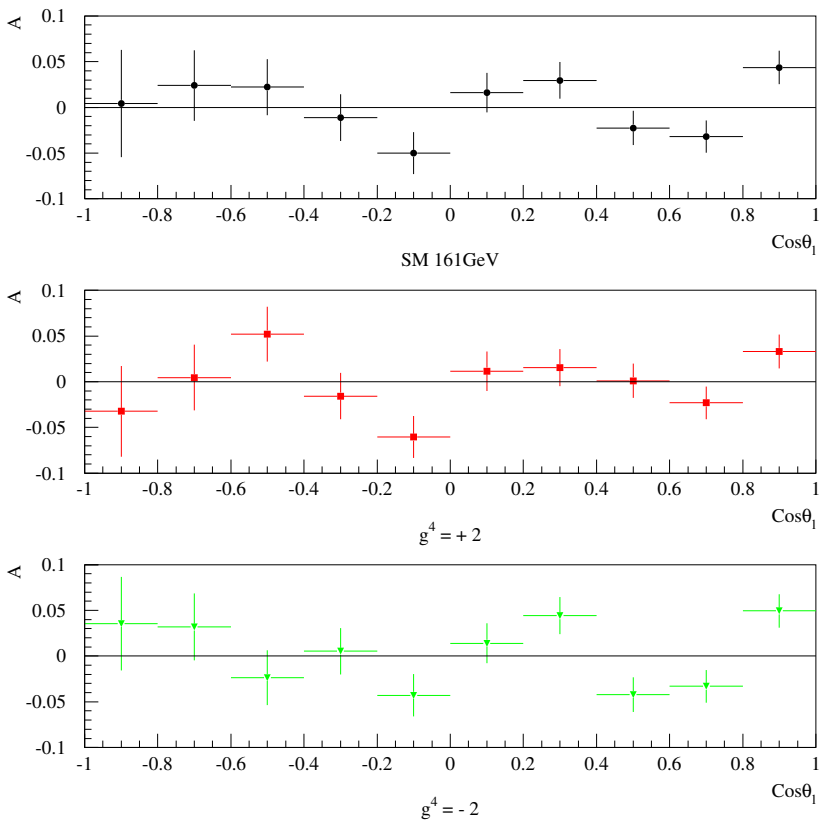
No Asymmetry here!

Lepton Polar Angle Distributions



No Asymmetry here!

Lepton Polar Angle Distributions



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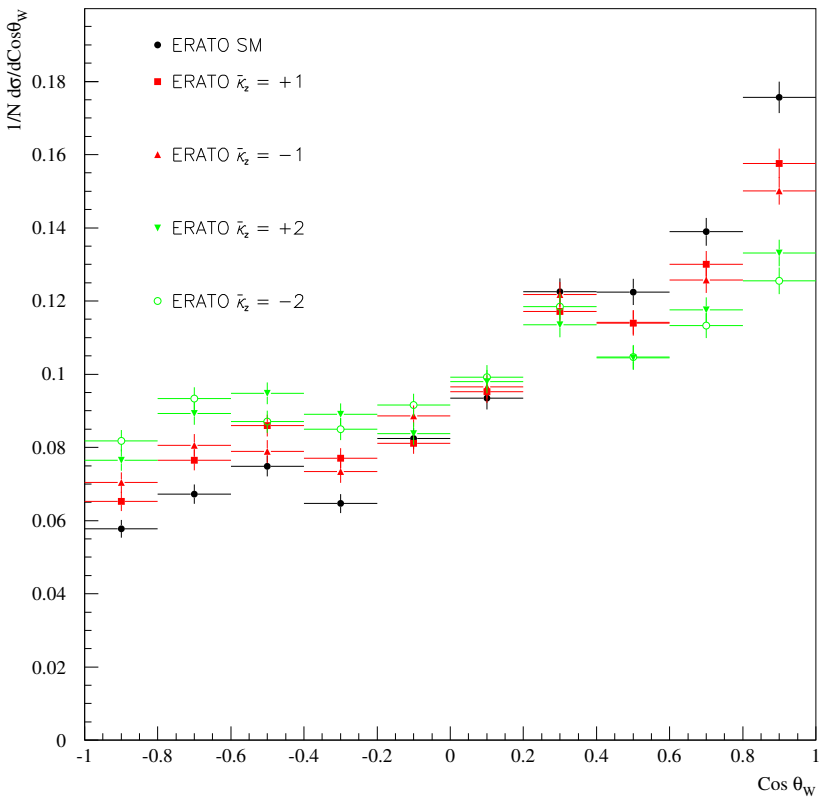
So ERATO doesn't seem to introduce the expected asymmetry.

W production Angle

How does the W production angle vary as a function of CP-violating coupling?



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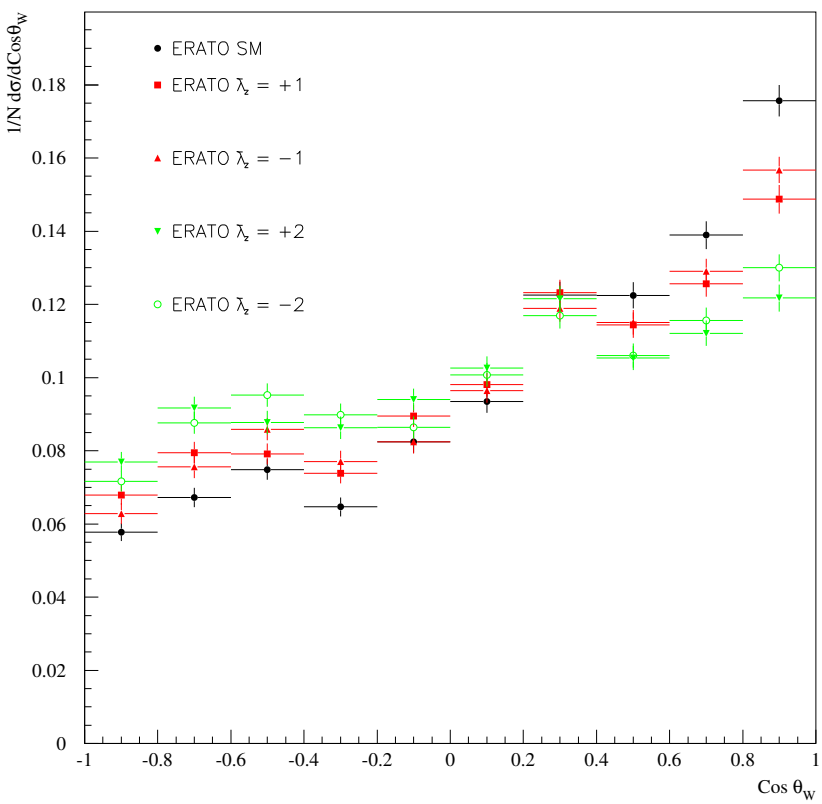
W production Angle



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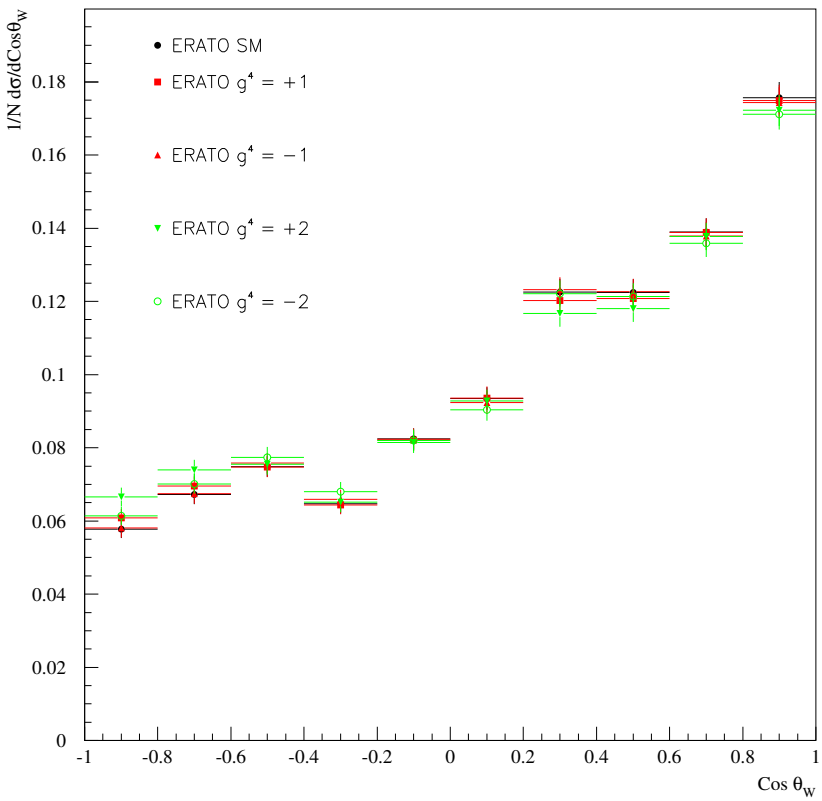
W production Angle



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It's almost impossible to measure the g^4 coupling.

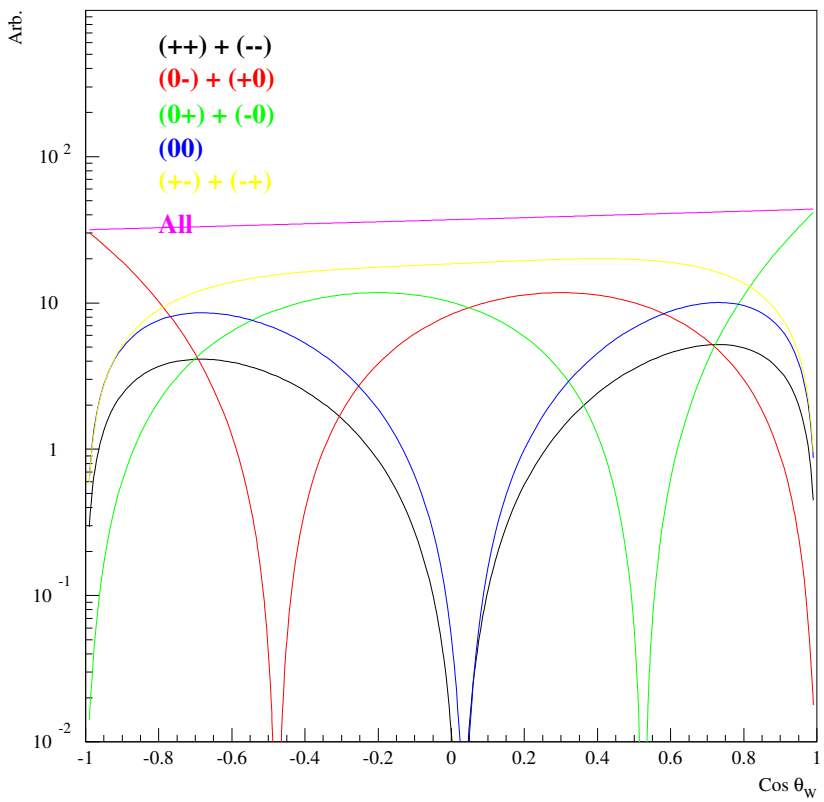
How do these compare with analyical calculations?

Yellow Book Calculation

There is a calculation of the W production angle in the yellow book.

The different components of the W helicities are calculated separately.

SM at 161GeV



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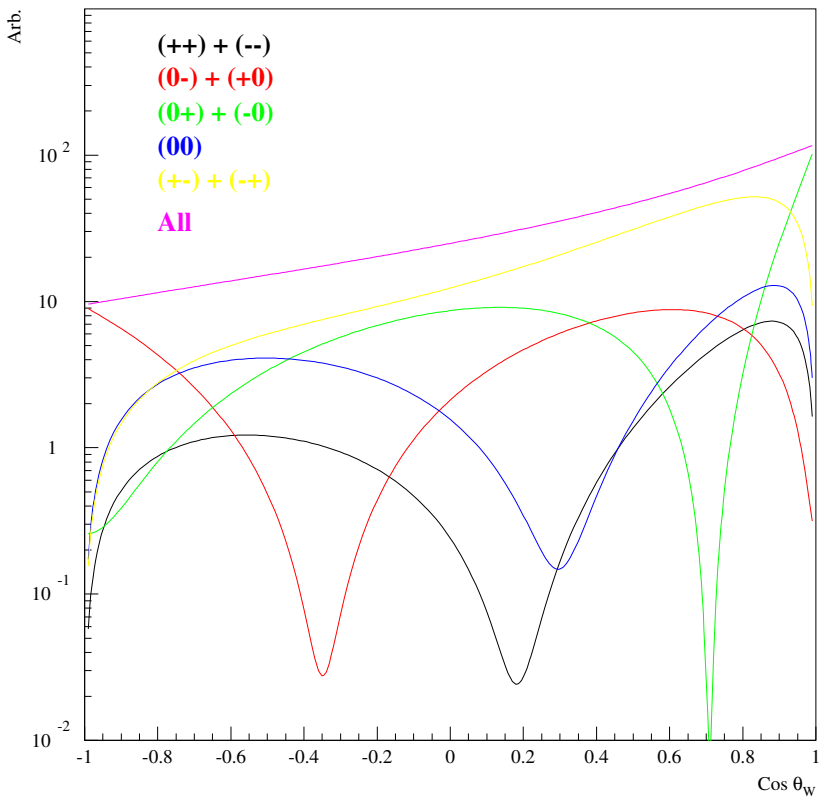
Yellow Book Calculation

SM at 183GeV



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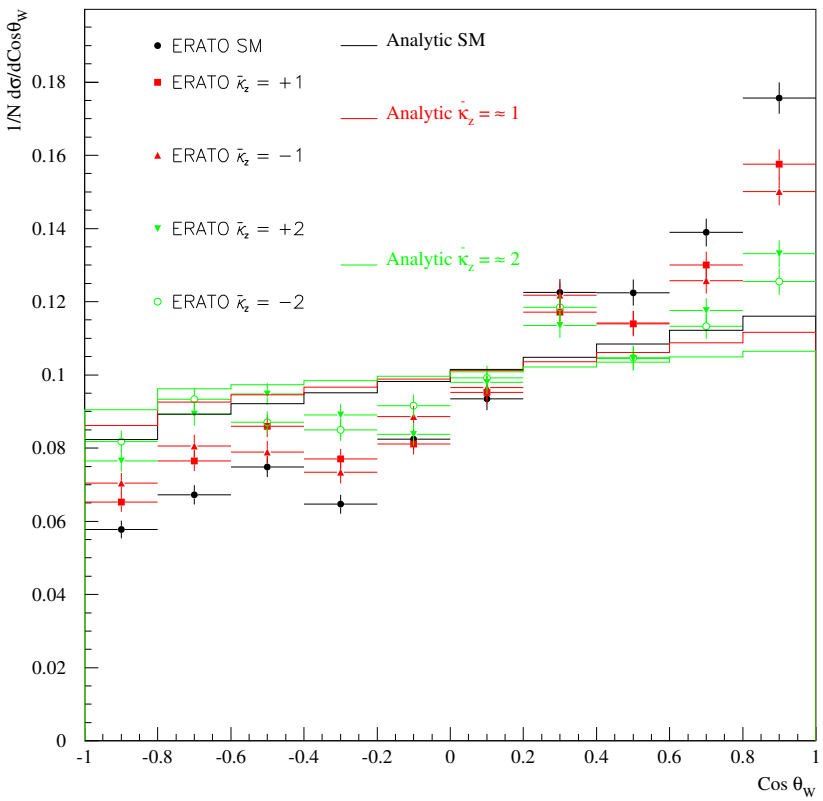
So how do these distributions compare with ERATO?

Yellow Book/ERATO Comparison

$\tilde{\kappa}$ At 161GeV



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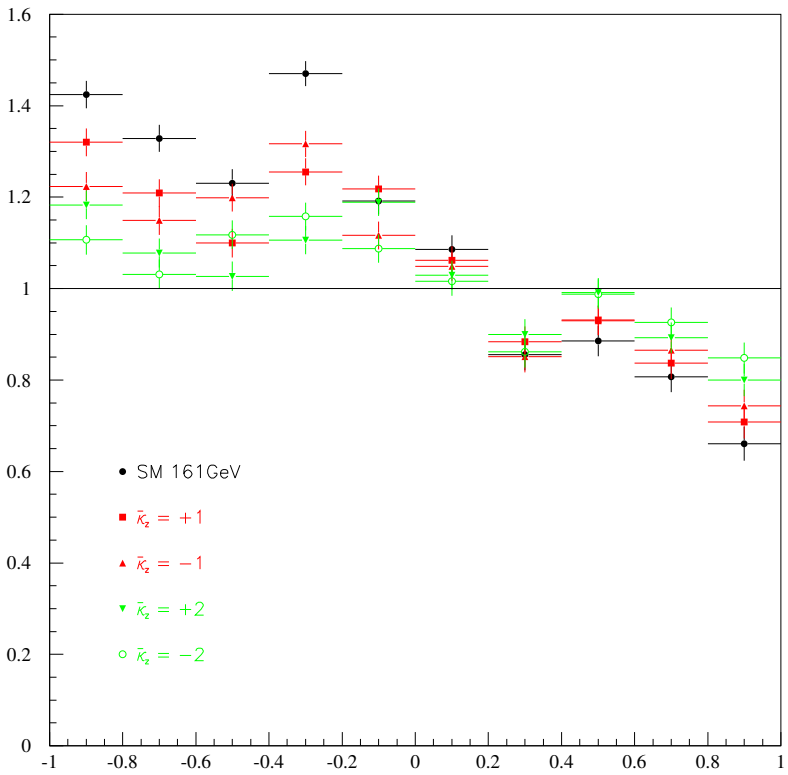
It looks like we have a problem here! Which is right?????

Yellow Book/ERATO Comparison

Ratio of ERATO/YELLOW for $\tilde{\kappa}$ at 161GeV



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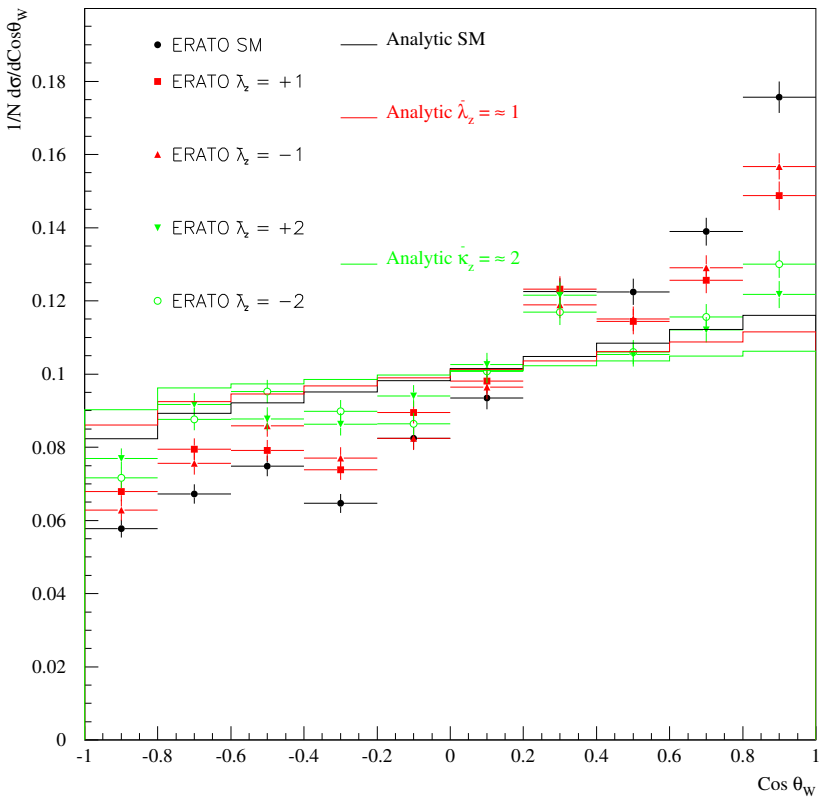
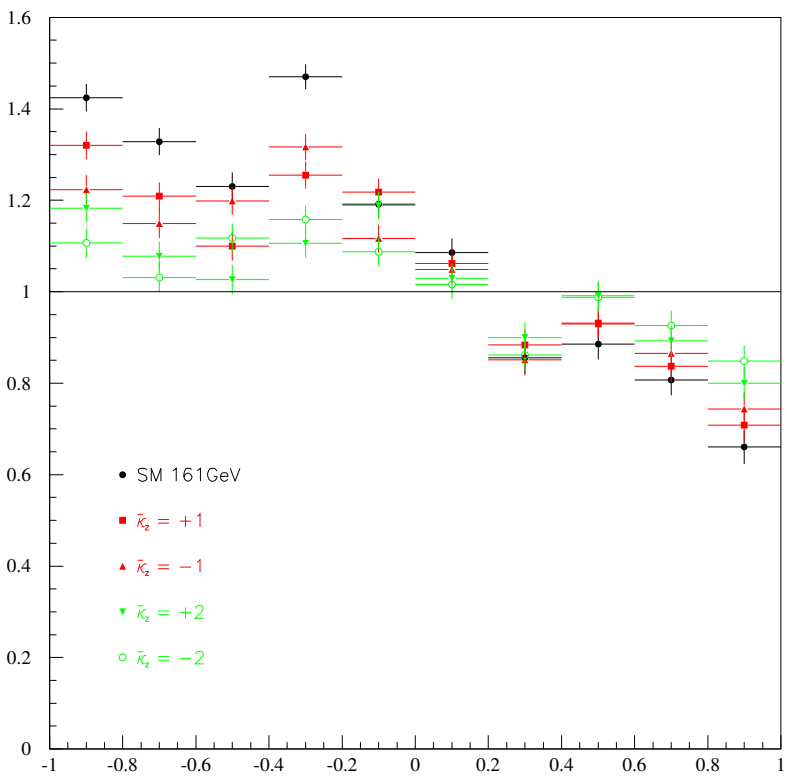
Yellow Book/ERATO Comparison

$\tilde{\lambda}$ At 161GeV



Yellow Book/ERATO Comparison

Ratio of ERATO/YELLOW for $\tilde{\lambda}$ at 161GeV



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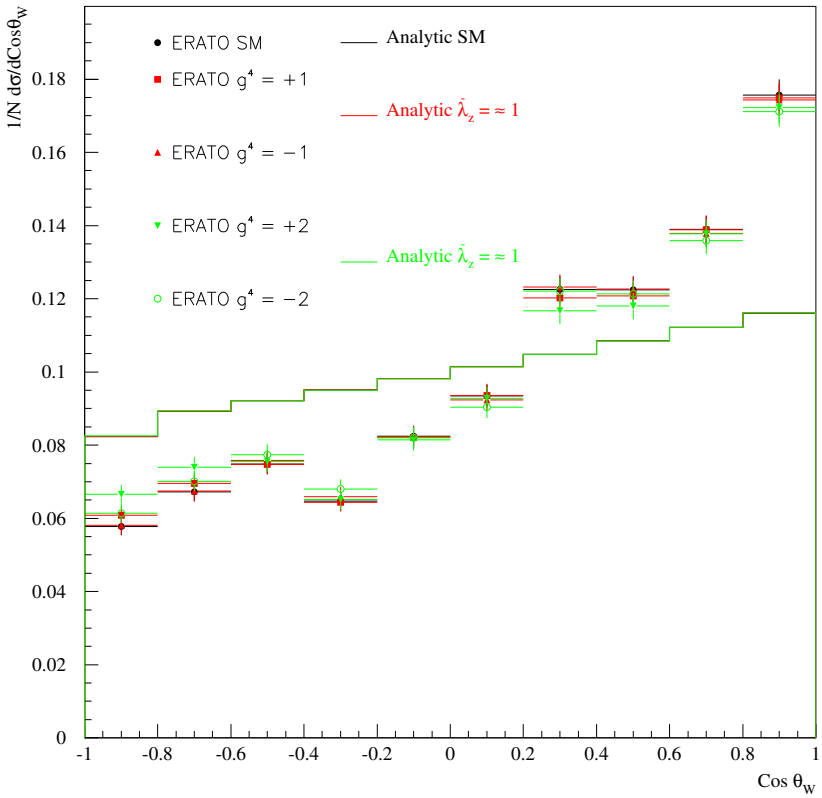
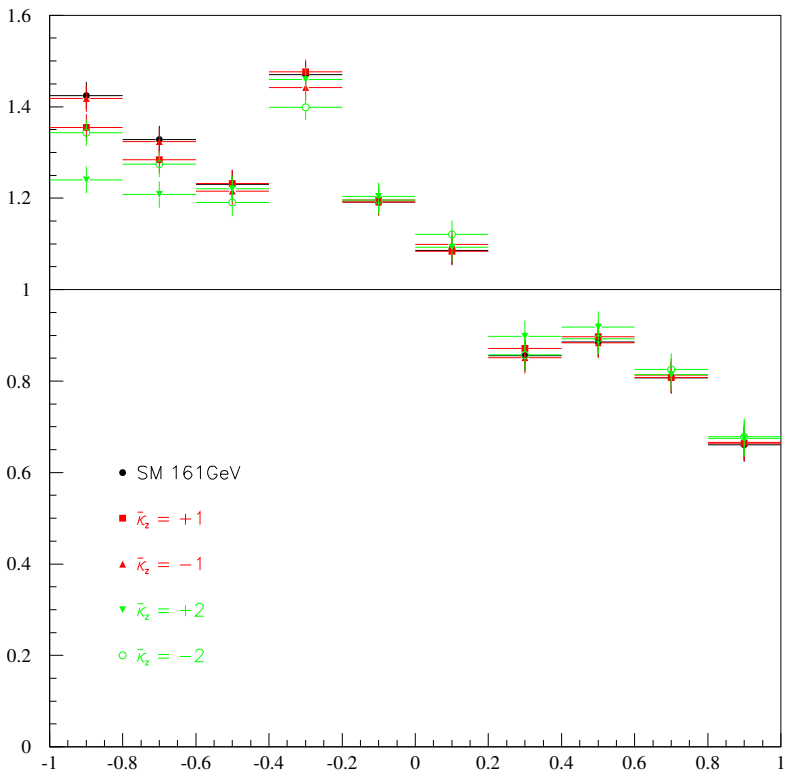
Yellow Book/ERATO Comparison

g^4 At 161GeV



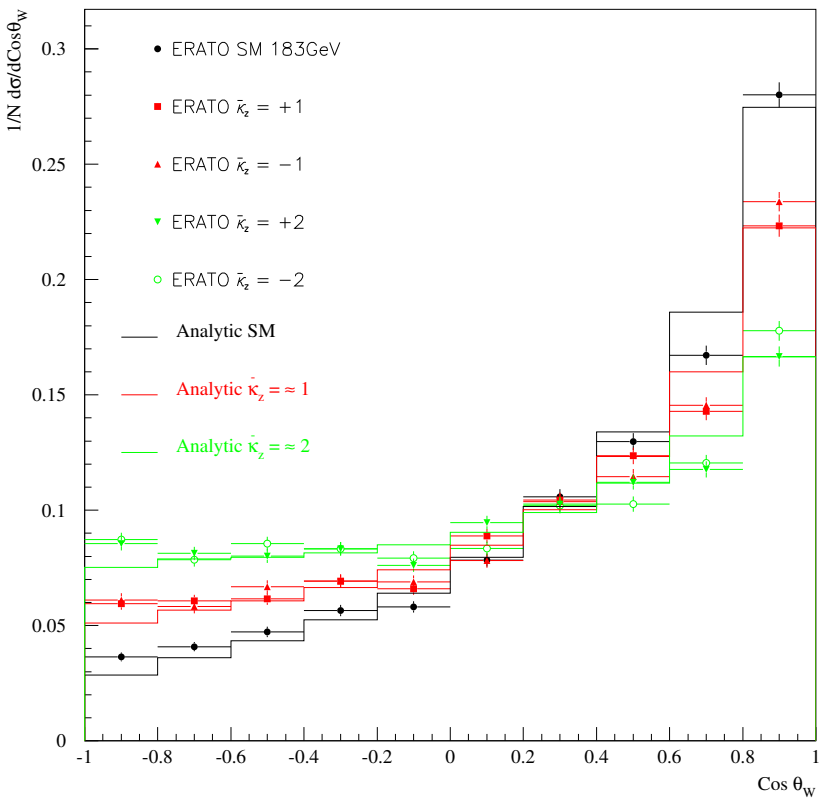
Yellow Book/ERATO Comparison

Ratio of ERATO/YELLOW for g^4 at 161GeV



Yellow Book/ERATO Comparison

$\tilde{\kappa}$ At 183GeV



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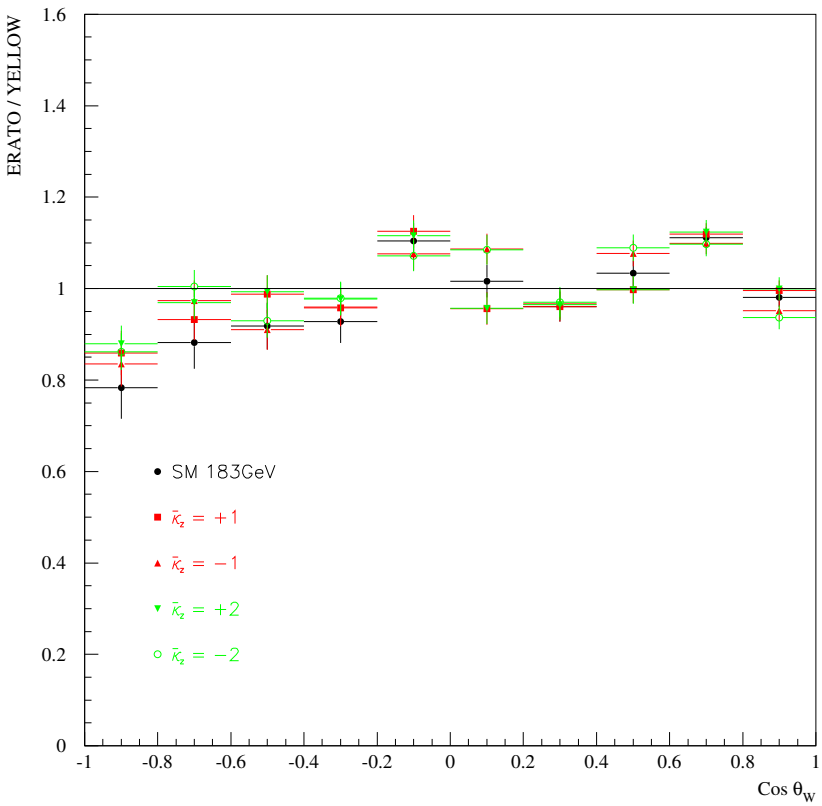
It looks like ERATO or YELLOW has a problem at 161GeV

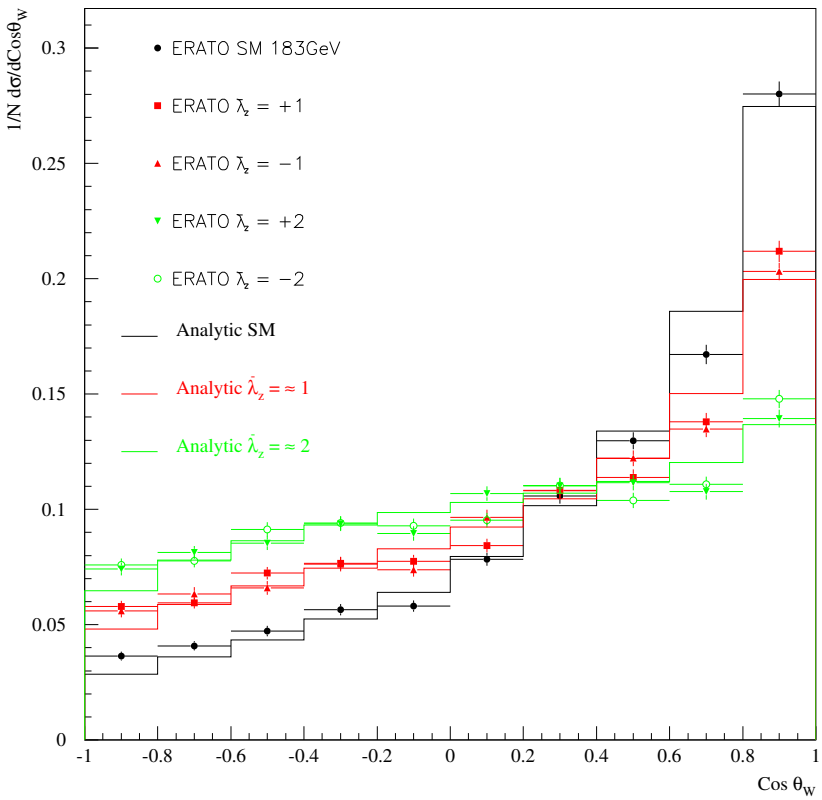
Yellow Book/ERATO Comparison

Ratio of ERATO/YELLOW for $\tilde{\kappa}$ at 183GeV



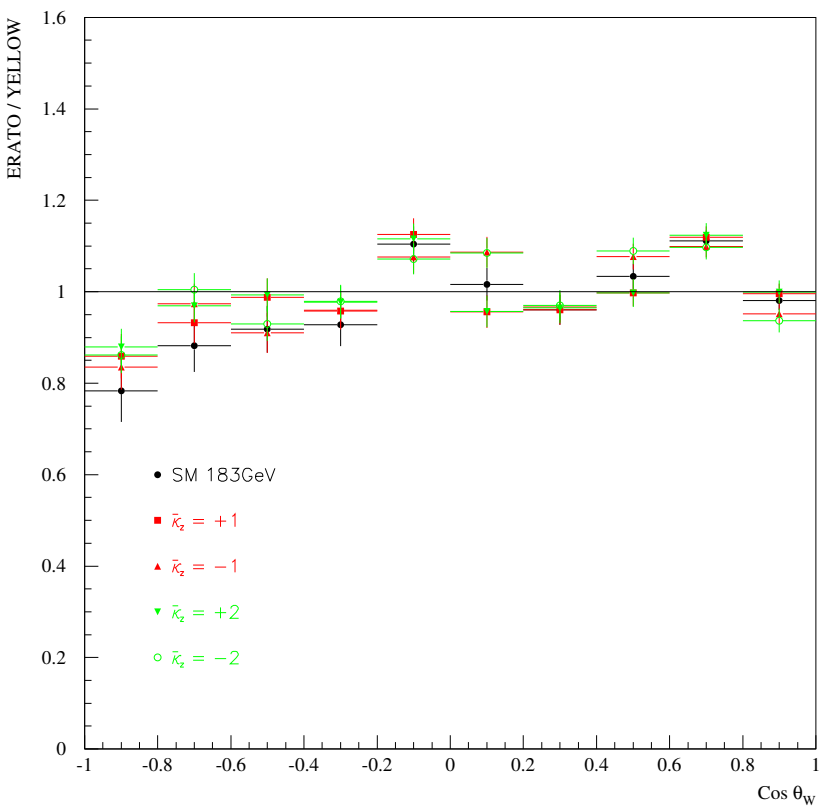
Yellow Book/ERATO Comparison

$\tilde{\lambda}$ At 183GeV



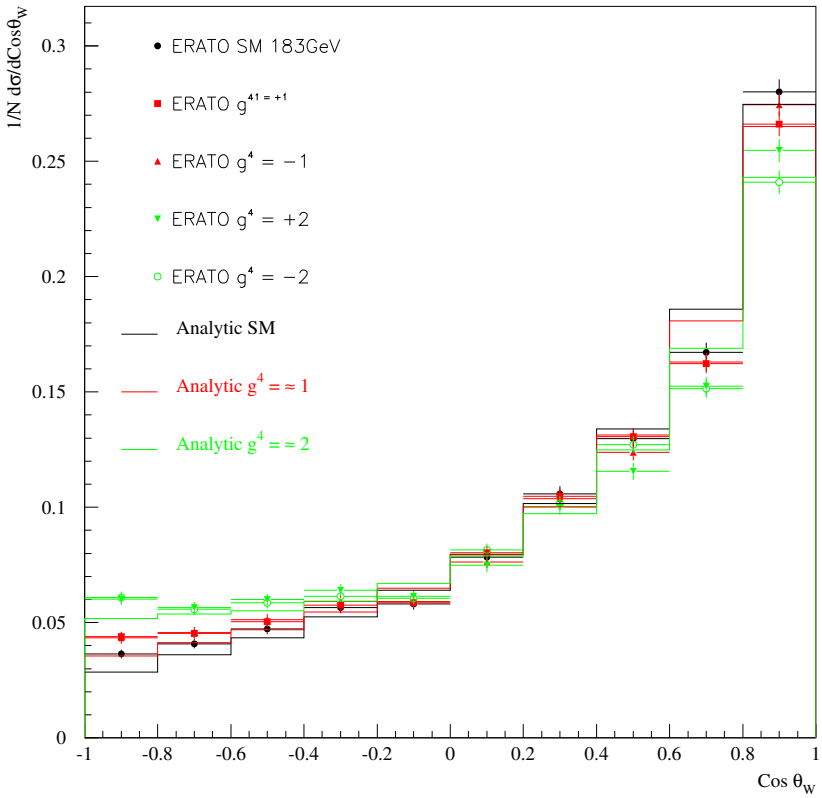
Yellow Book/ERATO Comparison

Ratio of ERATO/YELLOW for $\tilde{\lambda}$ at 183GeV



Yellow Book/ERATO Comparison

g^4 At 183GeV



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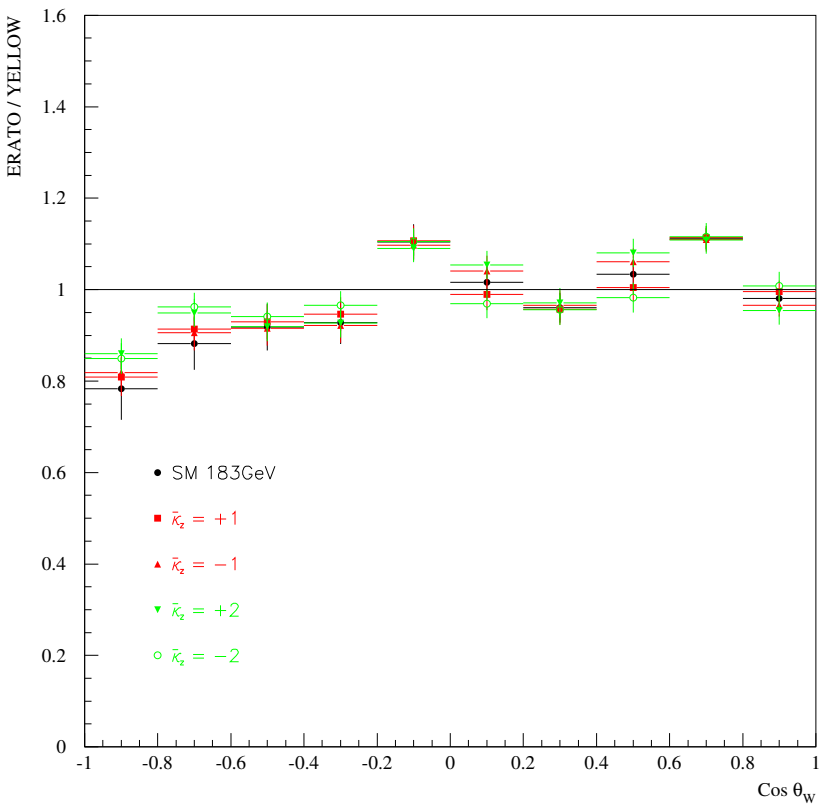
Ratio of ERATO/YELLOW for g^4 at 183GeV