TGC Measurement in $e^+e^- \rightarrow W^+W^- \rightarrow 4q$ using total σ and angular distributions

Status Report

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DELPHI

upon request by GOLOB

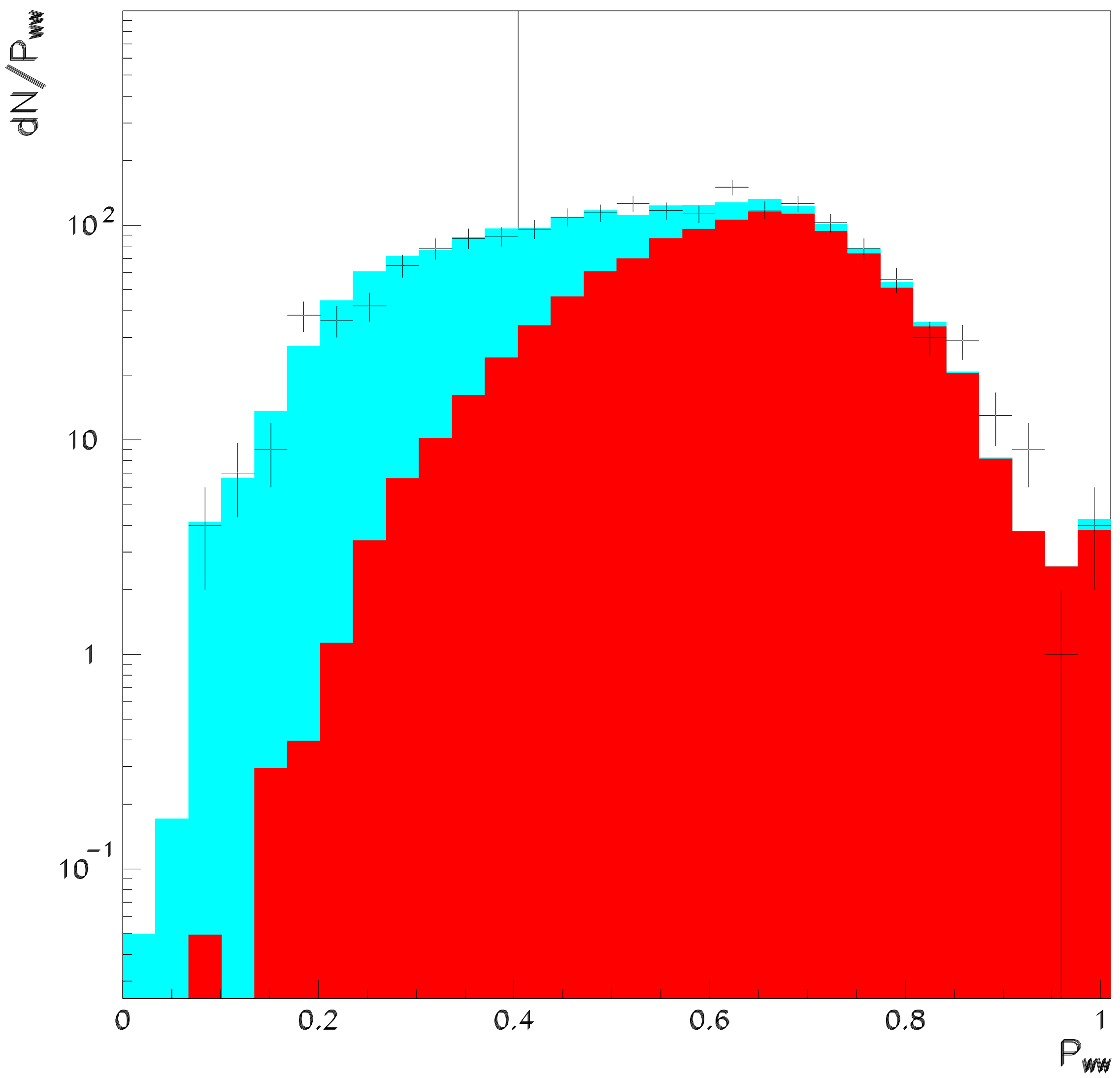
Status

Status:

- Preliminary results for 189 data
- D1 processing, no run selecetion, $L = 157.65 pb^{-1}$
- No comparison with σ_{Delphi} yet

Event Selection

Distribution of events according to P_{WW} separator.

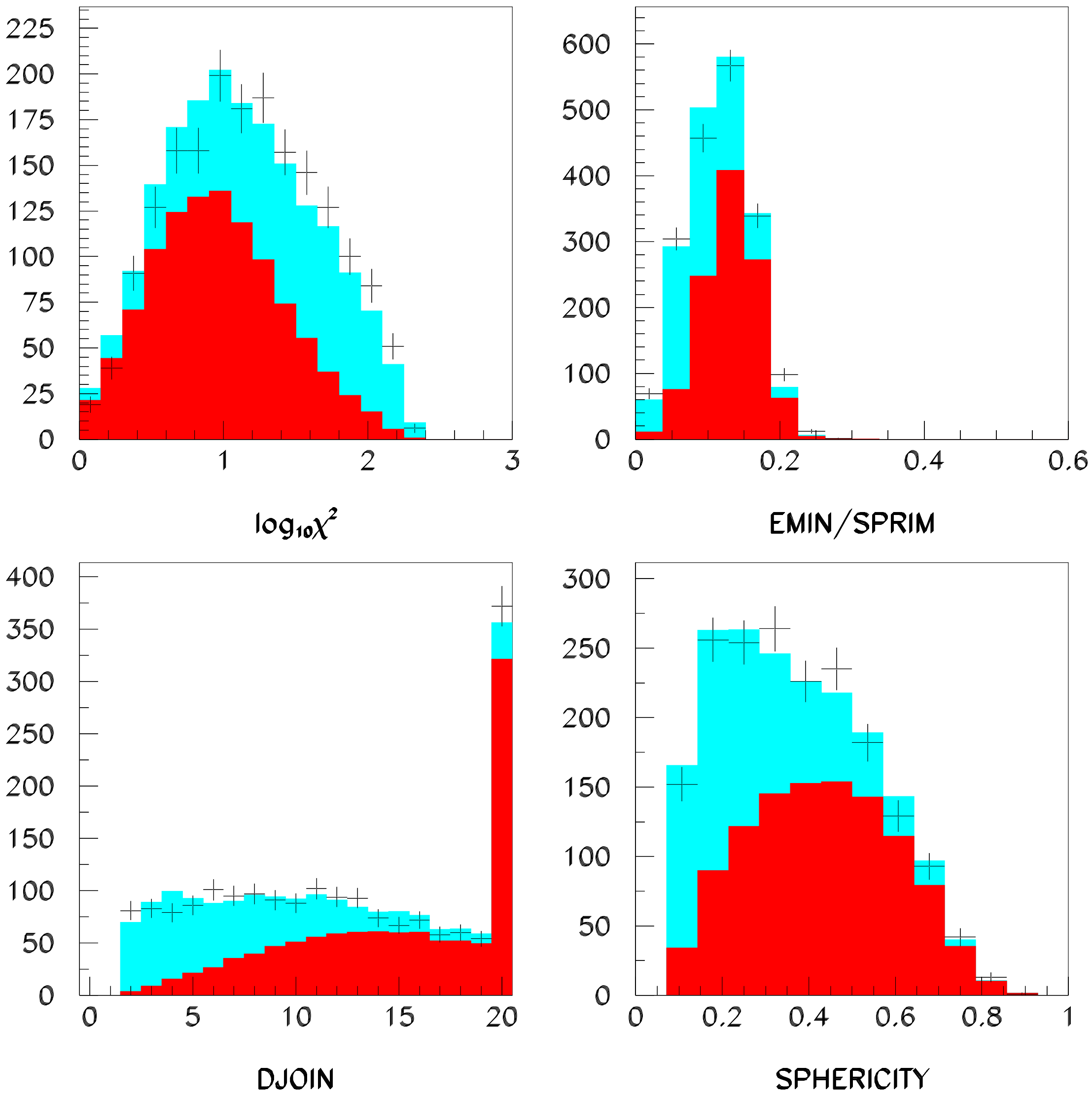


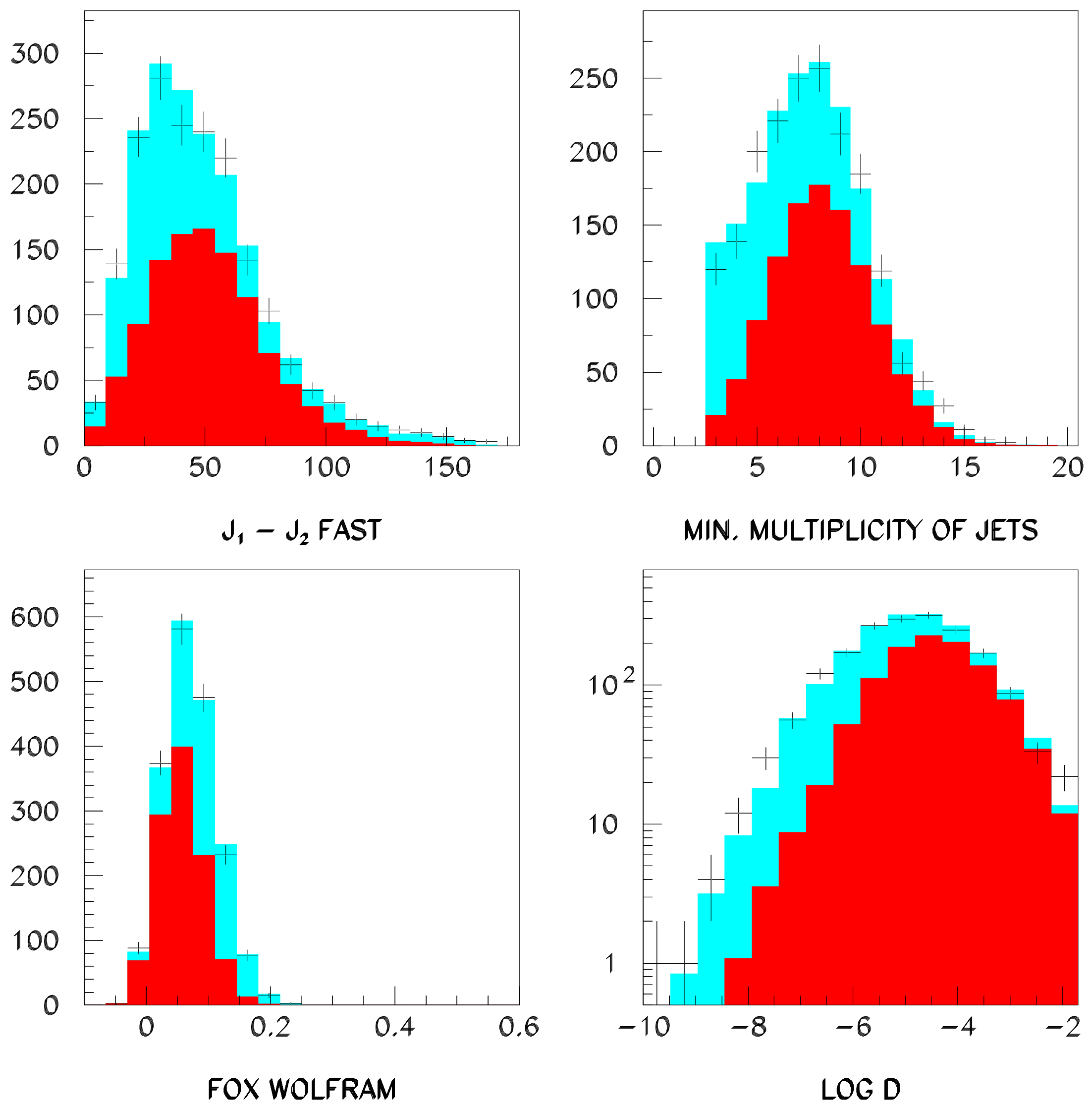
We cut at $P_{WW} = 0.40$ (arrow):

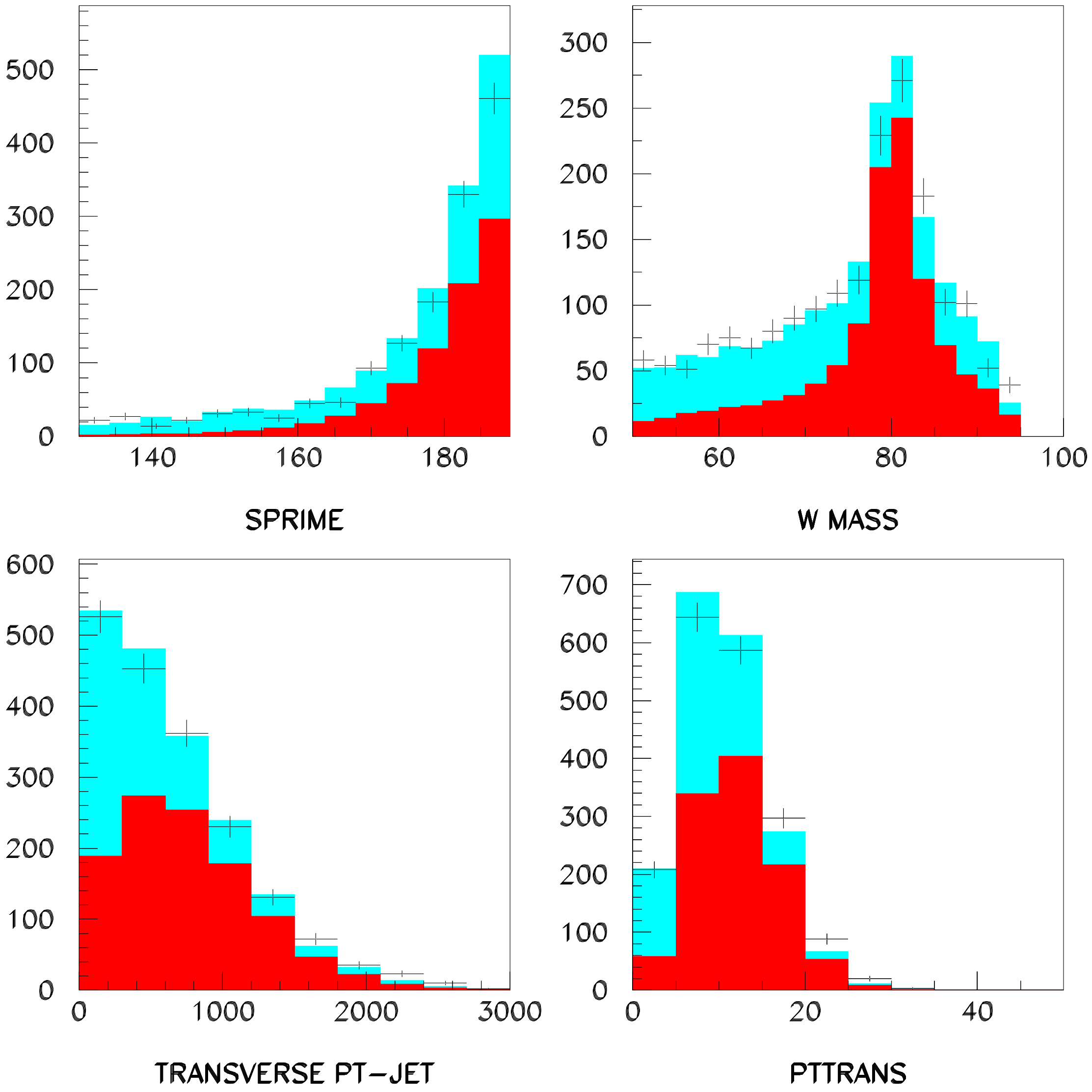
- η ~86%,
- Pur ~75%
- 1392 measured events survive the cut.

Kinematical distributions

Some kinematical distributions plotted

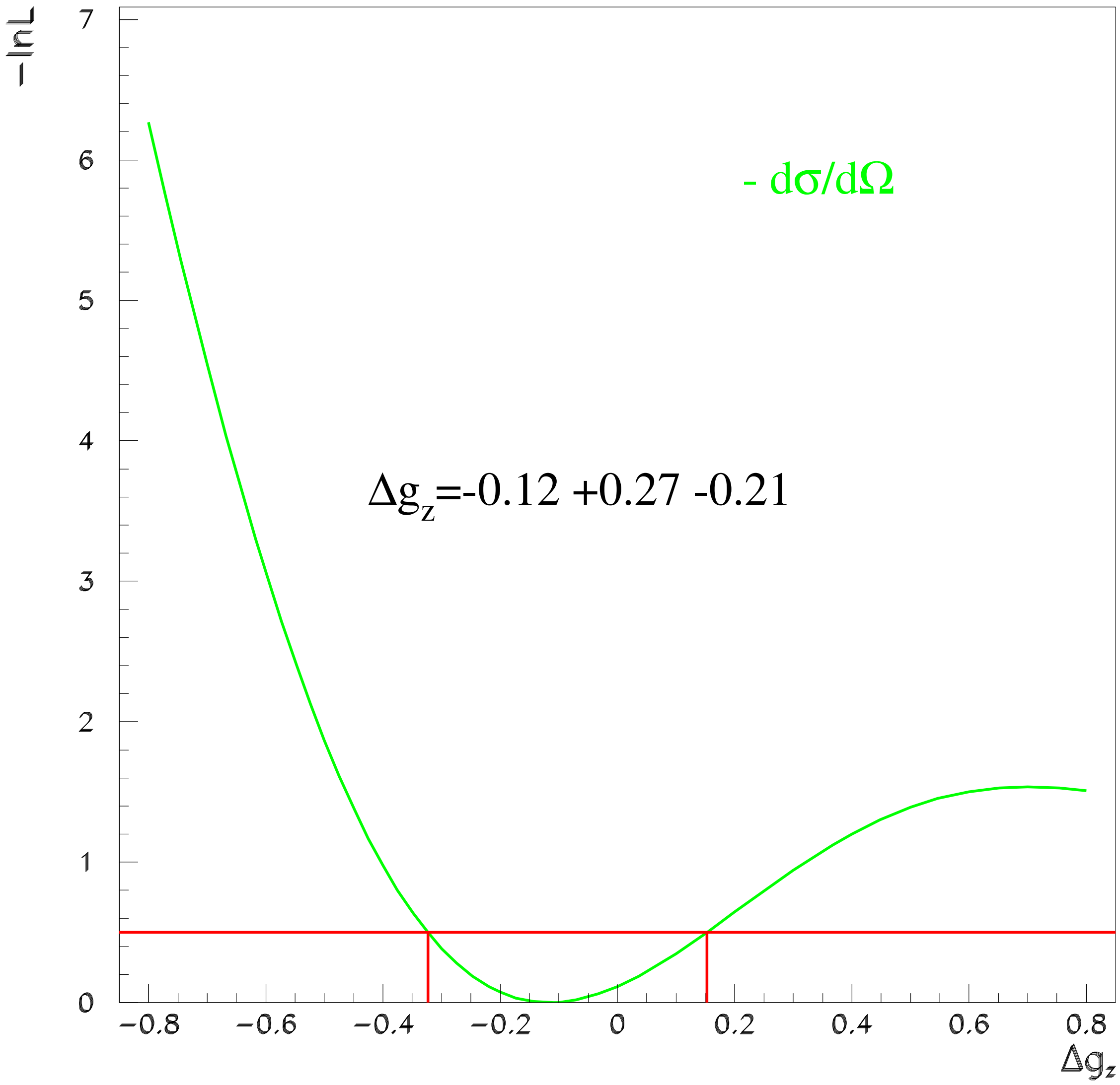



J₁ − J₂ FAST
MIN. MULTIPLICITY OF JETS
FOX WOLFRAM
LOG D



SPRIME
W MASS
TRANSVERSE PT–JET
PTTRANS

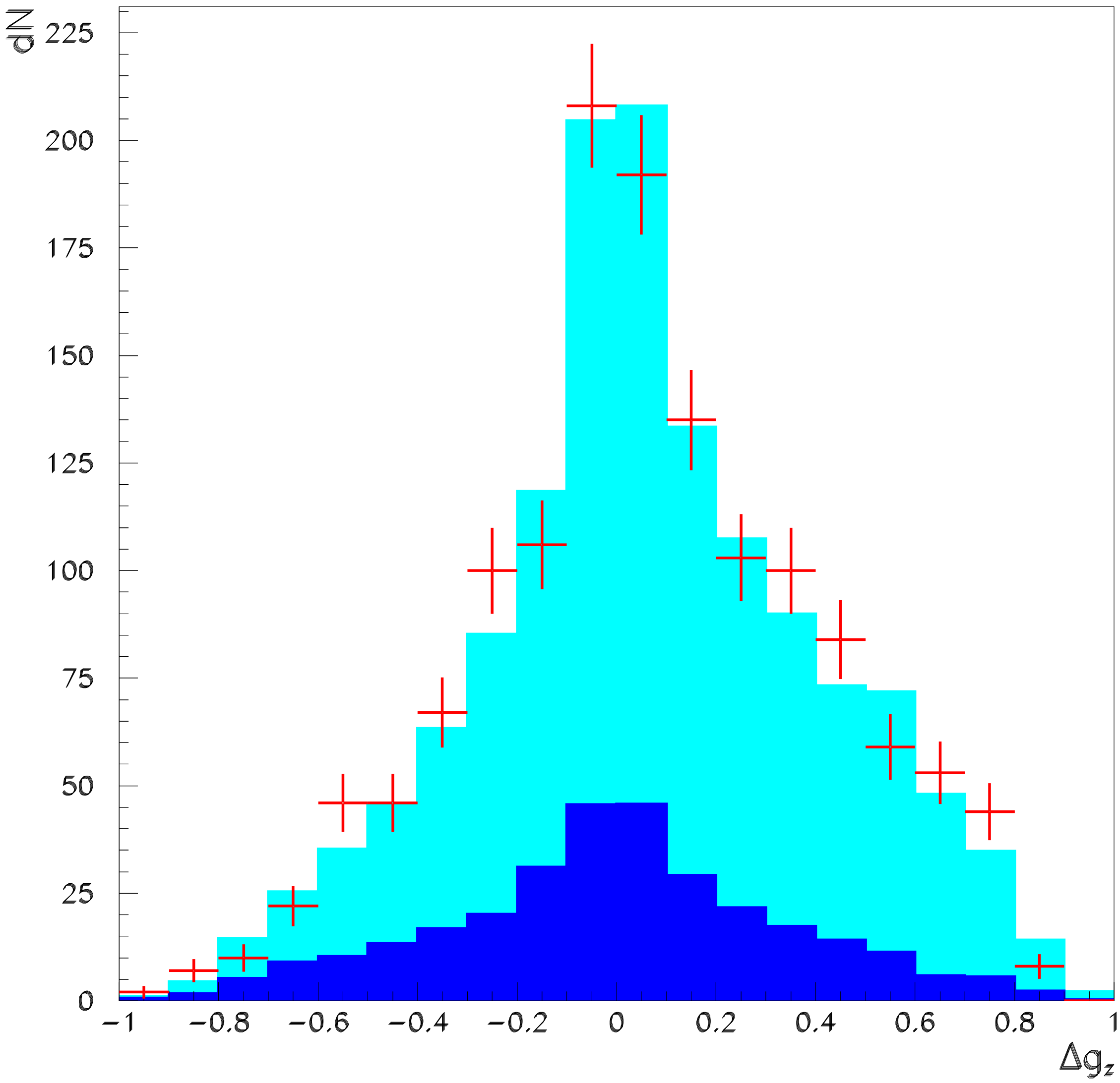
Angular distributions



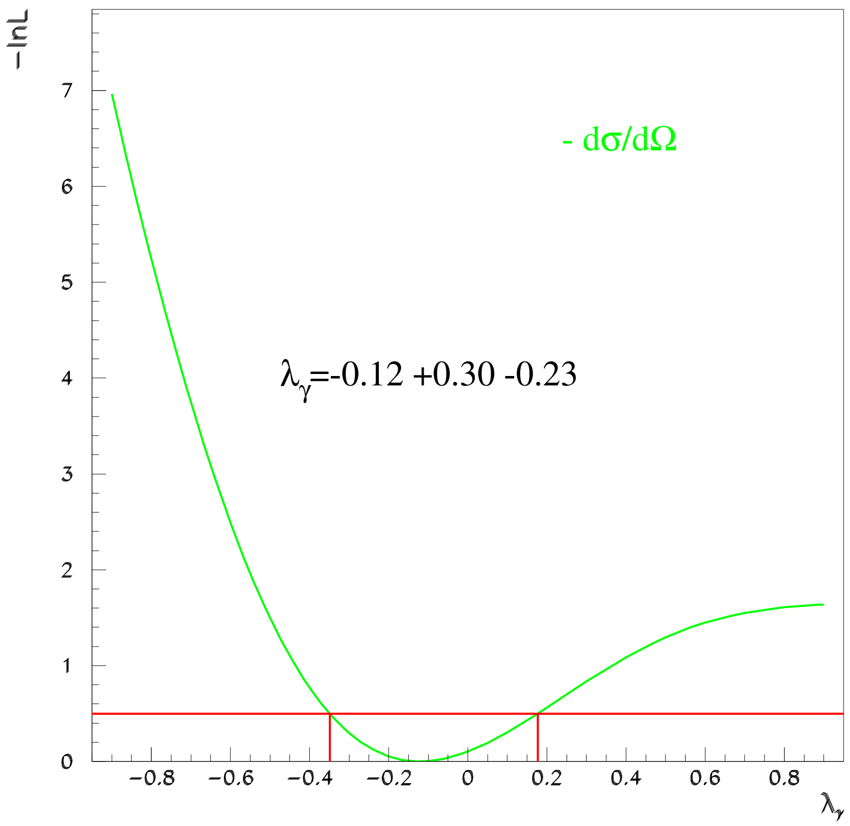
Log likelihood for distribution dependence on Δg_Z^1.

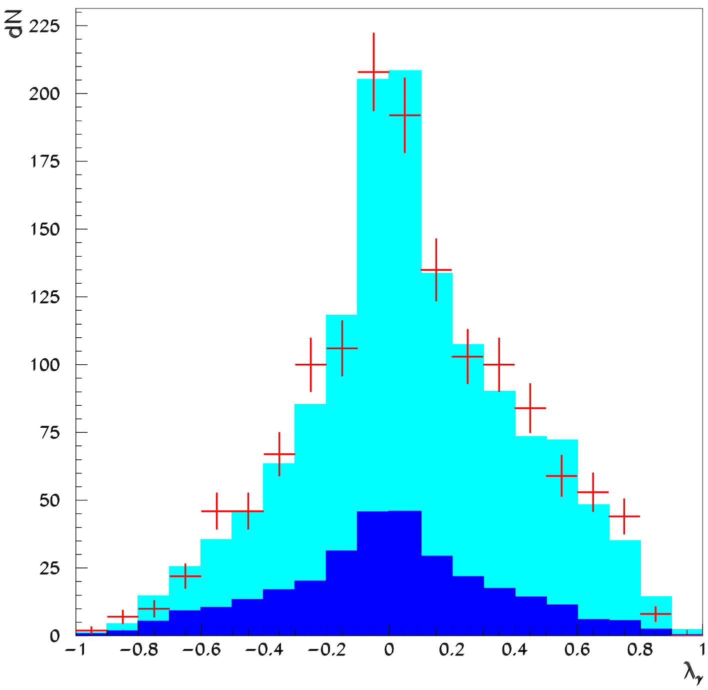
Distribution of charge weighted $\cos\theta_W$:

$$XQ = P_{W-}(\Delta Q)\cos\theta_W - (1 - P_{W-}(\Delta Q))\cos\theta_W$$

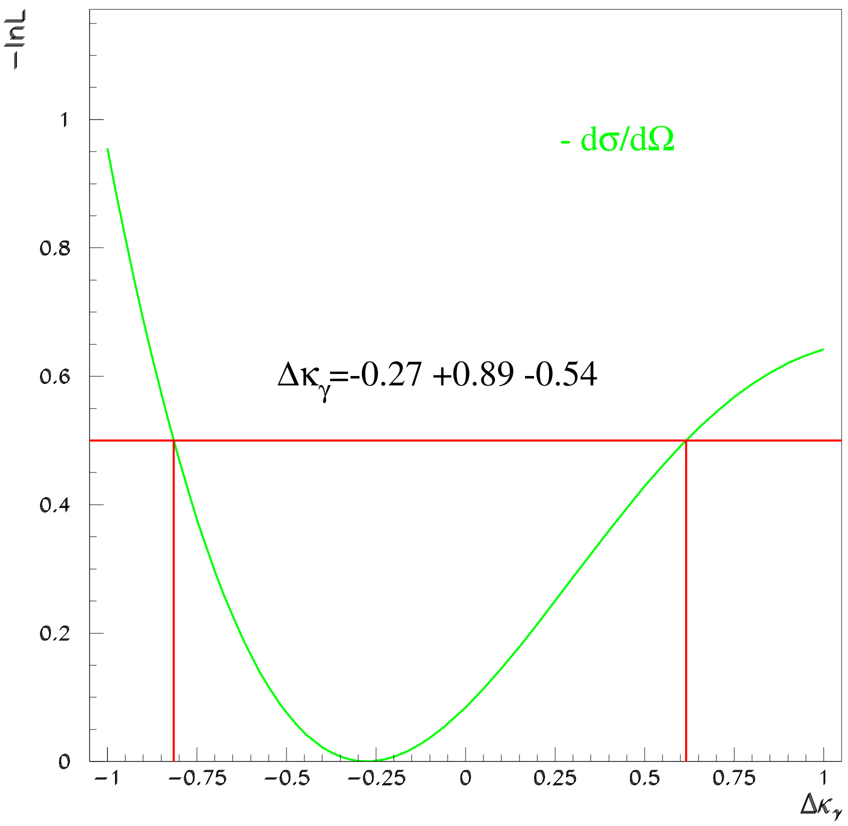


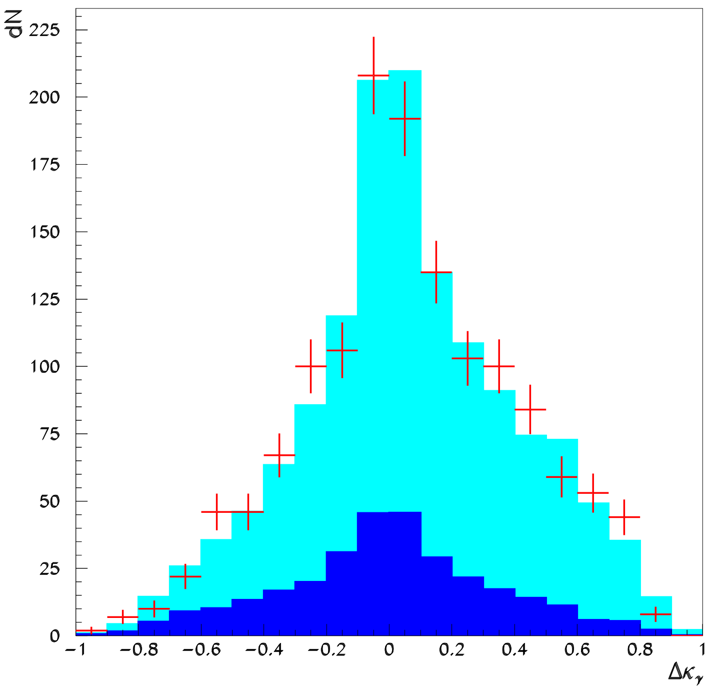
Best data-MC match for $\Delta g_Z^1 = -0.1$.





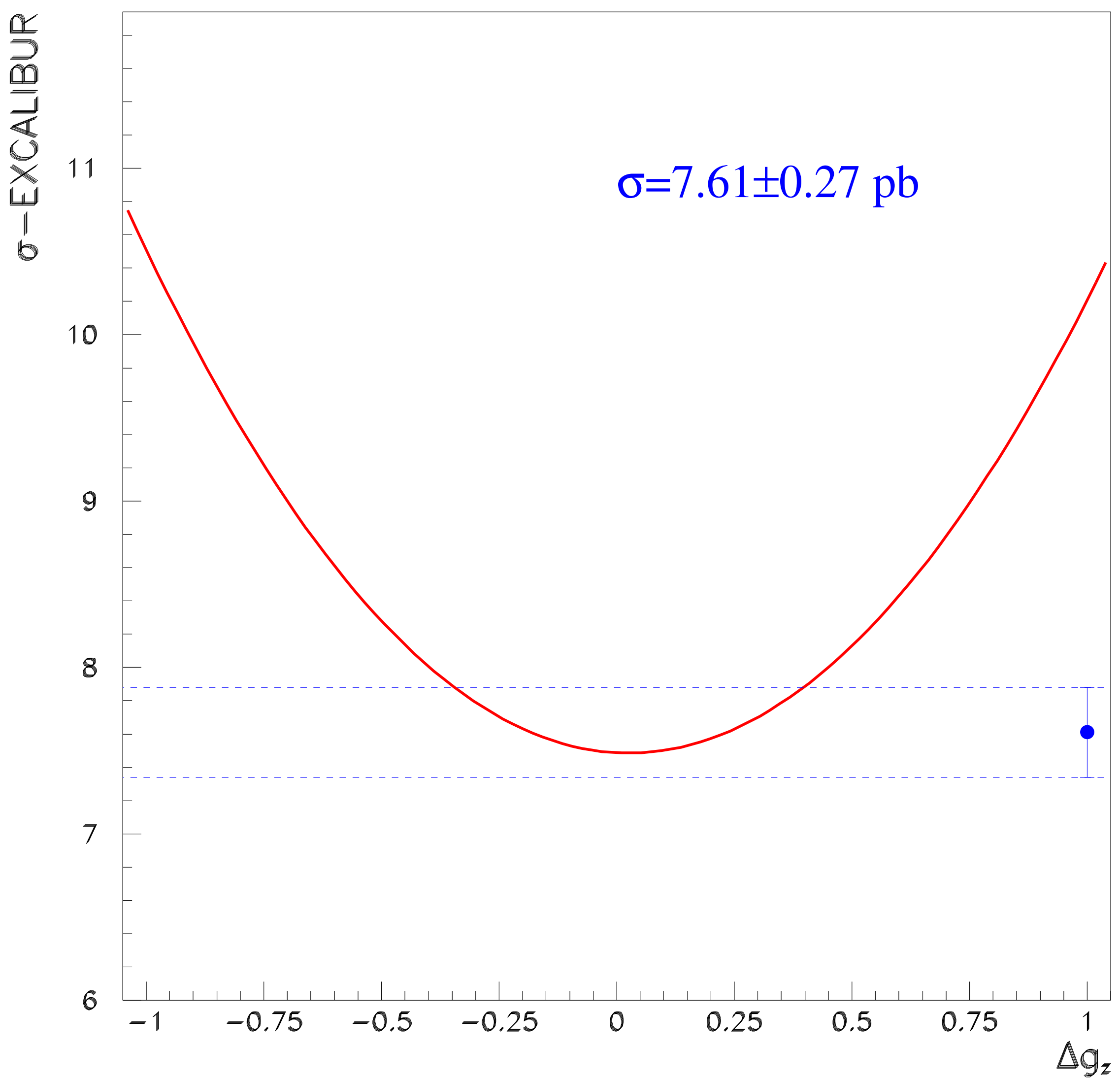
Best data-MC match for $\lambda_\gamma = -0.1$.



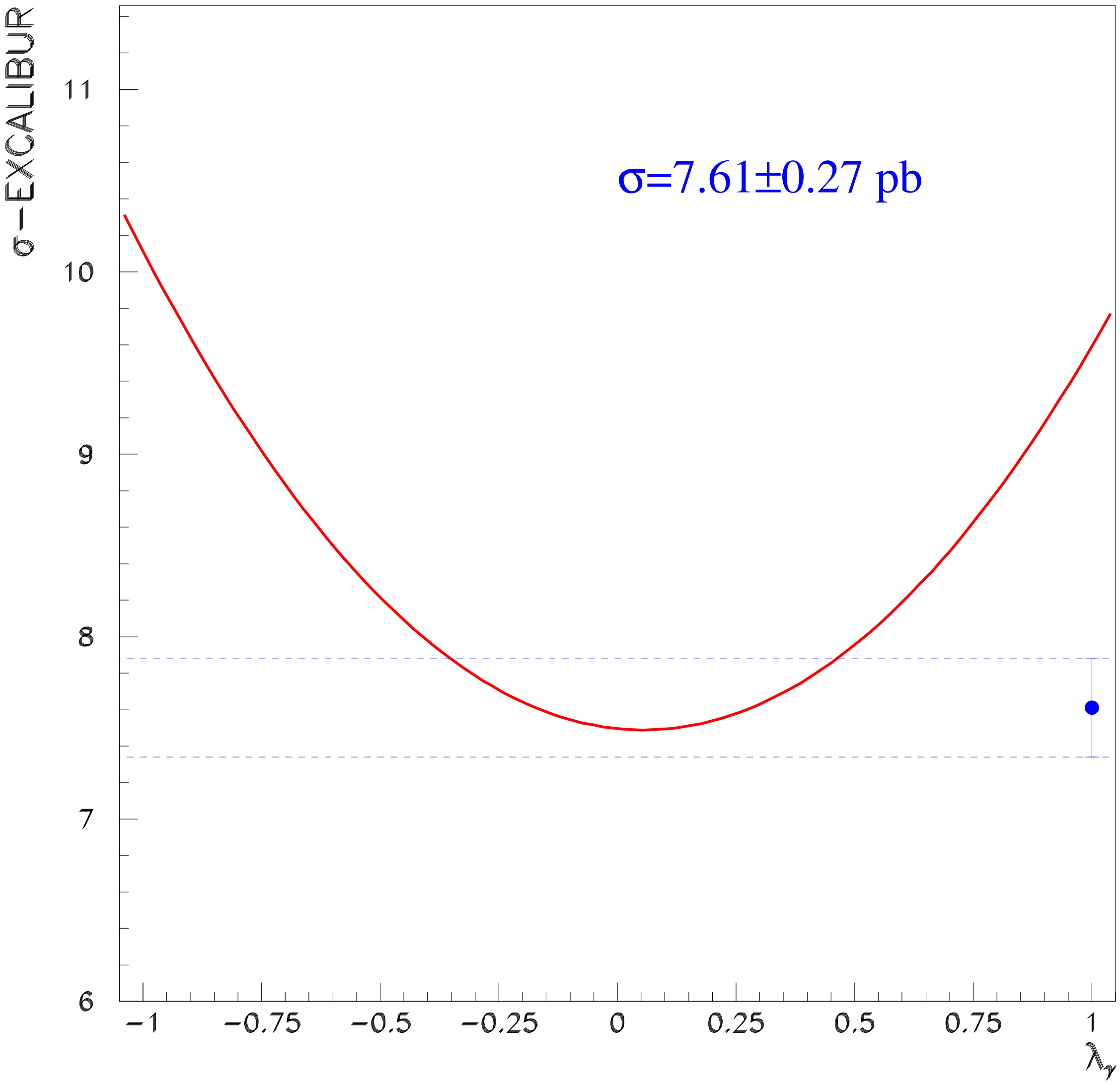


Best data-MC match for $\Delta\kappa_\gamma = -0.2$.

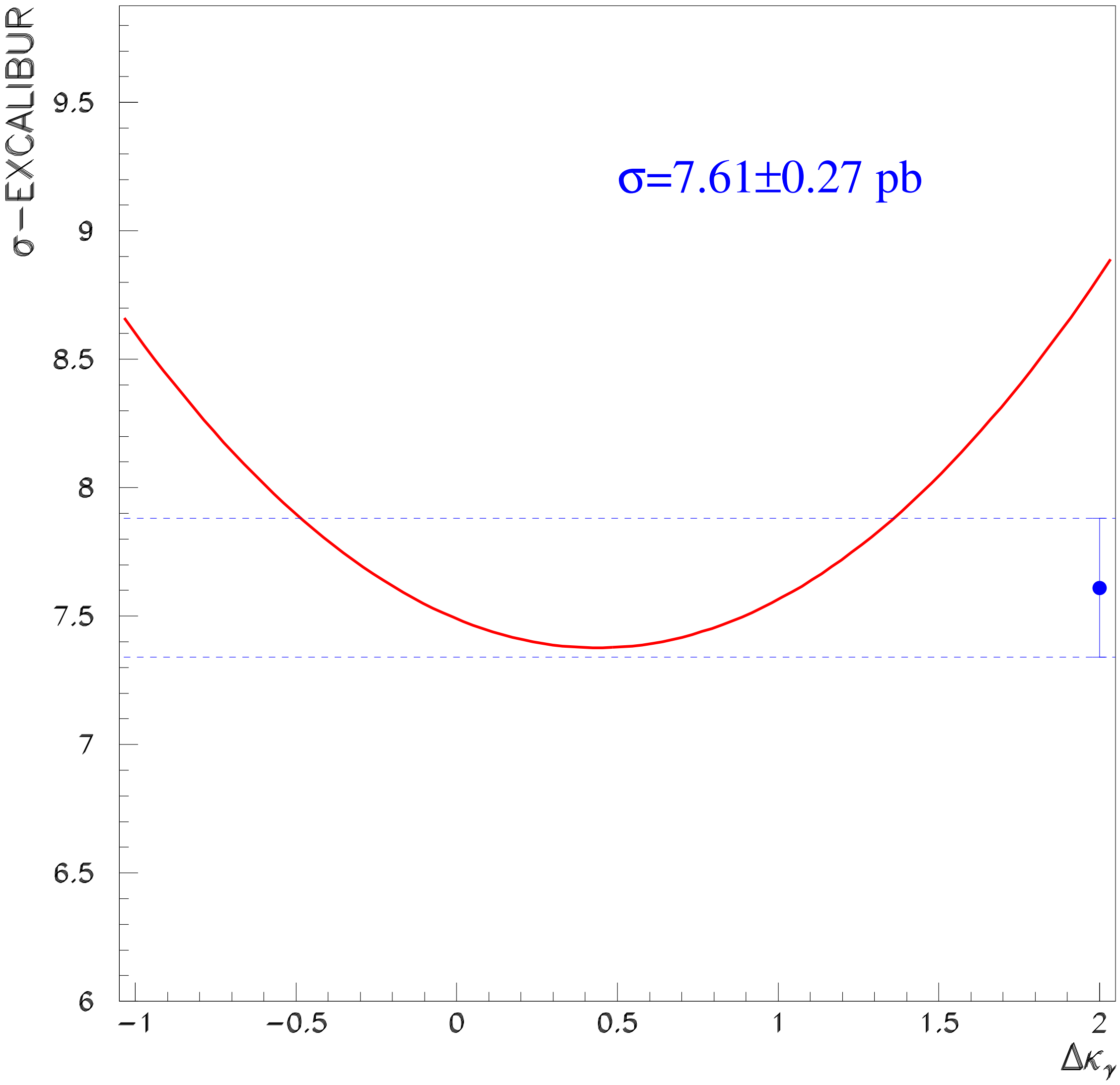
$4q$ cross-section



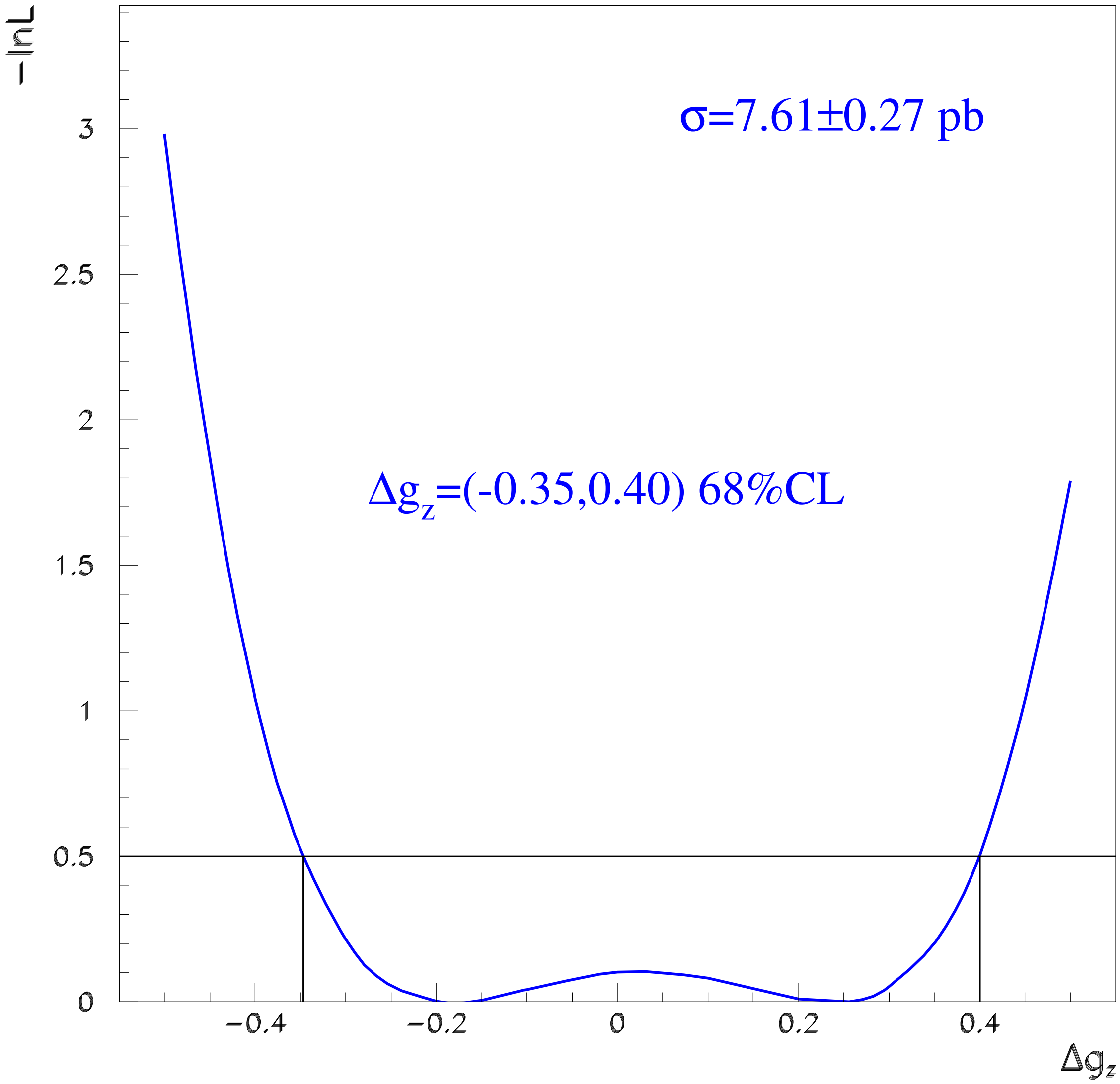
Cross-section dependence on Δg_Z^1.



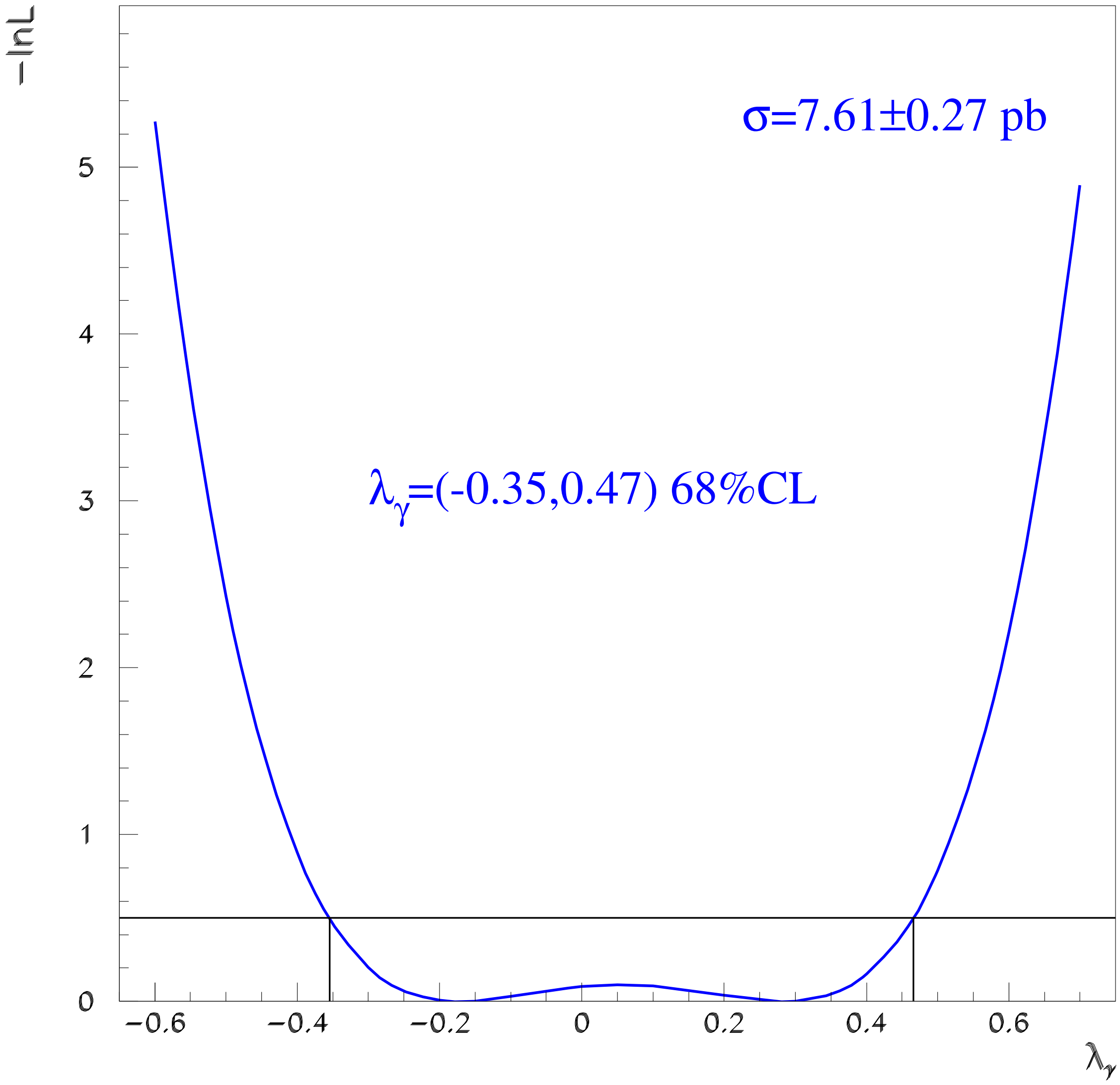
Cross-section dependence on λ_γ.



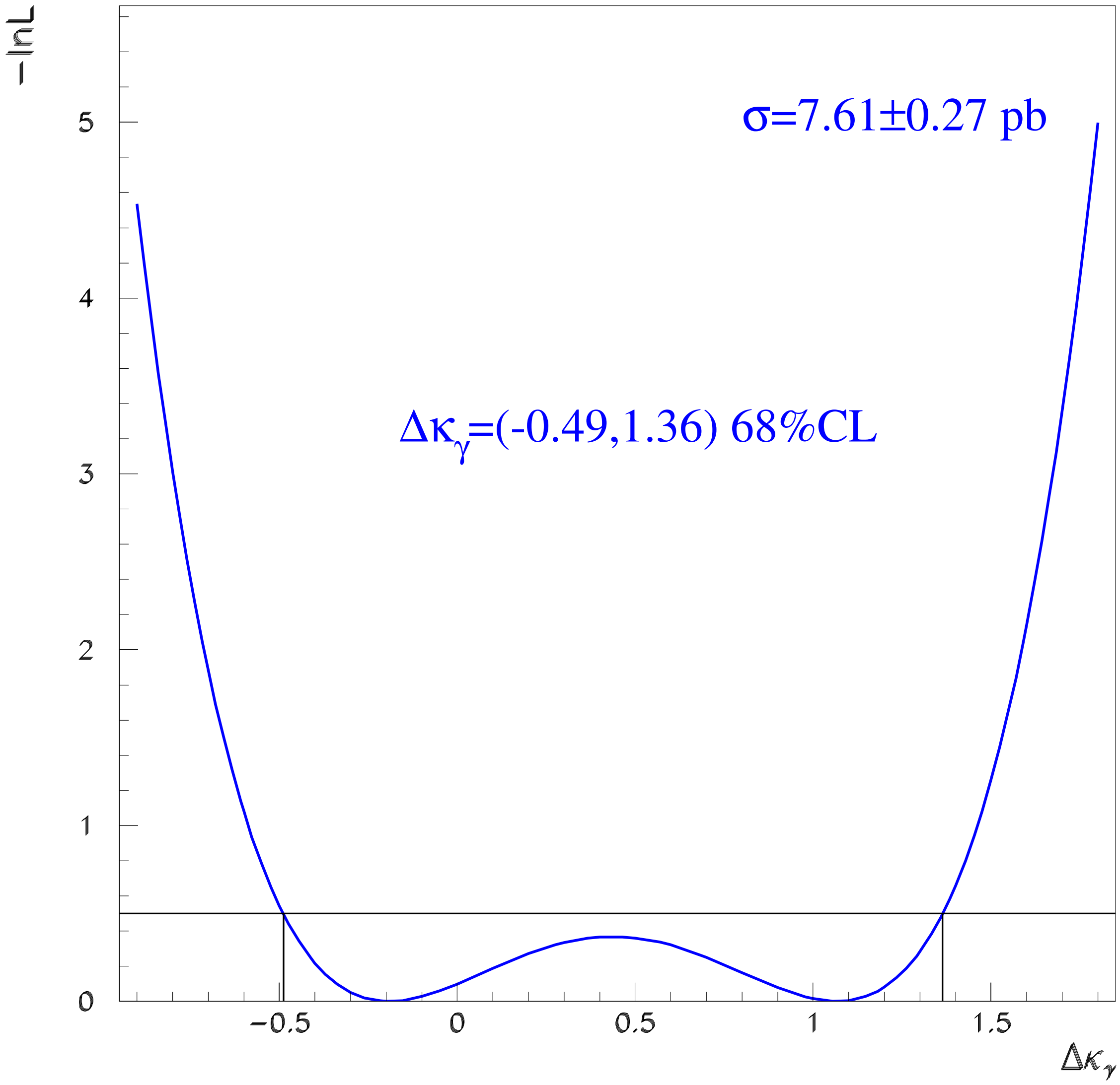
Cross-section dependence on $\Delta\kappa_\gamma$.



Log likelihood for cross-section dependence on Δg_Z^1.

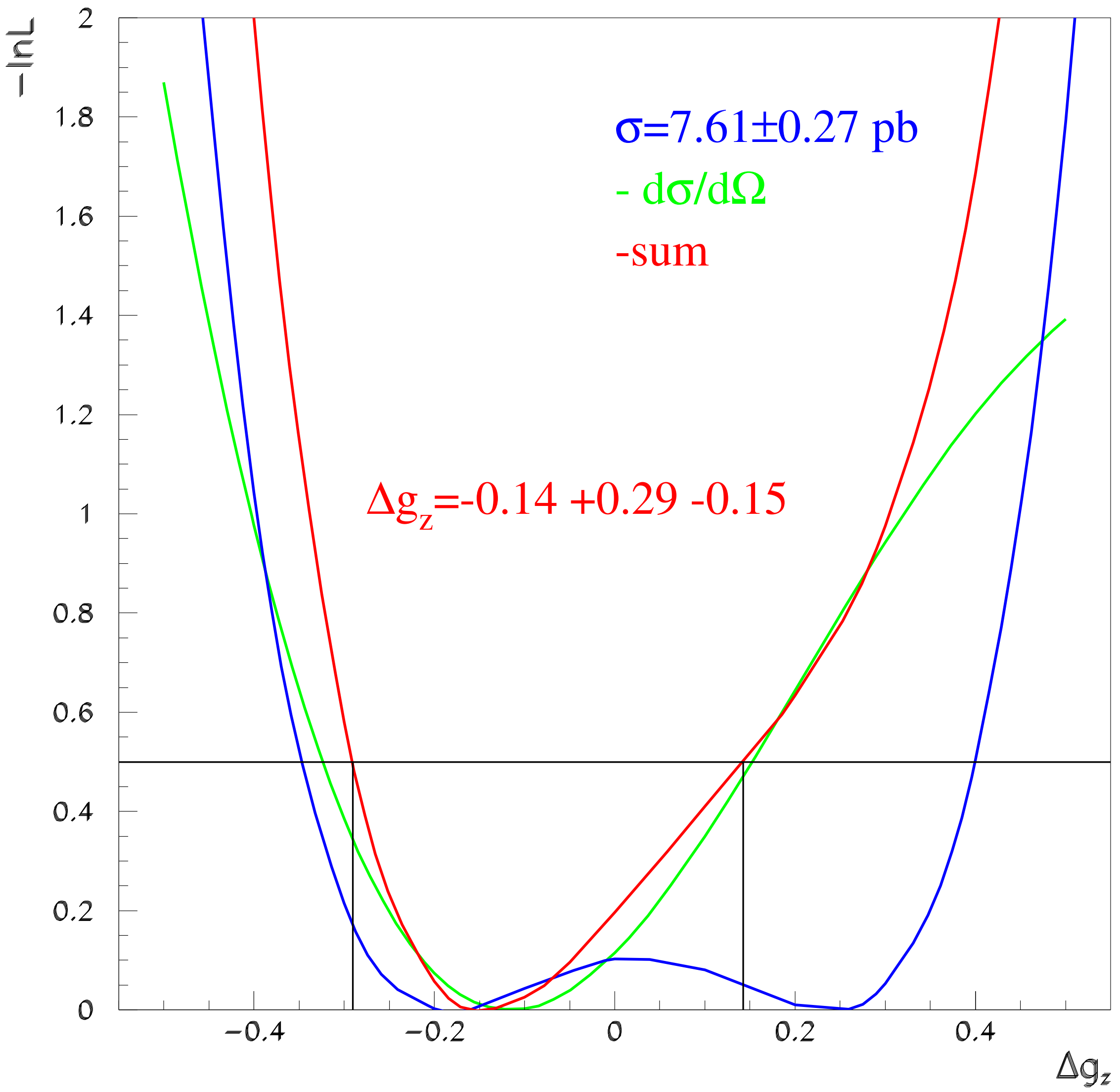


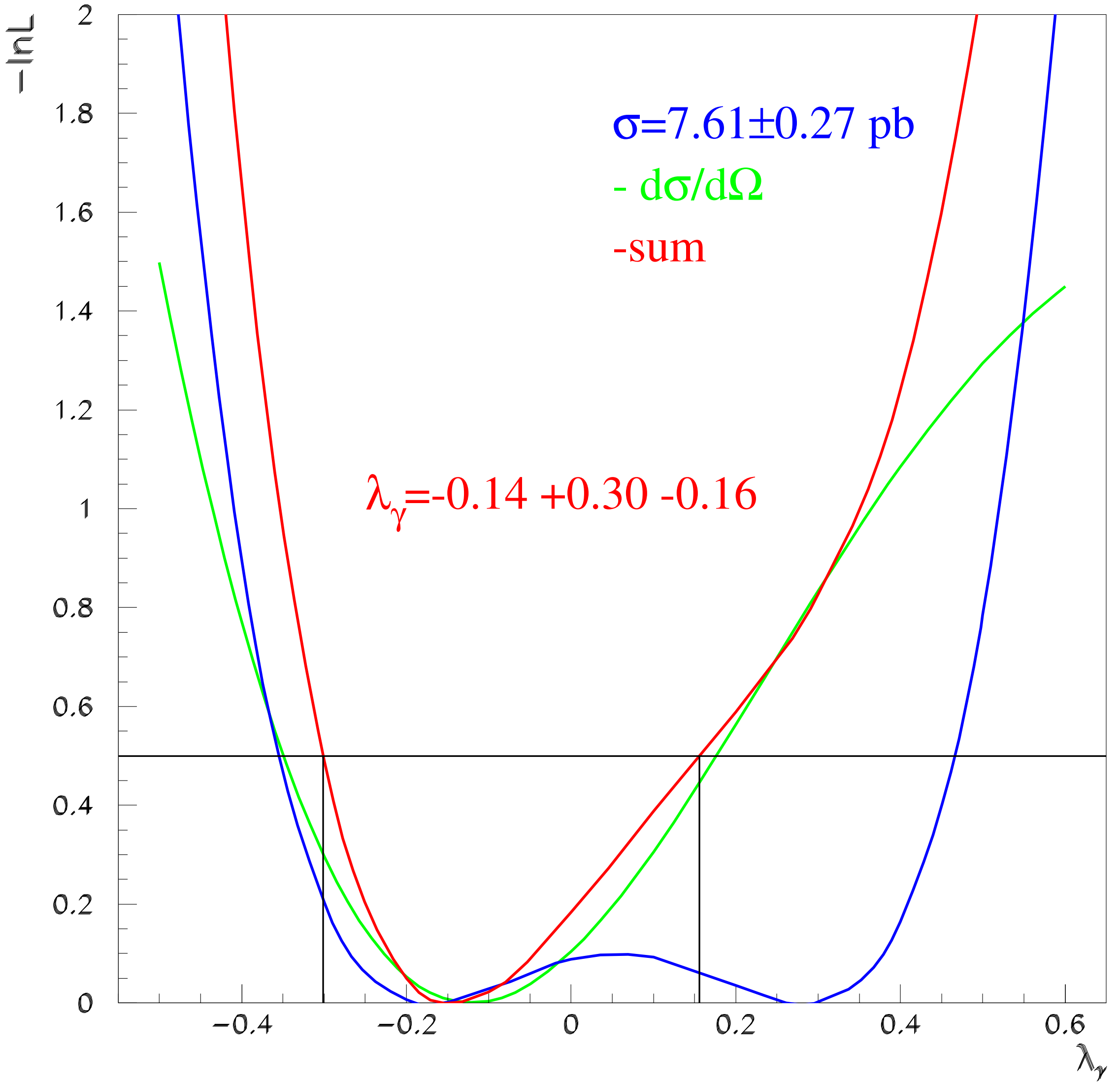
Log likelihood for cross-section dependence on λ_γ.



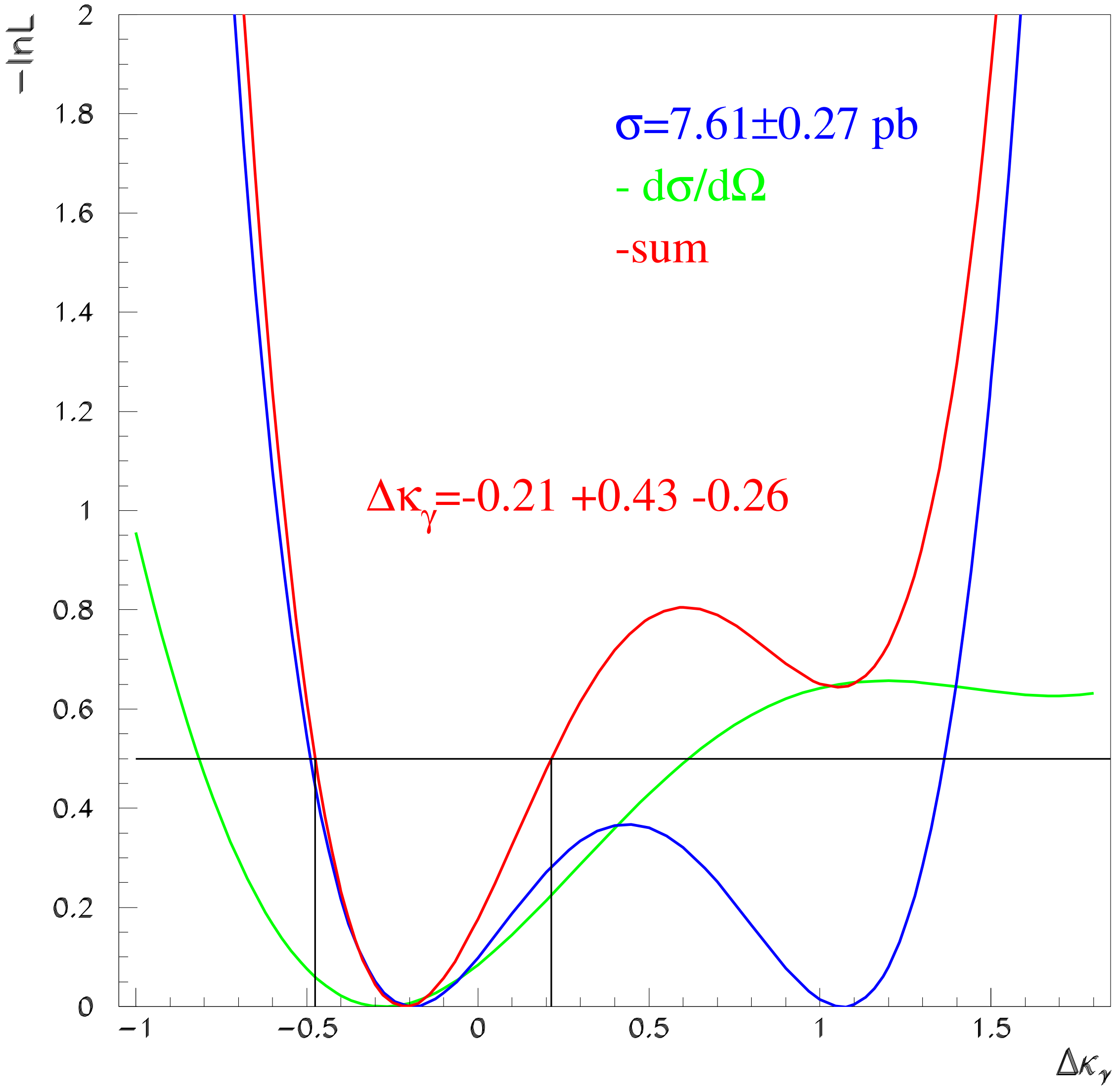
Log likelihood for cross-section dependence on $\Delta\kappa_\gamma$.

Combined results





Combined log likelihood for λ_γ using distribution and cross-section dependence.



Combined log likelihood for $\Delta\kappa_\gamma$ using distribution and cross-section dependence.

Conclusion

Results:

method	Δg_z	λ_γ	$\Delta\kappa_\gamma$
distribution	-0.12 $^{+0.27}_{-0.21}$	-0.12 $^{+0.30}_{-0.23}$	-0.27 $^{+0.89}_{-0.54}$
σ	[-0.35,0.40]	[-0.35,0.47]	[-0.49,1.36]
combined	-0.14 $^{+0.29}_{-0.15}$	-0.14 $^{+0.30}_{-0.16}$	-0.21 $^{+0.43}_{-0.26}$