

# smaller errors after including correlations in the fit?

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Hi,

I wonder if my code is bugged, please help.  
If my fit (based on the Marquardt algorithm)  
result for the uncorrelated case  
 $CHI2 = \sum_i [(data - theory) / \text{stat error}]^2$   
gives let's say  $A \pm 50$   
(where I have used only statistical errors)

But for the correlated case, were general chisquared:  
 $CHI2 = \sum_{ij} (data - theory)_i (V_{ij})^{-1} (data - theory)_j$   
where V is the covariance matrix and I add the statistical errors  
in quadrature to the diagonal elements  
the fit gives  $A \pm 30$

is it physically possible to get smaller errors and what does that  
mean???  
HELP PLEASE!!

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