$\mathbf{p(e,e'p)\omega^0}$ Plots with Diamond Cut
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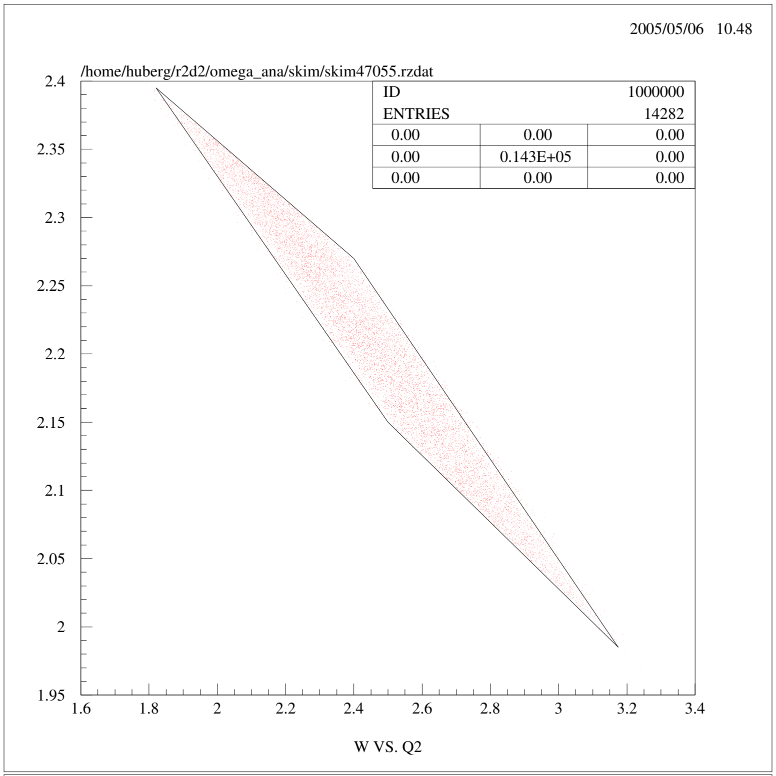
New fits are shown after a "diamond" cut to equalize the Q^2-W acceptance at low and high ϵ is applied. At high ϵ, the fits are improved compared to without the diamond cut, but still poor. The ρ^0 and ω^0 MC multipliers are generally consistent with their previous values.

As the diamond cut eliminates 2/3 of the high ϵ events, MC statistics have been degraded, and this is shown especially in the scatter of the ρ^0 MC distributions. Because of this, I have not yet divided the data into multiple missing mass bins. Since the ω^0 MC contributes almost exclusively to the middle M_x bin, one can use it to get a rough idea of the M_x dependence of the various distributions.



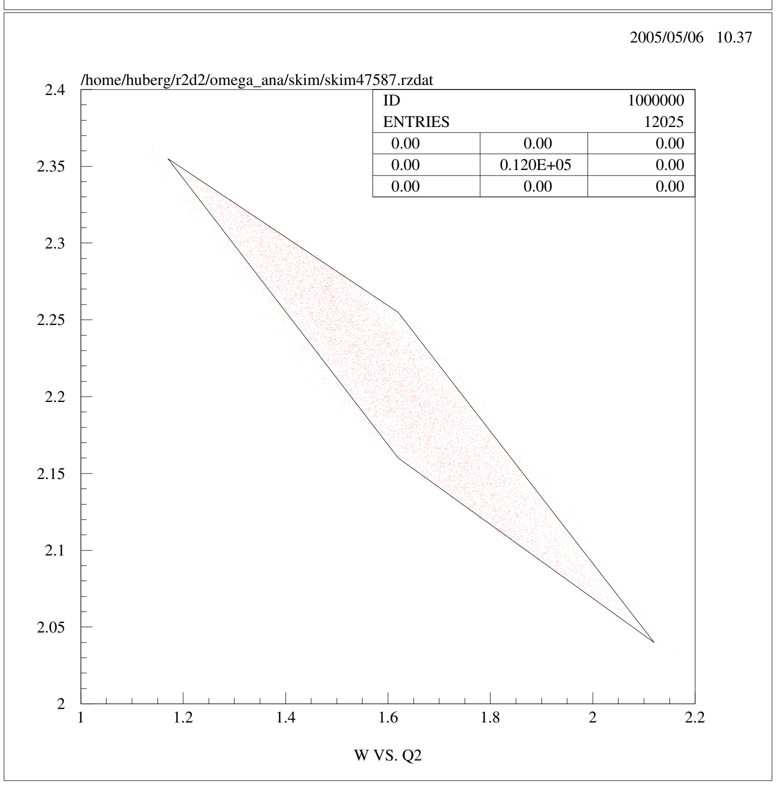


Figure 1: Q^2-W diamond cuts used at $Q^2 = 2.45$ (top) and $Q^2 = 1.60$ bottom. In both cases, only low ϵ data are shown.

1 $\mathbf{Q^2}$ =2.45 $\mathbf{GeV^2}$ $\epsilon = \mathbf{0.54}$

Fit parameters after the diamond cut is applied are given in the table below for all three HMS settings.

	Counts	Fit Fraction	MC multiplier
Central HMS $\theta_{pq} = 00$			
Data	10533		
Omega	2191	0.208	19.2
Rho	8663	0.823	123.8
Right HMS $\theta_{pq} = +3$			
Data	12247		
Omega	3108	0.254	17.8
Rho	9272	0.757	71.5
Left HMS $\theta_{pq} = -3$			
Data	10479		
Omega	1457	0.139	13.9
Rho	9767	0.932	236.1

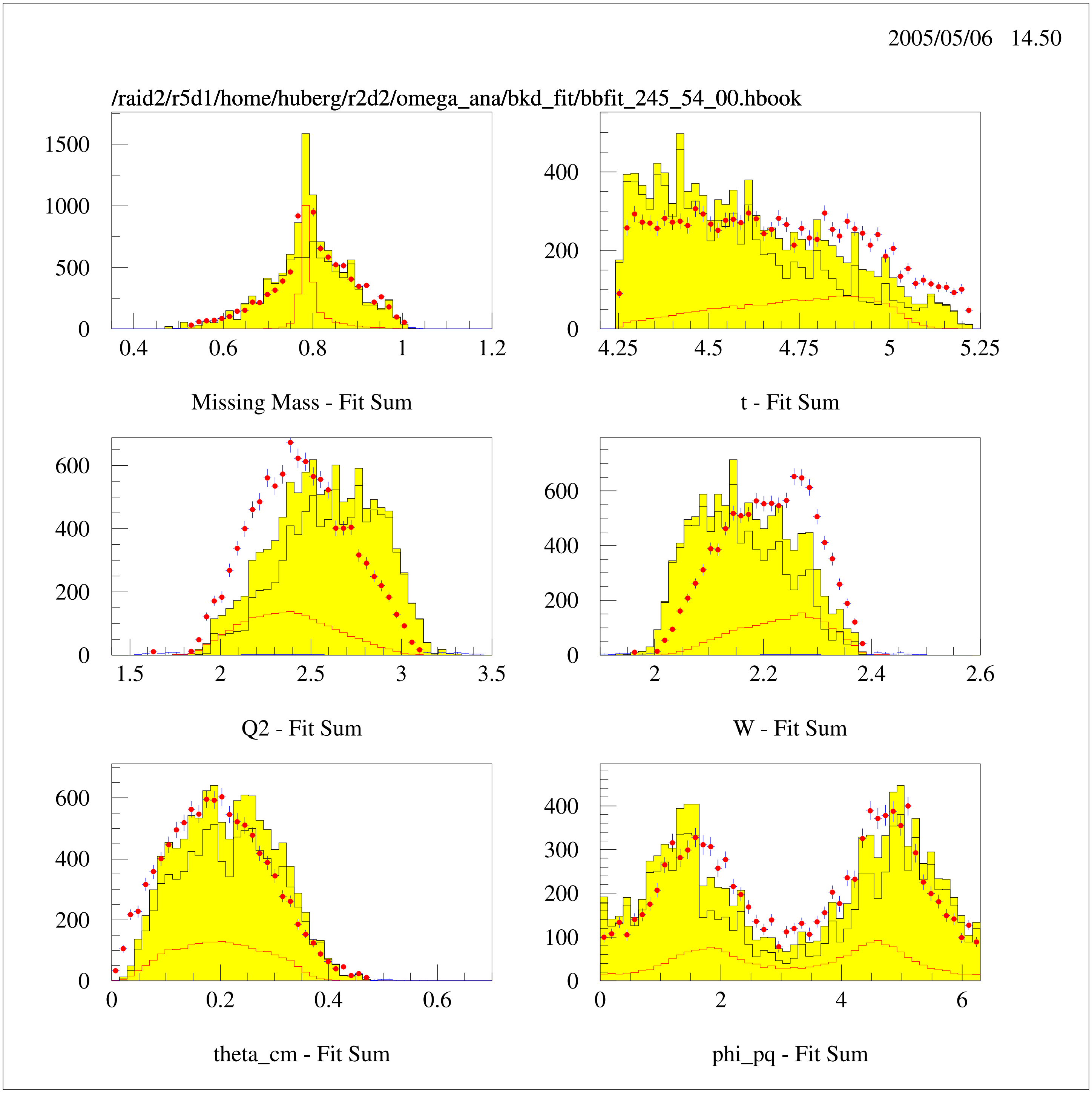


Figure 2: Fit to central HMS setting data at Q^2=2.45, ϵ=0.54. The red points are the experimental data, the red curve is the fit ω MC, the black curve the ρ MC and the yellow region the sum of the two MC's.

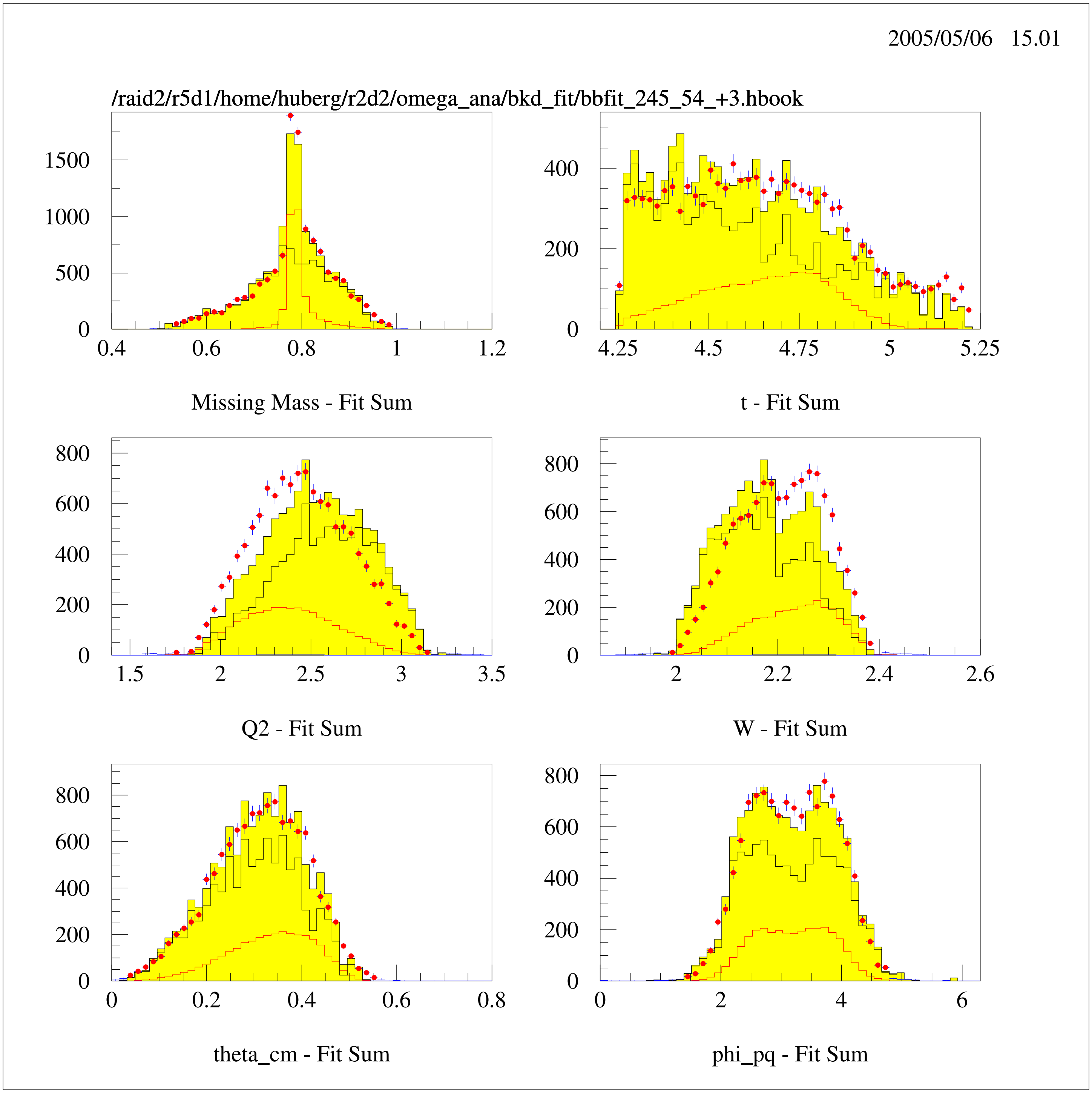


Figure 3: Fit to right HMS setting data at Q^2=2.45, ϵ=0.54. The red points are the experimental data, the red curve is the fit ω MC, the black curve the ρ MC and the yellow region the sum of the two MC's.

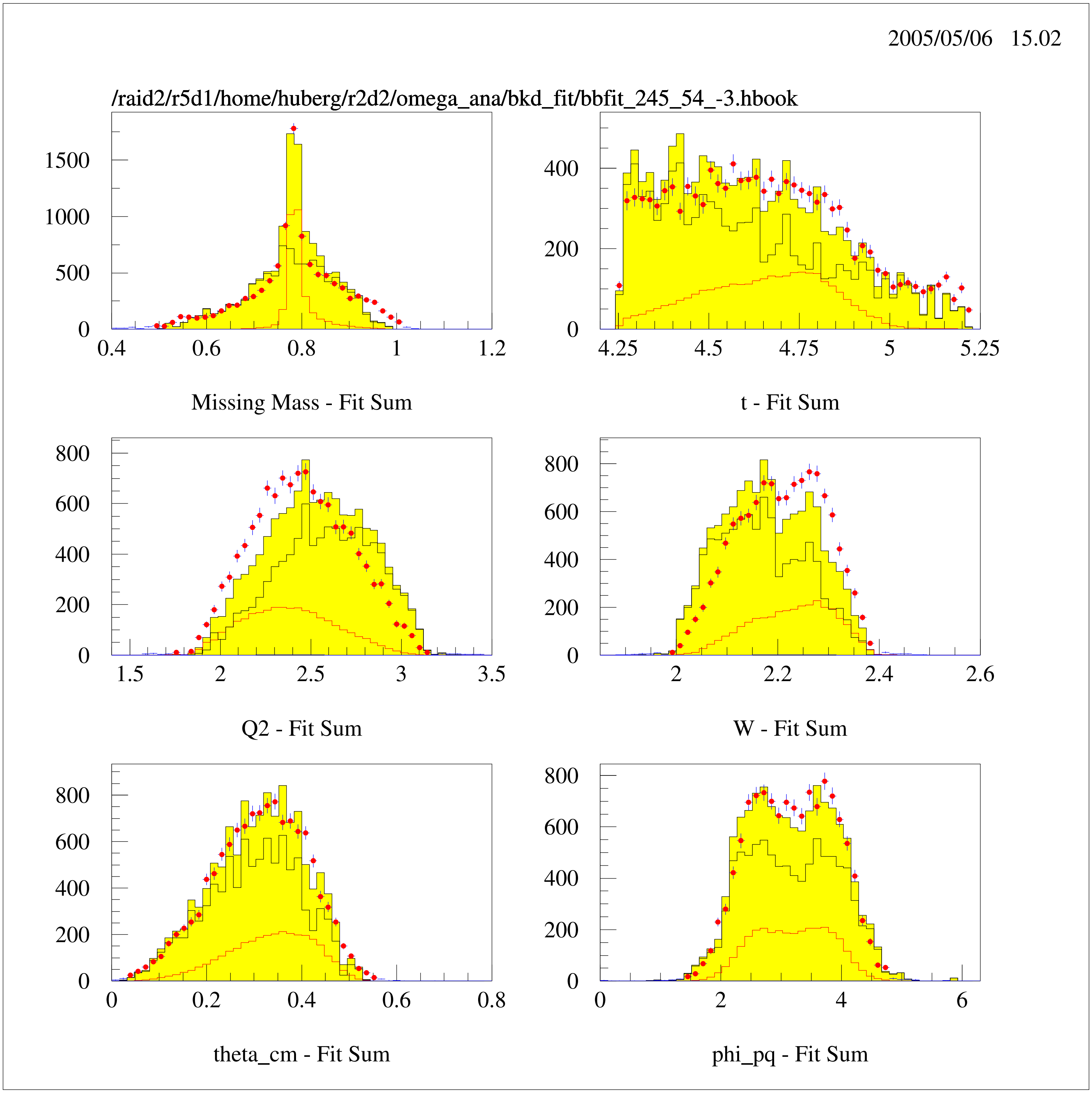


Figure 4: Fit to left HMS setting data at Q^2=2.45, ϵ=0.54. The red points are the experimental data, the red curve is the fit ω MC, the black curve the ρ MC and the yellow region the sum of the two MC's.

2 $\mathbf{Q^2}$ =2.45 $\mathbf{GeV^2}$ $\epsilon = \mathbf{0.27}$

The diamond cut has almost no effect upon the low ϵ $Q^2 = 2.45$ data. New fits are shown, for consistency sake.

	Counts	Fit Fraction	MC multiplier
Central HMS $\theta_{pq} = +1$			
Data	12850		
Omega	2962	0.231	20.1
Rho	9967	0.776	60.1
Right HMS $\theta_{pq} = +3$			
Data	13285		
Omega	3228	0.243	18.8
Rho	10134	0.763	50.6

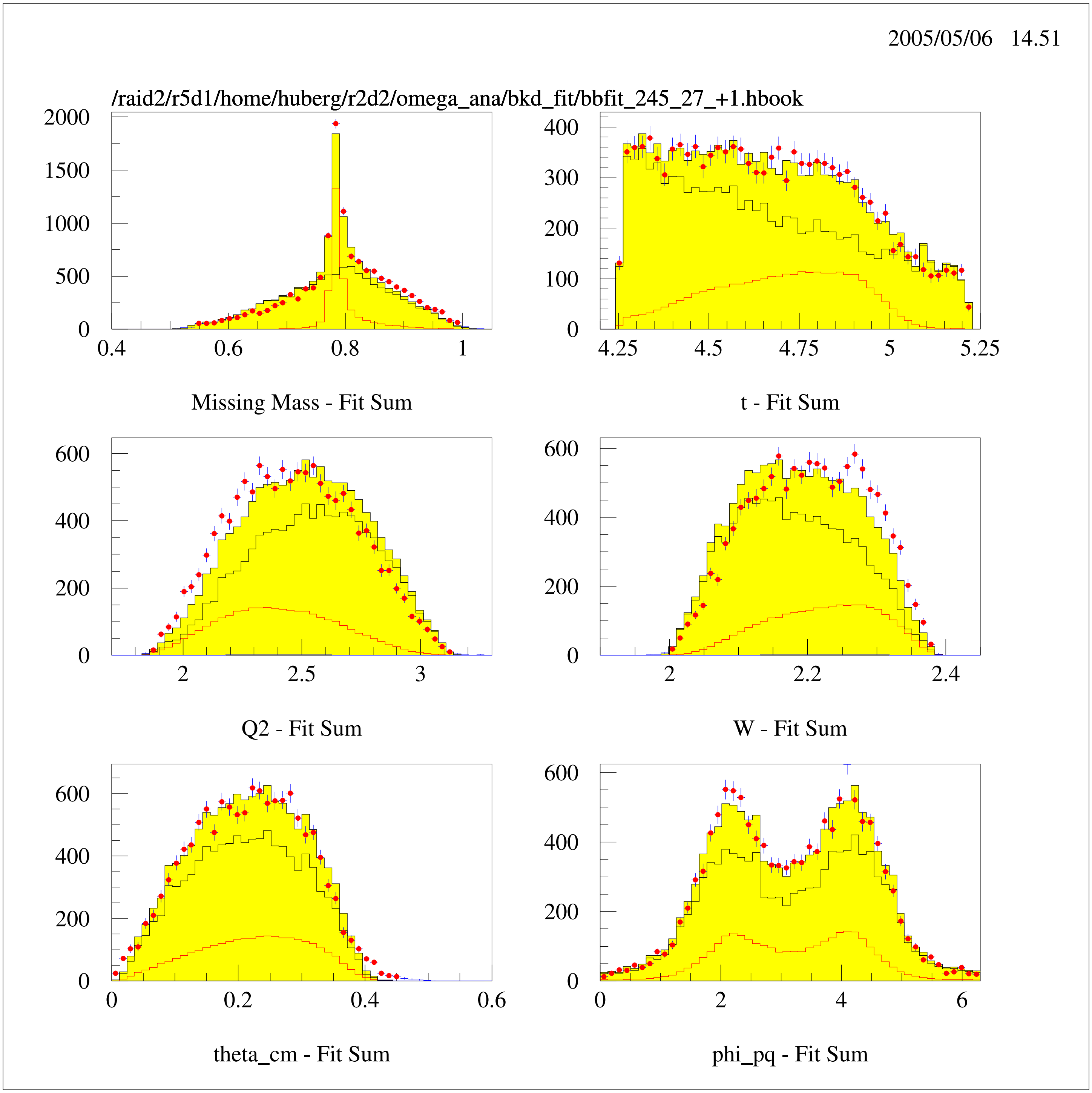


Figure 5: Fit to central HMS setting data at Q^2=2.45, ϵ=0.27. The red points are the experimental data, the red curve is the fit ω MC, the black curve the ρ MC and the yellow region the sum of the two MC's.

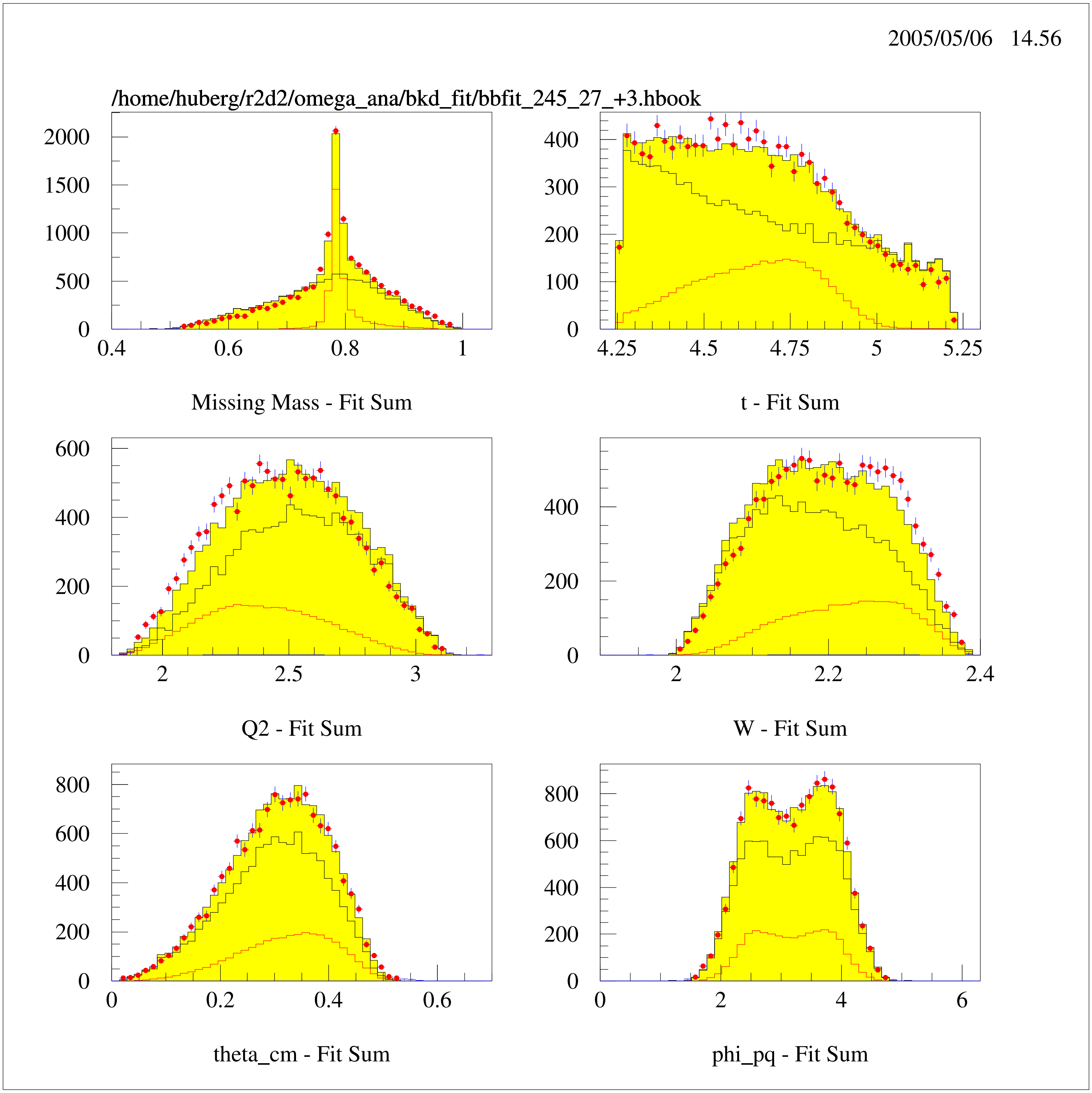


Figure 6: Fit to right HMS setting data at Q^2=2.45, ϵ=0.27. The red points are the experimental data, the red curve is the fit ω MC, the black curve the ρ MC and the yellow region the sum of the two MC's.

3 $\mathbf{Q^2}$ =1.60 $\mathbf{GeV^2}$ $\epsilon = \mathbf{0.58}$

Fit parameters for all three HMS settings after the diamond cut is applied are given in the table below. Fit fractions do not sum to 1 because of fitting uncertainty.

	Counts	Fit Fraction	MC multiplier
Central HMS $\theta_{pq} = 00$			
Data	8625		
Omega	597	0.069	3.3
Rho	8538	0.990	440.4
Right HMS $\theta_{pq} = +3$			
Data	10183		
Omega	1553	0.153	5.8
Rho	9350	0.918	266.9
Left HMS $\theta_{pq} = -3$			
Data	9471		
Omega	438	0.046	2.4
Rho	9375	0.990	720.3

The fitmissing mass distribution on the next page looks weird because of poor ρ^0 statistics remaining after all of the cuts. I will probably need to increase the number of ρ^0 generated events from 2.5 million to 10 million, per setting.

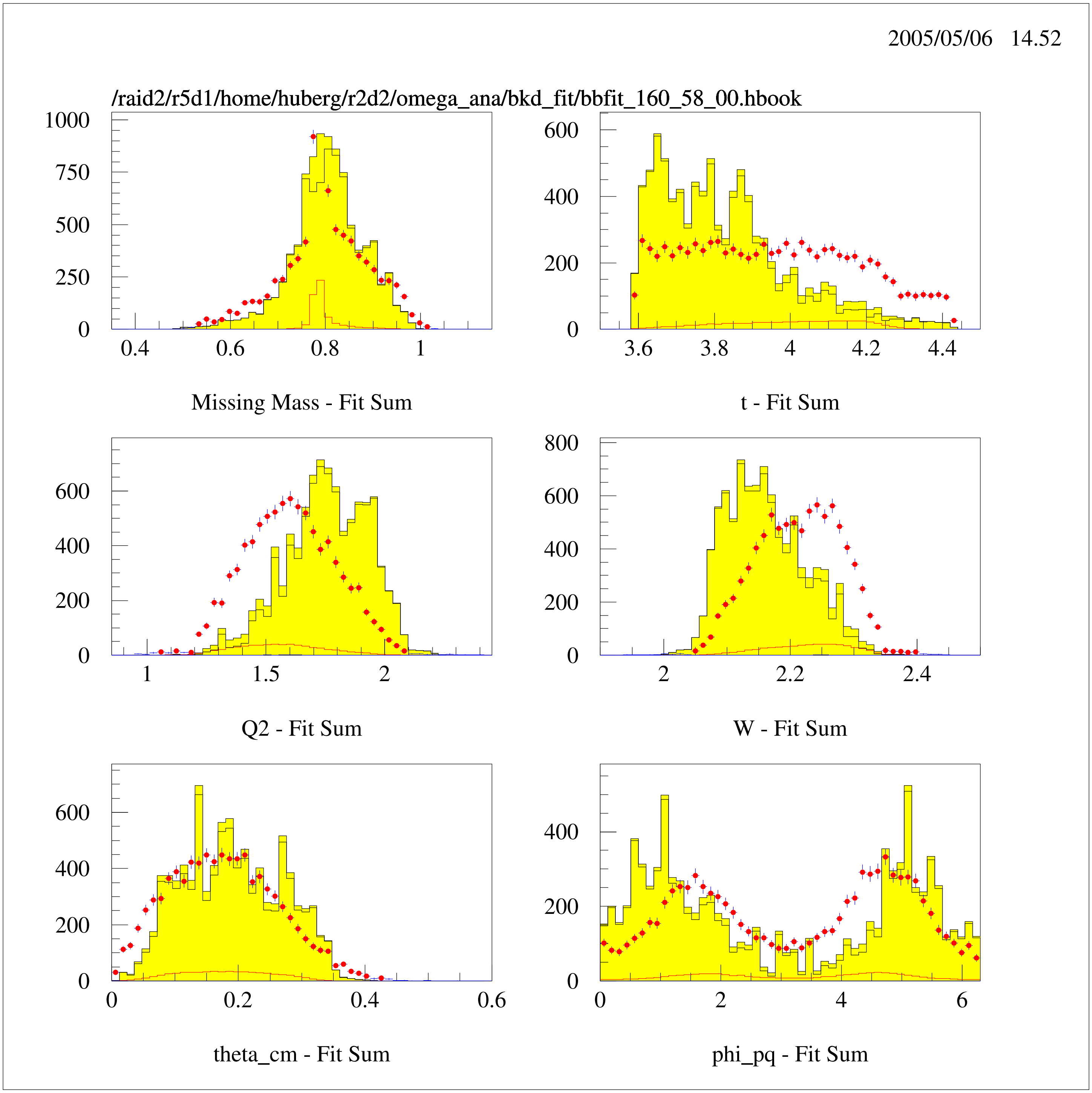


Figure 7: Fit to central HMS setting data at Q^2=1.60, ϵ=0.58. The red points are the experimental data, the red curve is the fit ω MC, the black curve the ρ MC and the yellow region the sum of the two MC's.

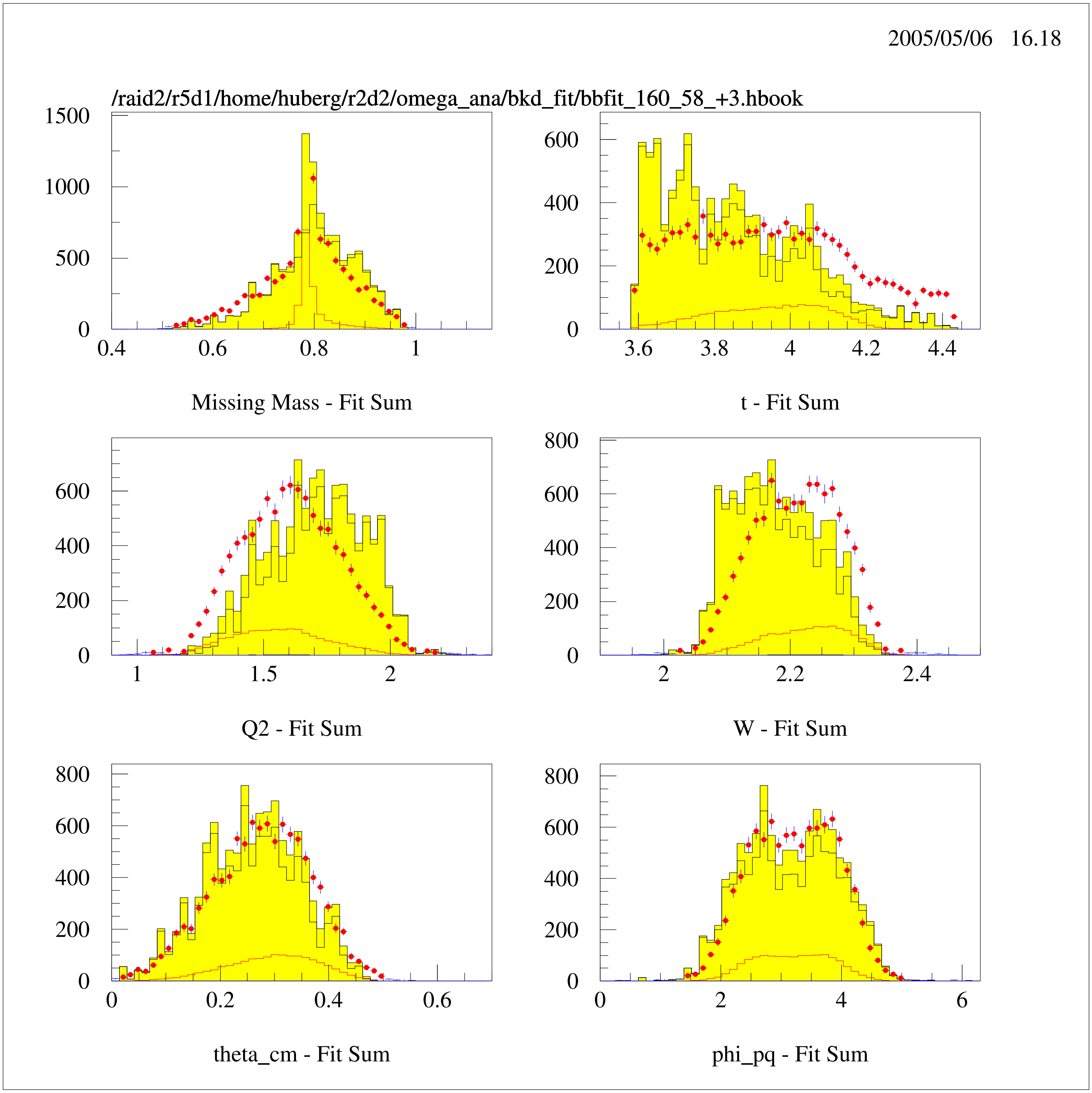


Figure 8: Fit to right HMS setting data at Q^2=1.60, ϵ=0.58. The red points are the experimental data, the red curve is the fit ω MC, the black curve the ρ MC and the yellow region the sum of the two MC's.

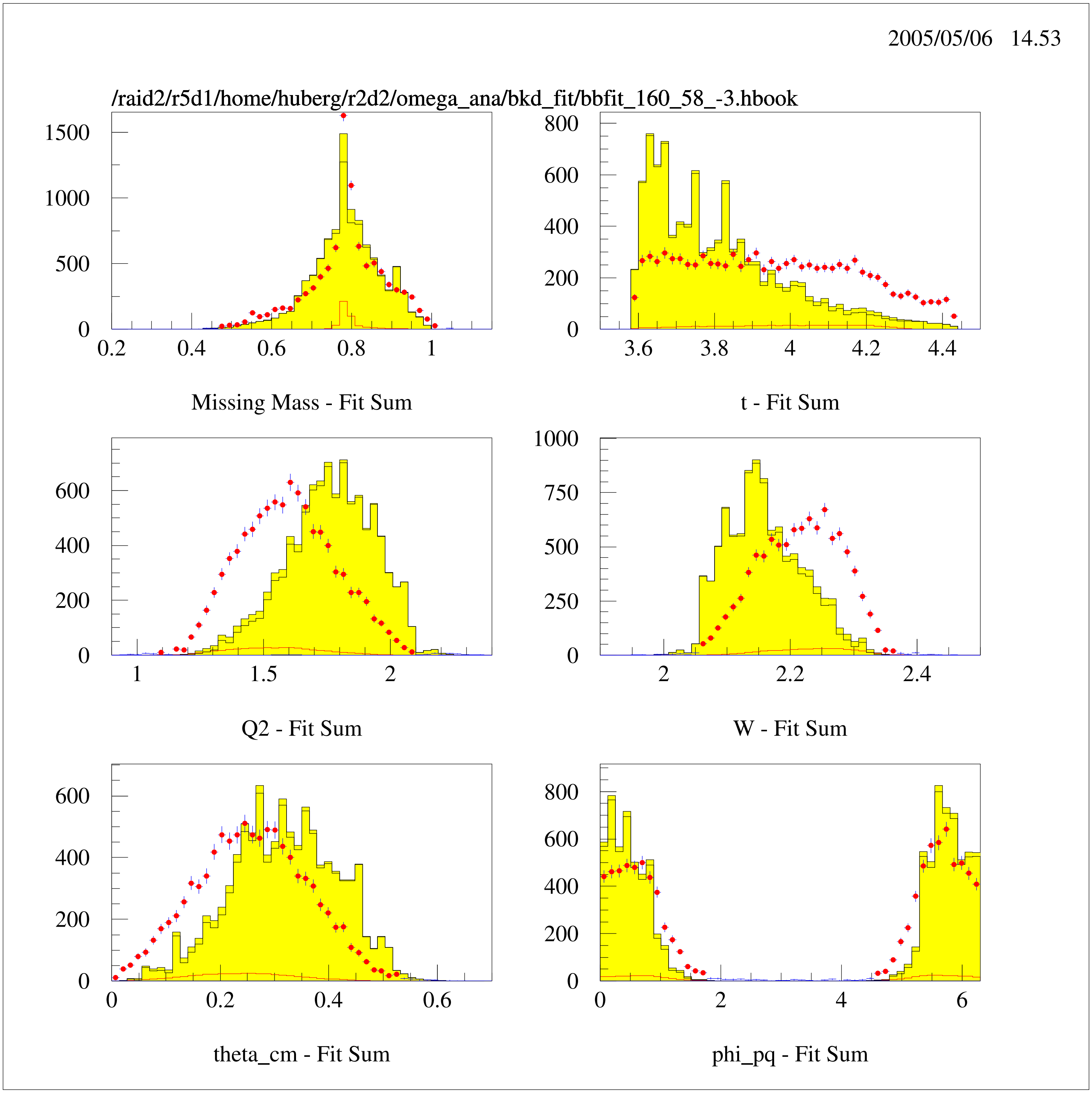


Figure 9: Fit to left HMS setting data at Q^2=1.60, ϵ=0.58. The red points are the experimental data, the red curve is the fit ω MC, the black curve the ρ MC and the yellow region the sum of the two MC's.

4 Q^2 =1.60 GeV^2 $\epsilon = 0.33$

The resulting fit parameters for the two remaining HMS settings are given in the table below.

	Counts	Fit Fraction	MC multiplier
Central HMS $\theta_{pq} = +1$			
Data	10277		
Omega	1876	0.183	8.5
Rho	8854	0.862	152.2
Right HMS $\theta_{pq} = +3$			
Data	11471		
Omega	2471	0.216	8.8
Rho	9257	0.807	109.2

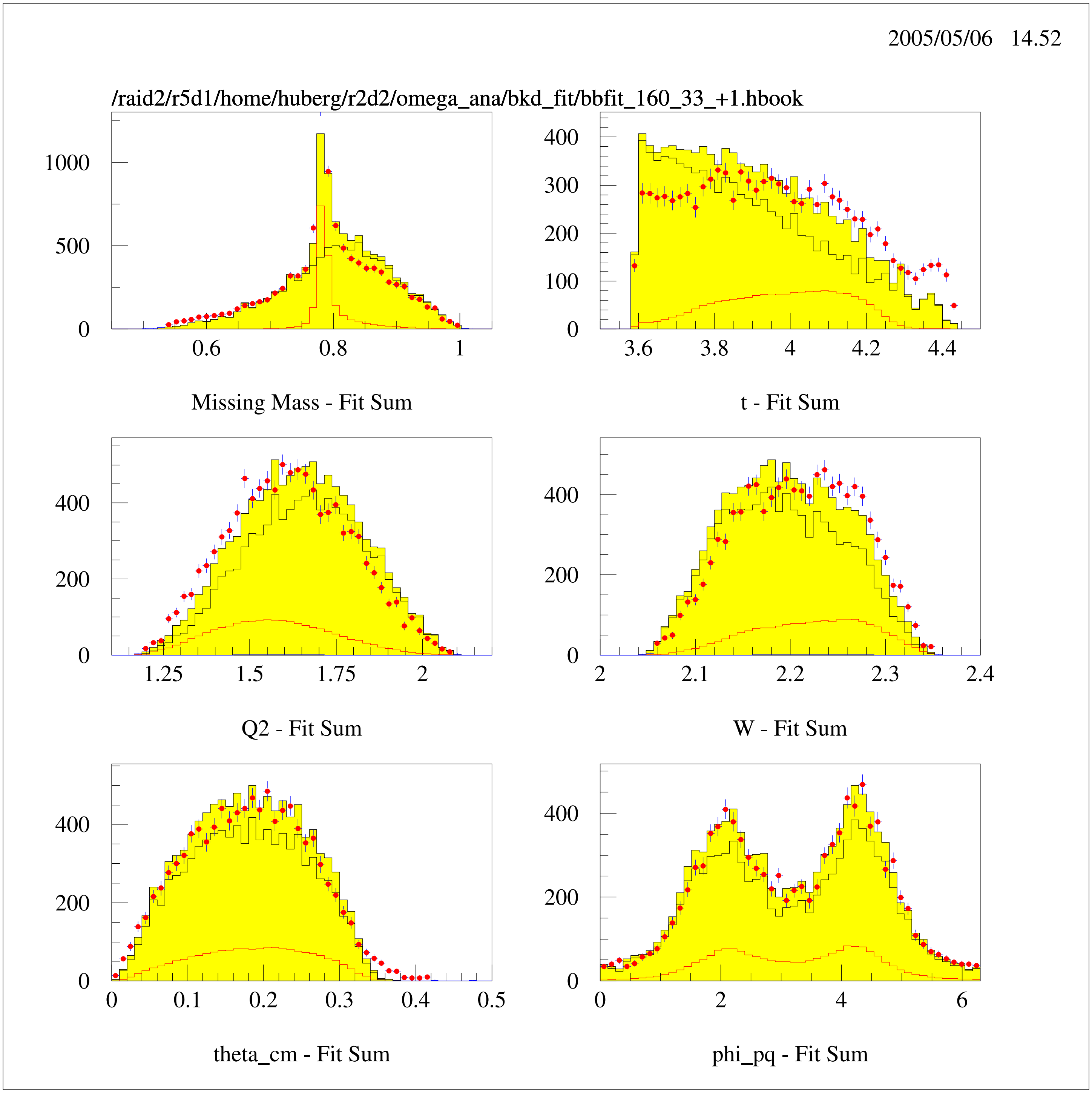


Figure 10: Fit to central HMS setting data at Q^2=1.60, ϵ=0.33. The red points are the experimental data, the red curve is the fit ω MC, the black curve the ρ MC and the yellow region the sum of the two MC's. For each $-t$ bin, ϕ distributions are shown for each of the four θ^* bins, in order of increasing θ^*_{pq}.

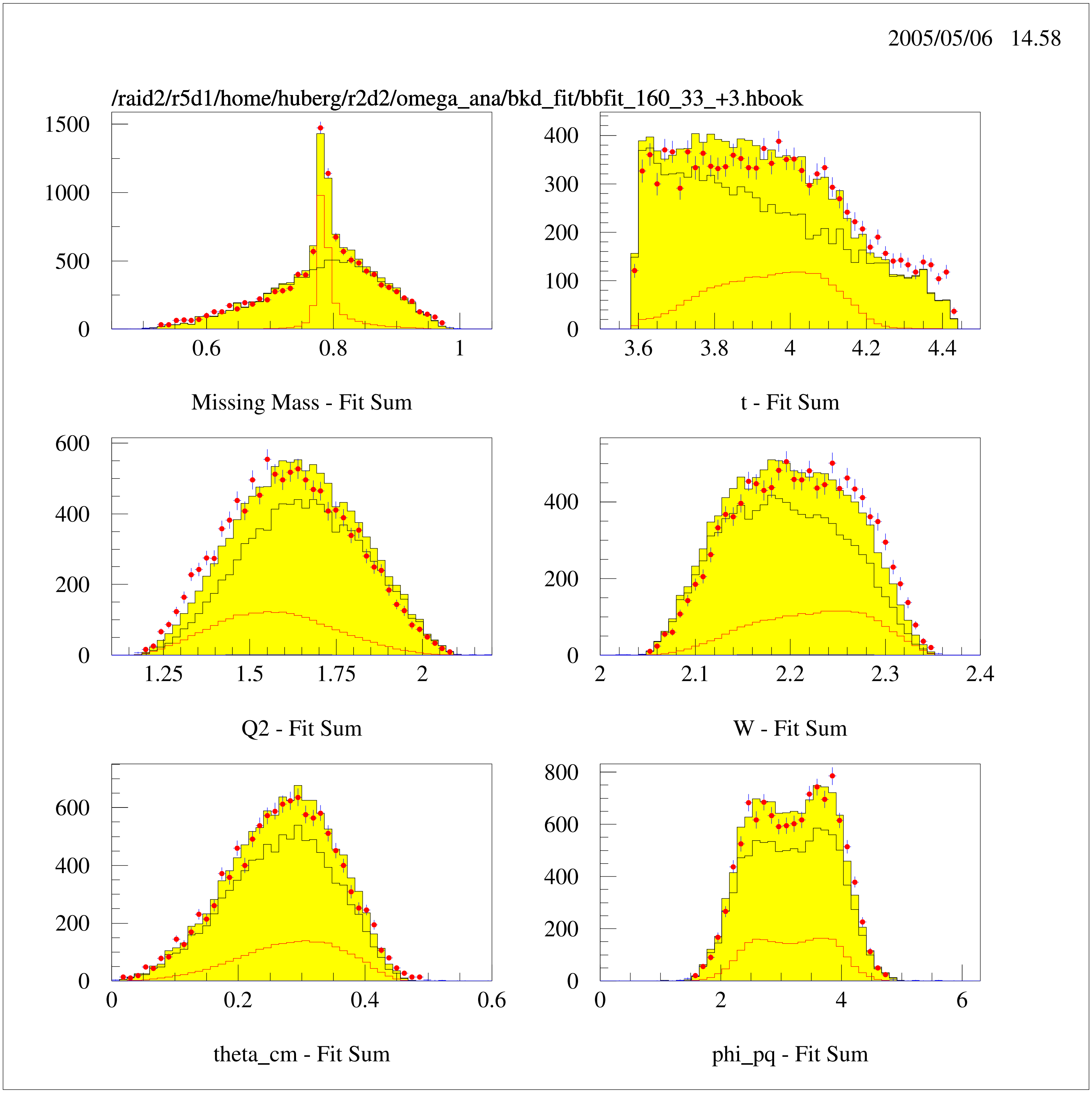


Figure 11: Fit to right HMS setting data at Q^2=1.60, ϵ=0.33. The red points are the experimental data, the red curve is the fit ω MC, the black curve the ρ MC and the yellow region the sum of the two MC's. For each $-t$ bin, ϕ distributions are shown for each of the four θ^* bins, in order of increasing θ^*_{pq}.