Input Variable and NN cuts

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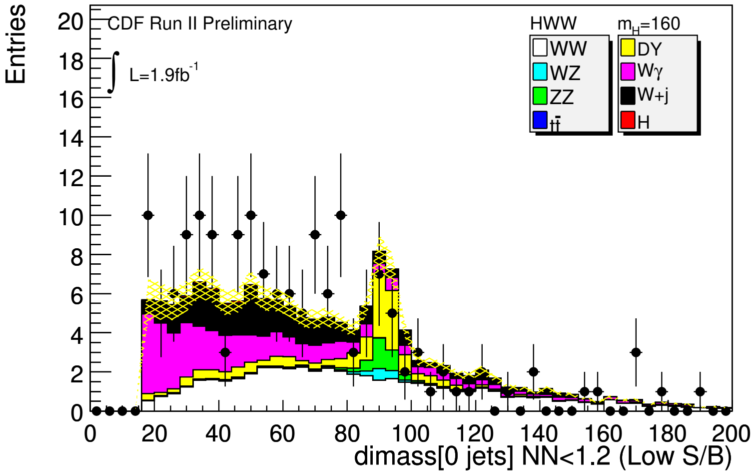
26 November 2007

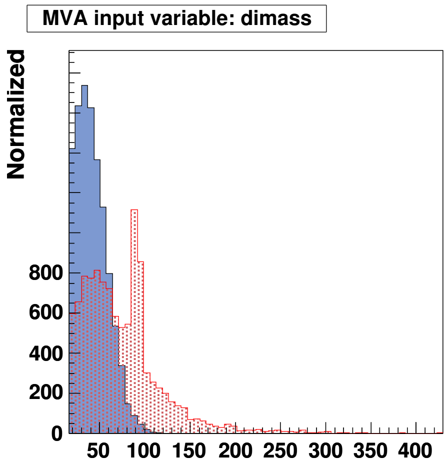
Examination of χ^2 and some plots

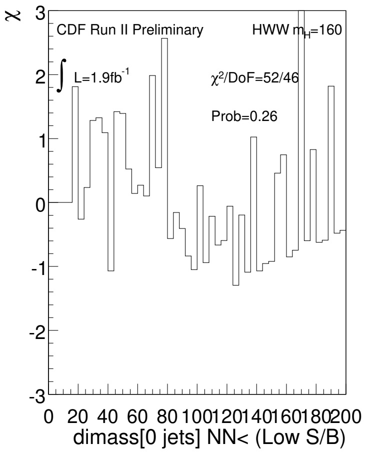
- Looked at distributions and χ^2 probabilities. Fixed them so that the DOF was counted for non-zero MC bins. Also, estimate error on data events from expected number of MC events.
- Picked out distributions that look bad in χ^2 and KS and are in the top six. Also looked at MetSig.
- Separated out distributions of by cutting on NNScore so that 80% of the signal is included or excluded when NN score is above/below cut. Re-evaluate KS Probability and χ^2.

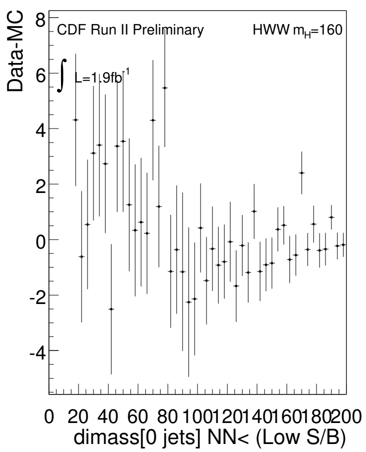
	High S/B 0 Jet			
Discriminant	KS Prob	χ^2/DOF	χ^2 Prob	Comment
LRHWW	0.05	62/50	0.11	Visual ok
dRLeptons	0.18	33/36	0.62	
dPhiLeptons	0.44	37/50	0.91	
dimass	0.58	63/46	0.05	Visual Ok
MetSpec	0.53	68/47	0.03	3 Evt in tail
Met	0.65	65/47	0.04	3 Evt in tail
	Low S/B 0 Jet			
Discriminant	KS Prob	χ^2/DOF	χ^2 Prob	Comment
LRHWW	0.04	65/50	0.08	χ^2 grow after 0.5
dRLeptons	0.23	33/42	0.84	
dPhiLeptons	0.76	56/50	0.25	
dimass	0.00	52/46	0.26	Show: High at Low Mass. See Signal
MetSpec	0.43	30/47	0.98	
Met	0.35	36/47	0.87	

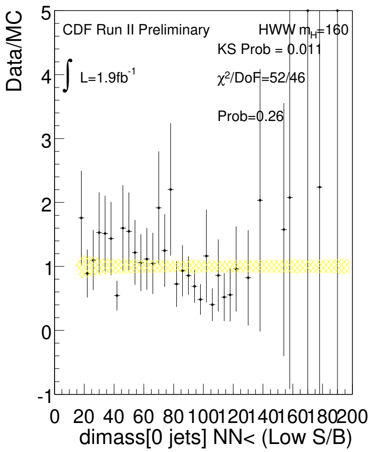
M_{ll}: Low S/B 0 Jet



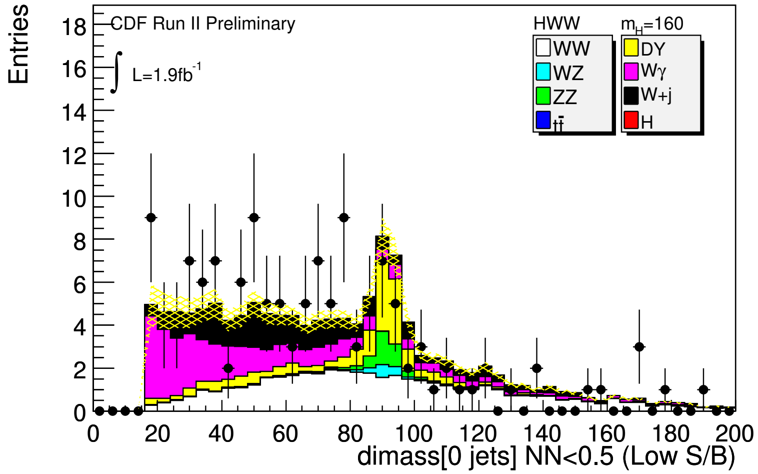


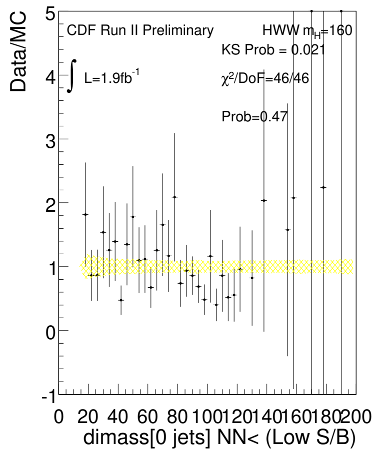


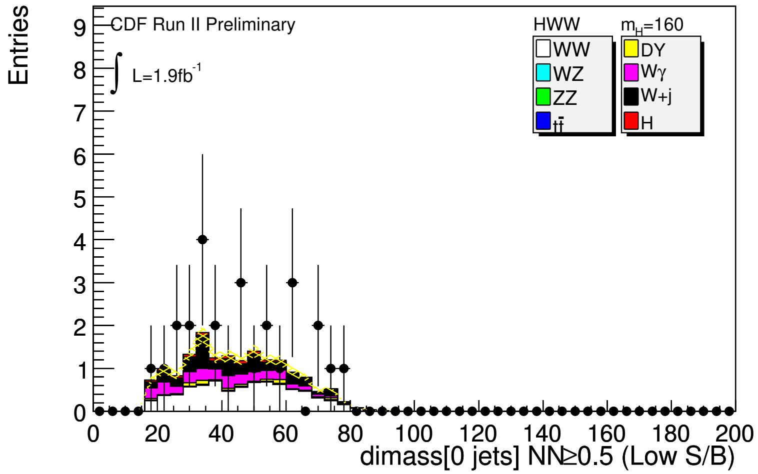


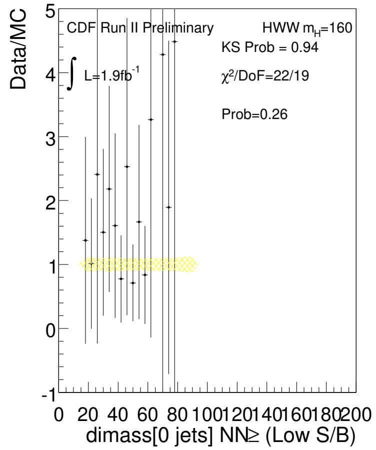


M_{ll}: Low S/B 0 Jet



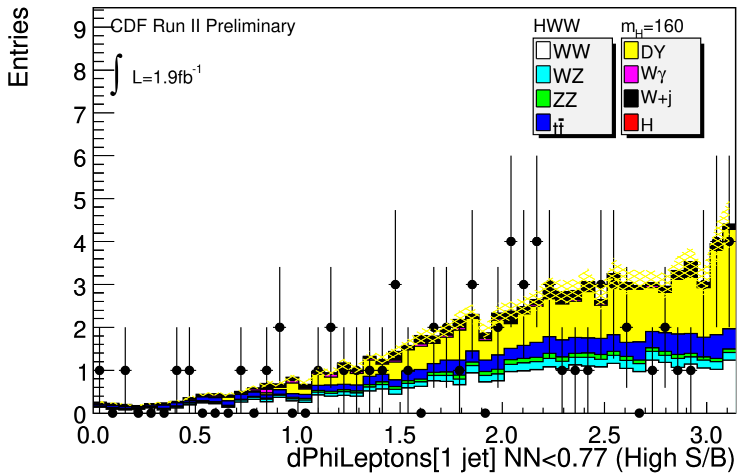


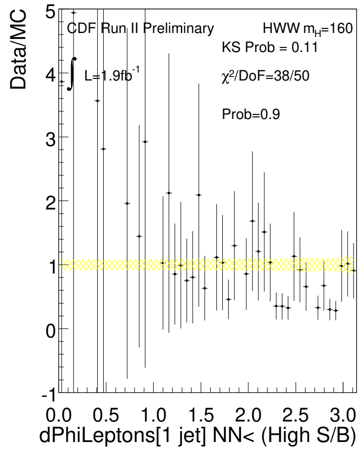


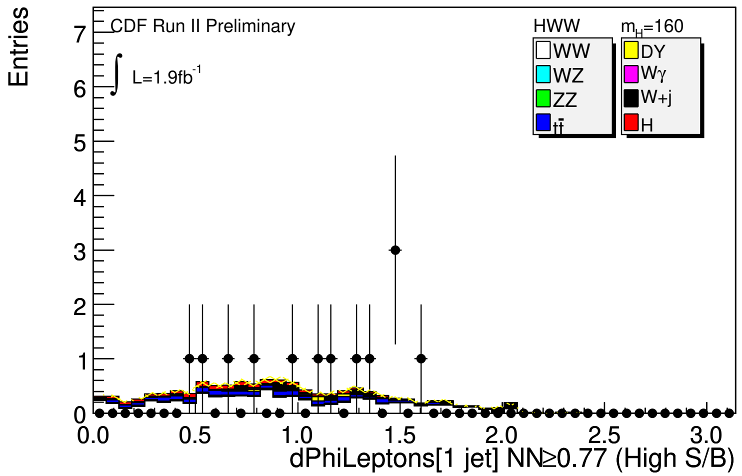


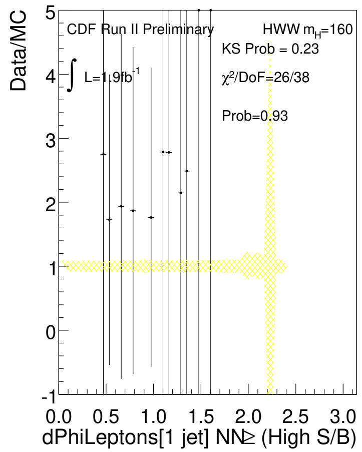
	High S/B 1 Jet			
Discriminant	KS Prob	χ^2/DOF	χ^2 Prob	Comment
LRHWW	0.12	44/50	0.73	
dRLeptons	0.07	39/36	0.35	ok:KS?
dPhiLeptons	0.07	38/50	0.88	Show: Data Flatter high ϕ
dimass	0.09	39/46	0.76	Show Sig
MetSpec	0.79	28/47	0.99	
Met	0.91	26/47	0.99	
	Low S/B 1 Jet			
Discriminant	KS Prob	χ^2/DOF	χ^2 Prob	Comment
LRHWW	0.04	59/50	0.18	
dRLeptons	0.28	48/43	0.27	
dPhiLeptons	0.01	77/50	0.01	Show: Data Flatter
dimass	0.41	50/46	0.32	
MetSpec	0.14	33/46	0.92	
Met	0.11	24/47	1	

dPhiLeptons: High S/B 1 Jet

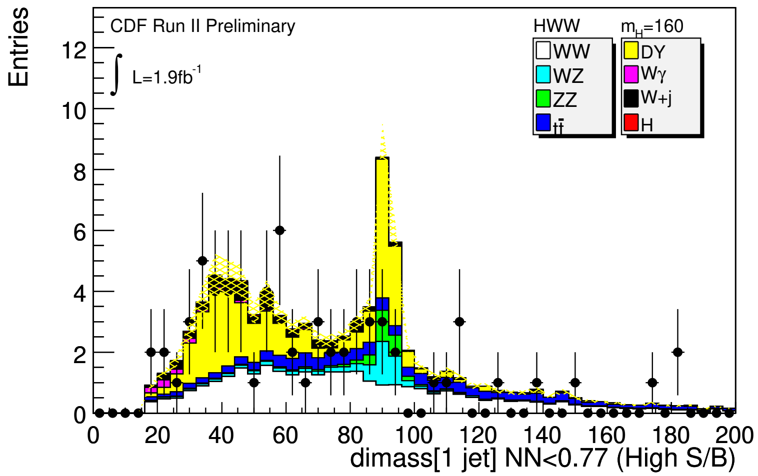


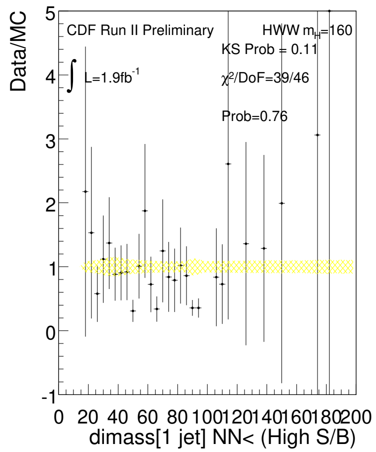


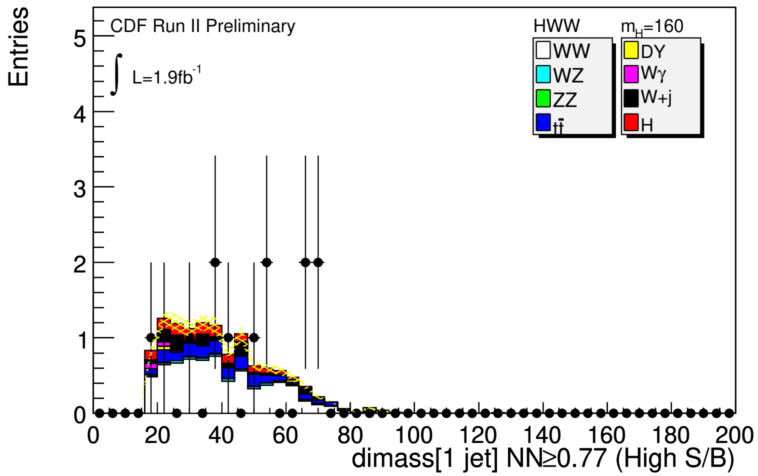


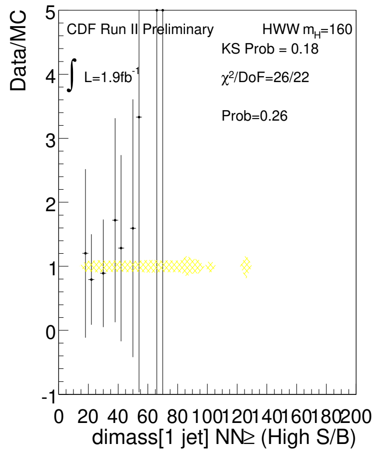


dimass: High S/B 1 Jet

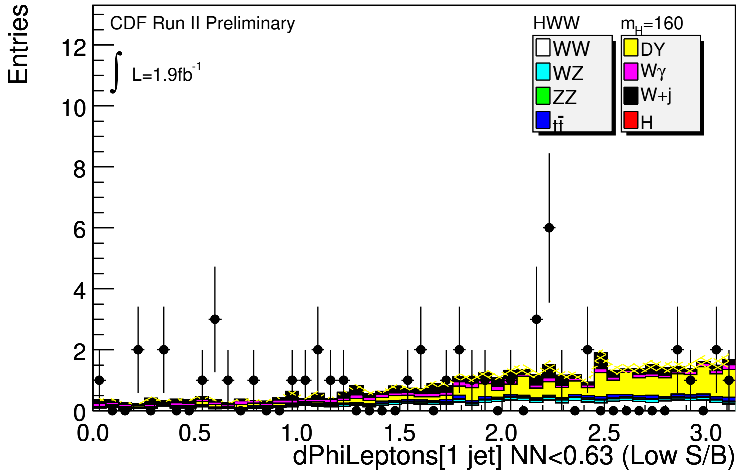


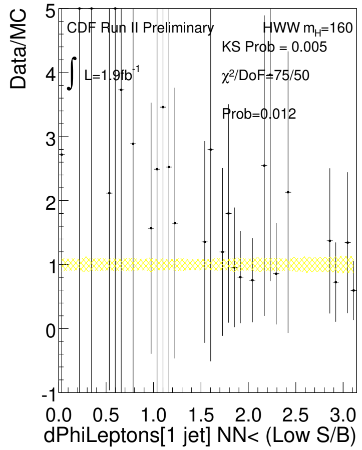


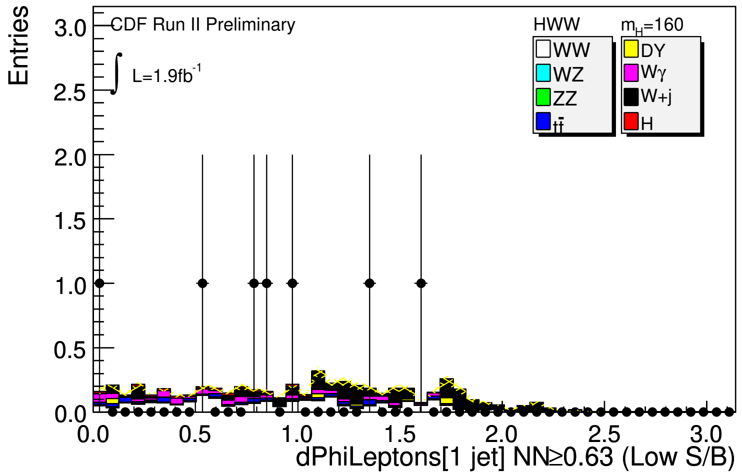


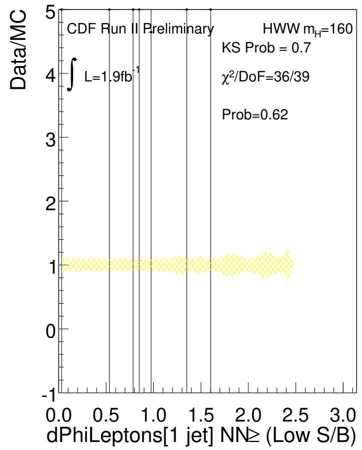


dPhiLeptons: Low S/B 1 Jet

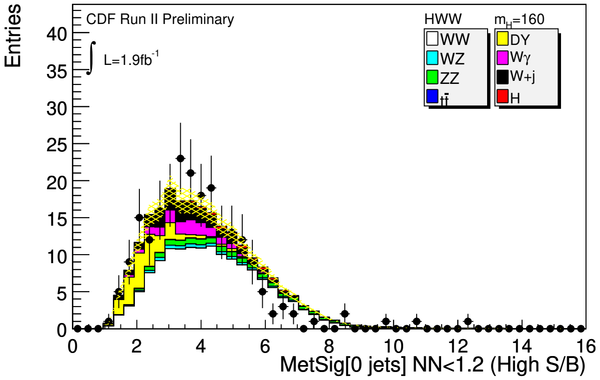


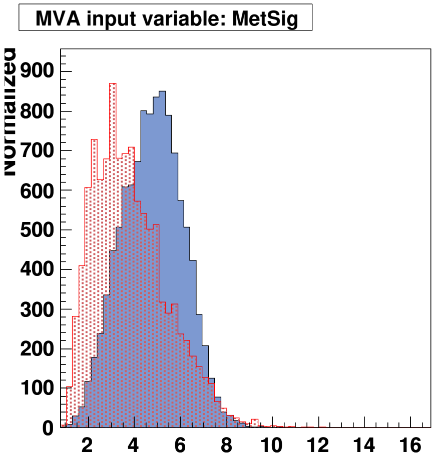


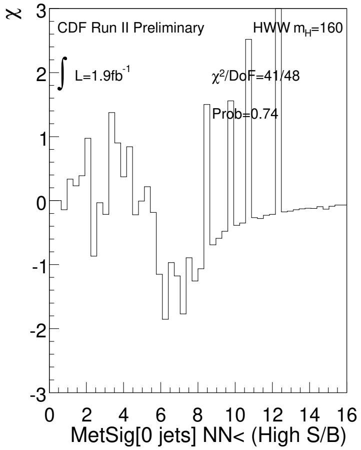


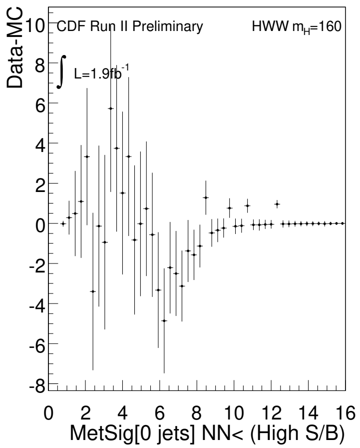


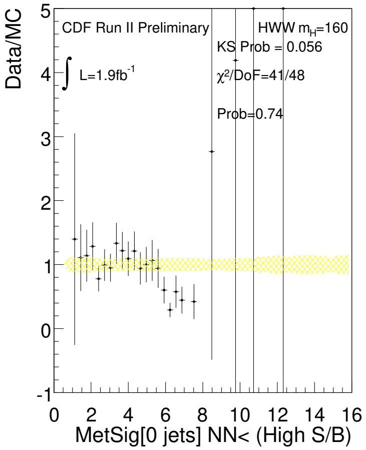
MetSig Sig Region



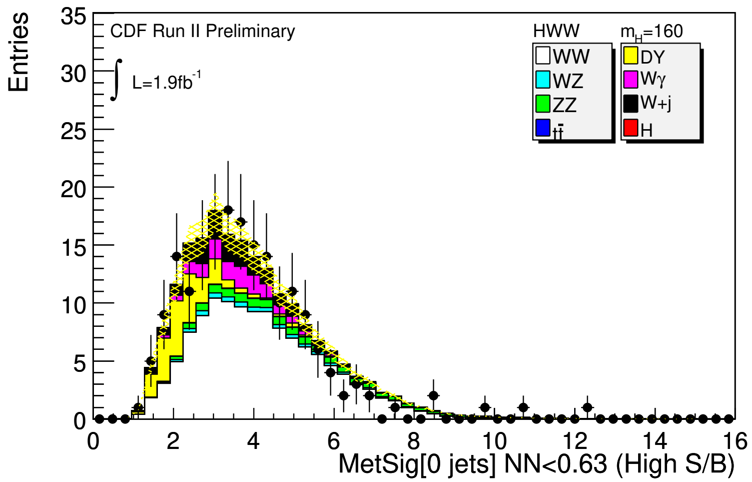


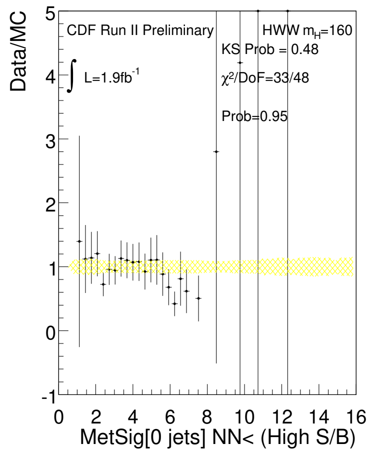


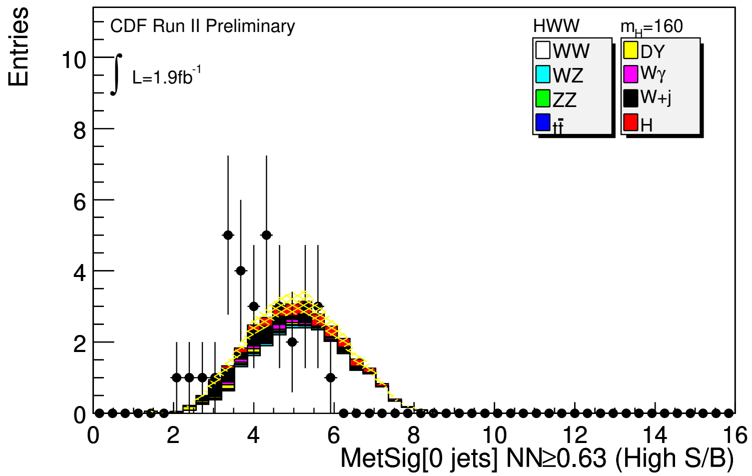


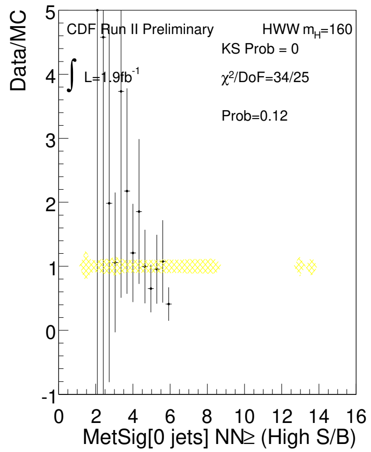


MetSig: High S/B 0 Jet







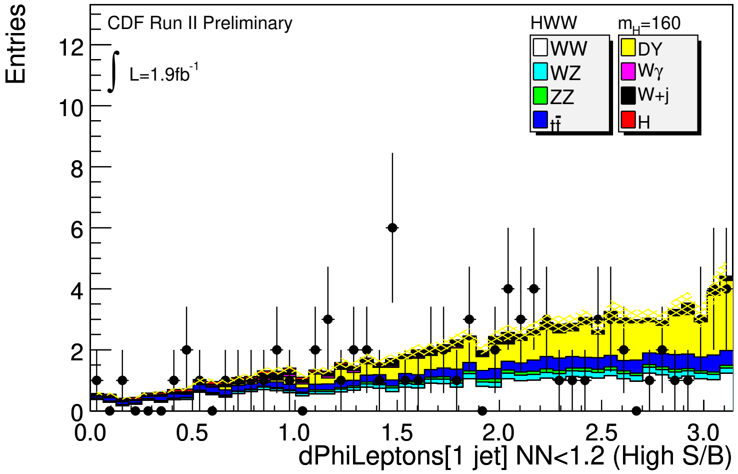


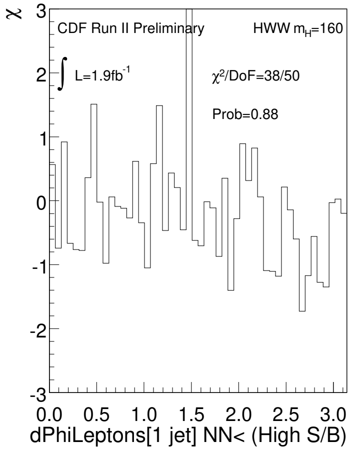
Summary

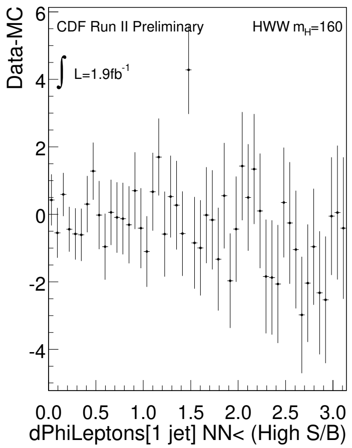
- **MetSig** The disagreement is in a region of low signal (for 160).
- **dPhiLeptons** Possible problems in 1 jet: indications of a flatter distribution, but very limited statistical statement.
- **dimass** The low signal, 0 jet, low S/B of concern as it is high in signal region. Z peak disagreement does not impact signal and is of low statistical significance.

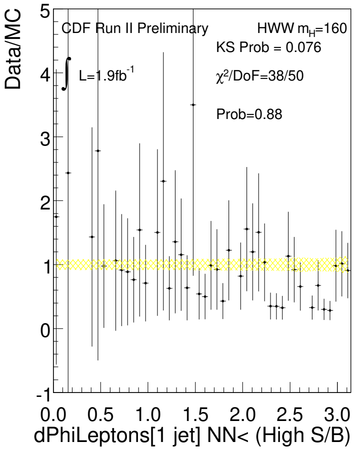
Backup

dPhiLeptons: High S/B 1 Jet

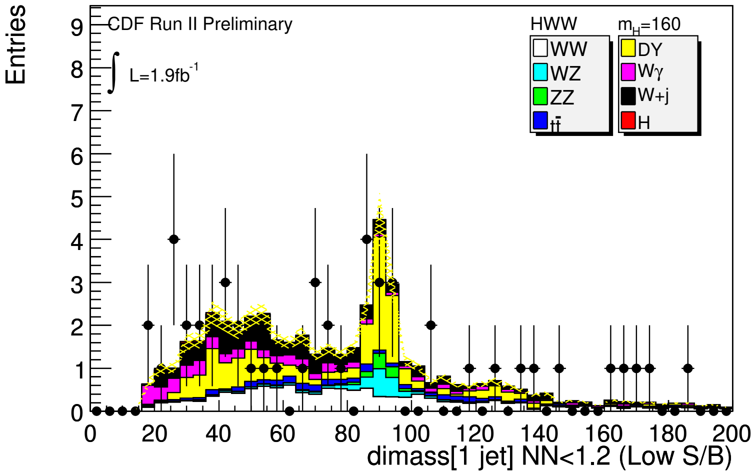


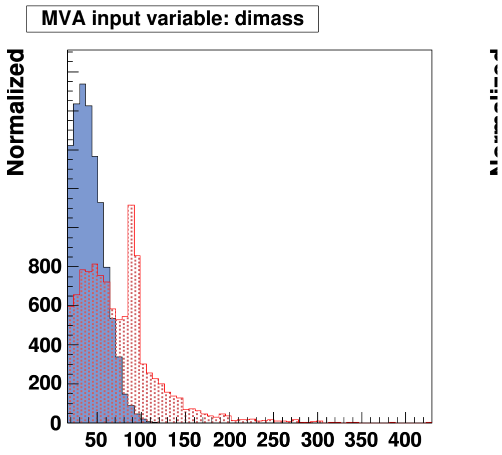


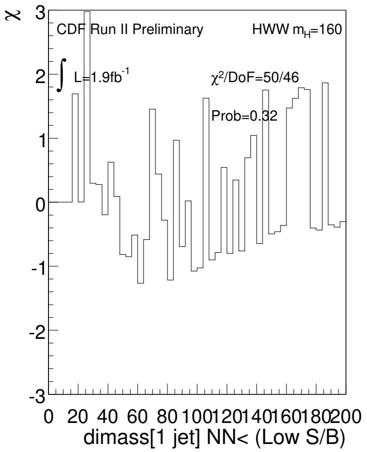


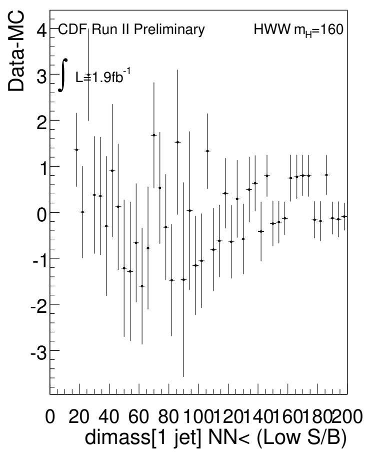


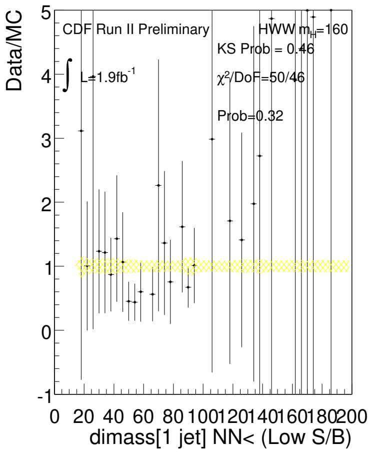
M_{ll}: High S/B 1 Jet











dPhiLeptons: Low S/B 1 Jet