

Update on Kinematic Fits

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Susy Group Meeting – Hamburg – 14th July 09

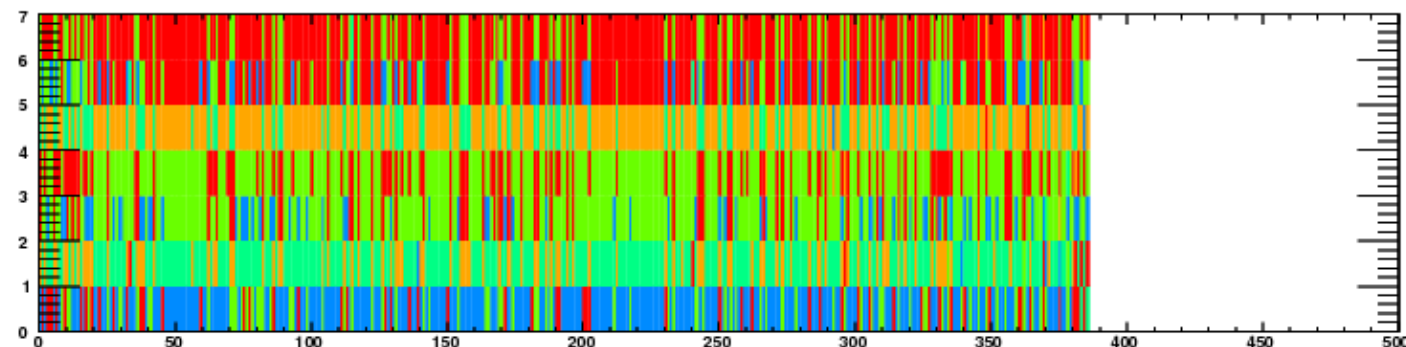
New implementation: up to N_{best} individuals survive of up to N_{same} jet combination (breeding in sub populations) + more children per coupling (~6 min/event)

- best == right
- best != right

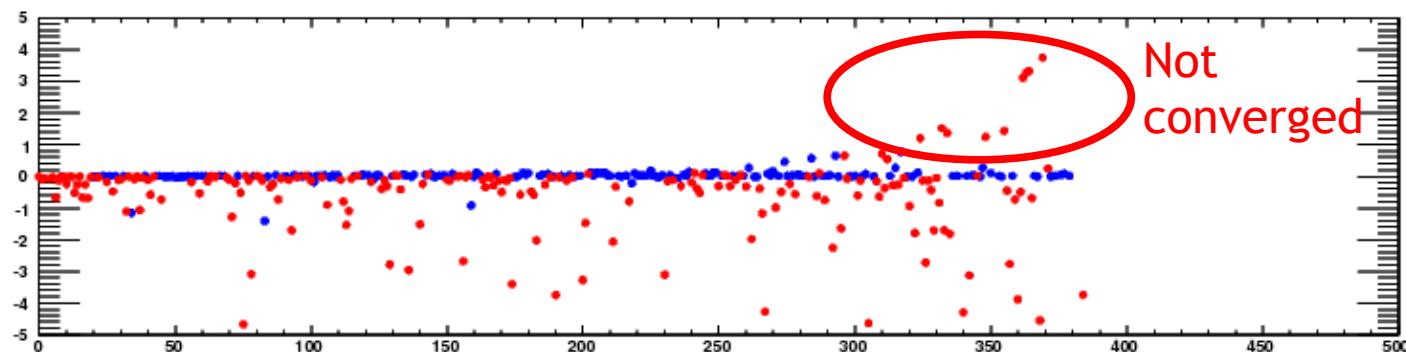
Best is right for 181 of 386 events

Positive values indicate that combi-fit has larger χ^2 than true-fit

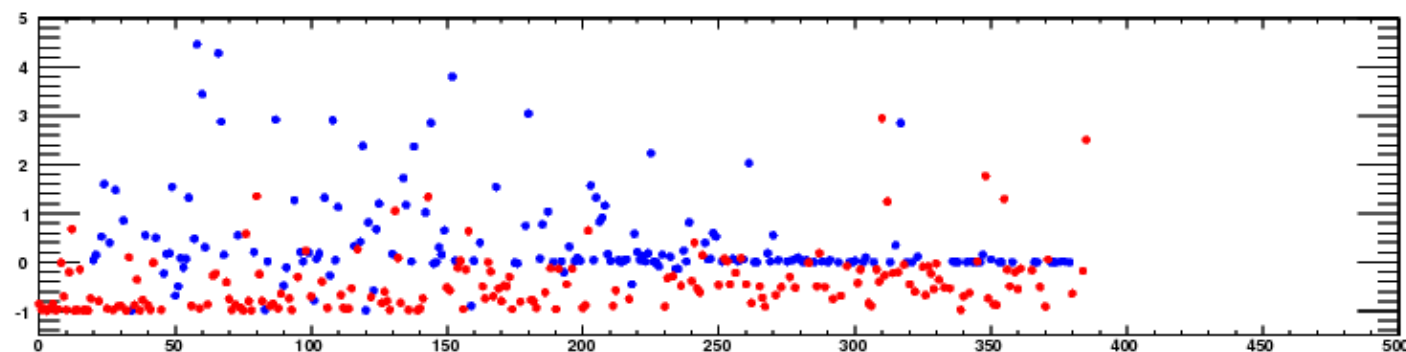
Combinatorics GA



$$\Delta\chi^2 = \chi_{\text{fit including combinatorics}}^2 - \chi_{\text{fit with true jet combination}}^2$$



$$\Delta\chi^2 / \chi_{\text{fit with true jet combination}}^2$$



Newest implementation:

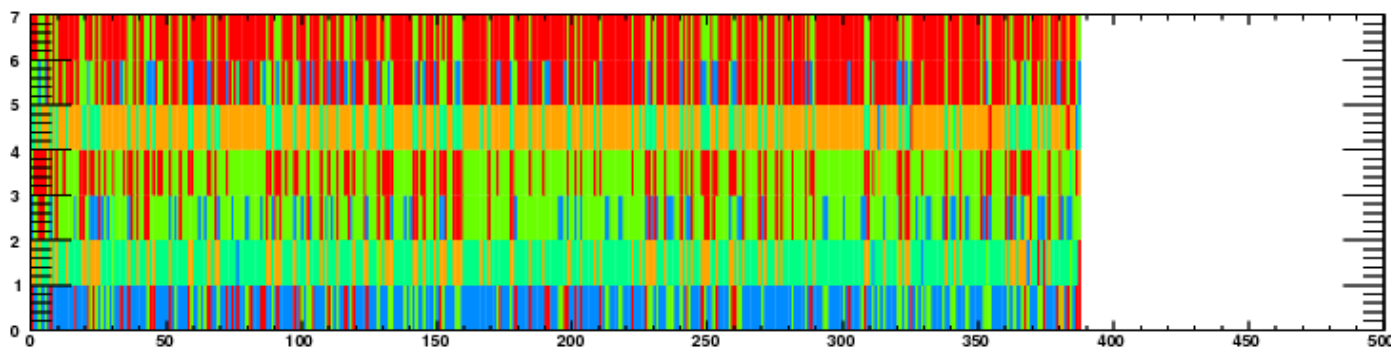
up to N_{best} individuals
survive of up to $N_{\text{same}}(t)$ jet
combination:

- at the beginning the 20 best combinations are kept
 - at the end only the 5 best ($\lambda \sim 50$ generations)
- + time dependent mutation probability:
- at beginning more combinatorics mutation
 - later more momentum variation
- (~2 min/event)

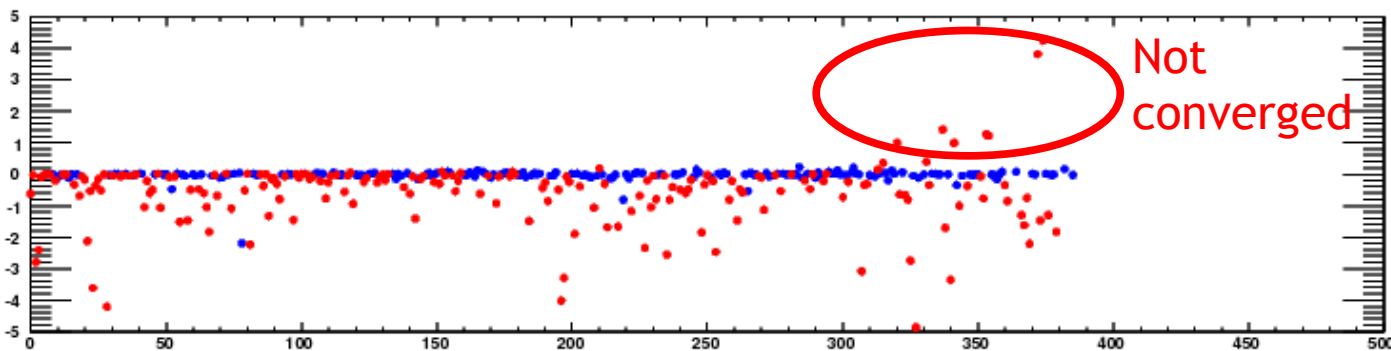
Best is right for 181 of 388 events

Positive values indicate that combi-fit has larger χ^2 than true-fit

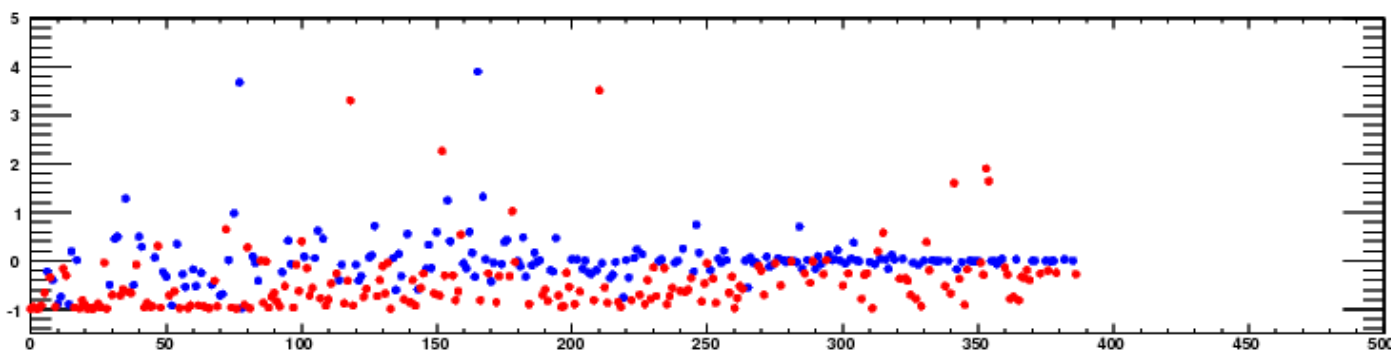
Combinatorics GA



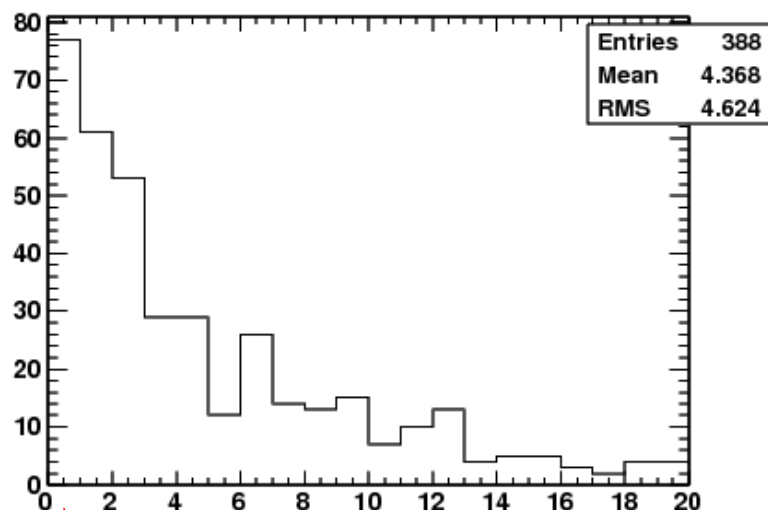
$$\Delta\chi^2 = \chi_{\text{fit including combinatorics}}^2 - \chi_{\text{fit with true jet combination}}^2$$



$$\Delta\chi^2 / \chi_{\text{fit with true jet combination}}^2$$

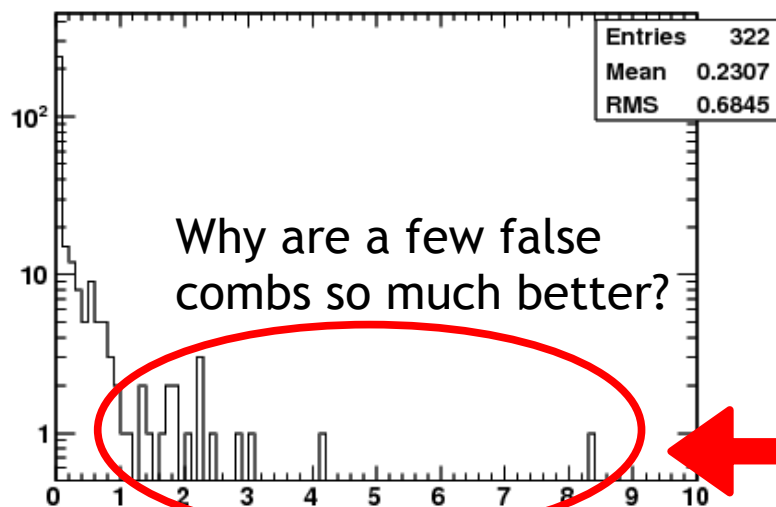


position of true combination at start

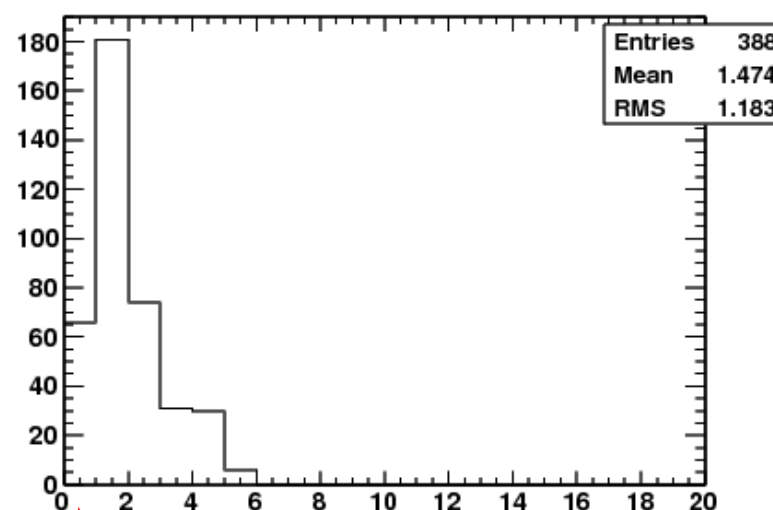


0: not available
(comb mutation needed)

chi2 difference of true and best combination



position of true combination at end



0: in 20% not among 5 best combs

chi2 difference of true combination (no comb - comb)

