Beta-beams for large θ_{13} ($\sin^2 2\theta_{13} > 0.01$)

Enforce the following limitations:

1. NO SPS+ $\rightarrow \gamma \sim 100$
2. ONE BASELINE
3. MODERATE FLUXES: $10^{18} \div 10^{19}$

A. Donini, CSIC, IFT/UAM, Madrid

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Option A: two ions, ^{6}He, ^{18}Ne, L=130 Km

J.Bouchez, M. Lindroos, M. Mezzetto, hep-ex/0310059

A. Donini, CSIC, IFT/UAM, Madrid

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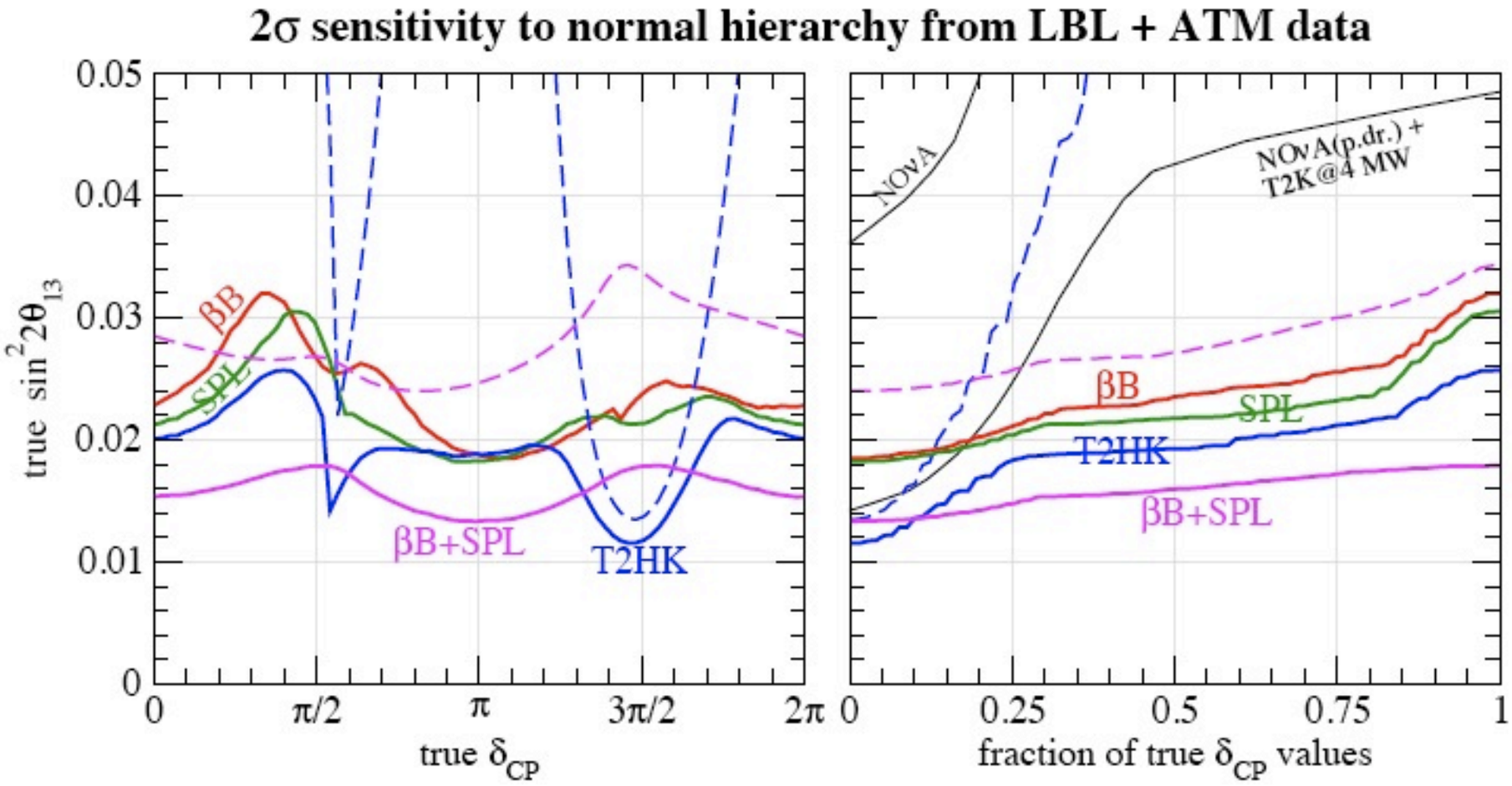
J.Bouchez, M. Lindroos, M. Mezzetto, hep-ex/0310059

Option B: four ions, ^{6}He, ^{18}Ne, ^{8}Li, ^{8}B; L=650 Km

A.Donini, E. Fernandez-Martinez, hep-ph/0603261

A. Donini, CSIC, IFT/UAM, Madrid

Example: determine the mass hierarchy



Option A

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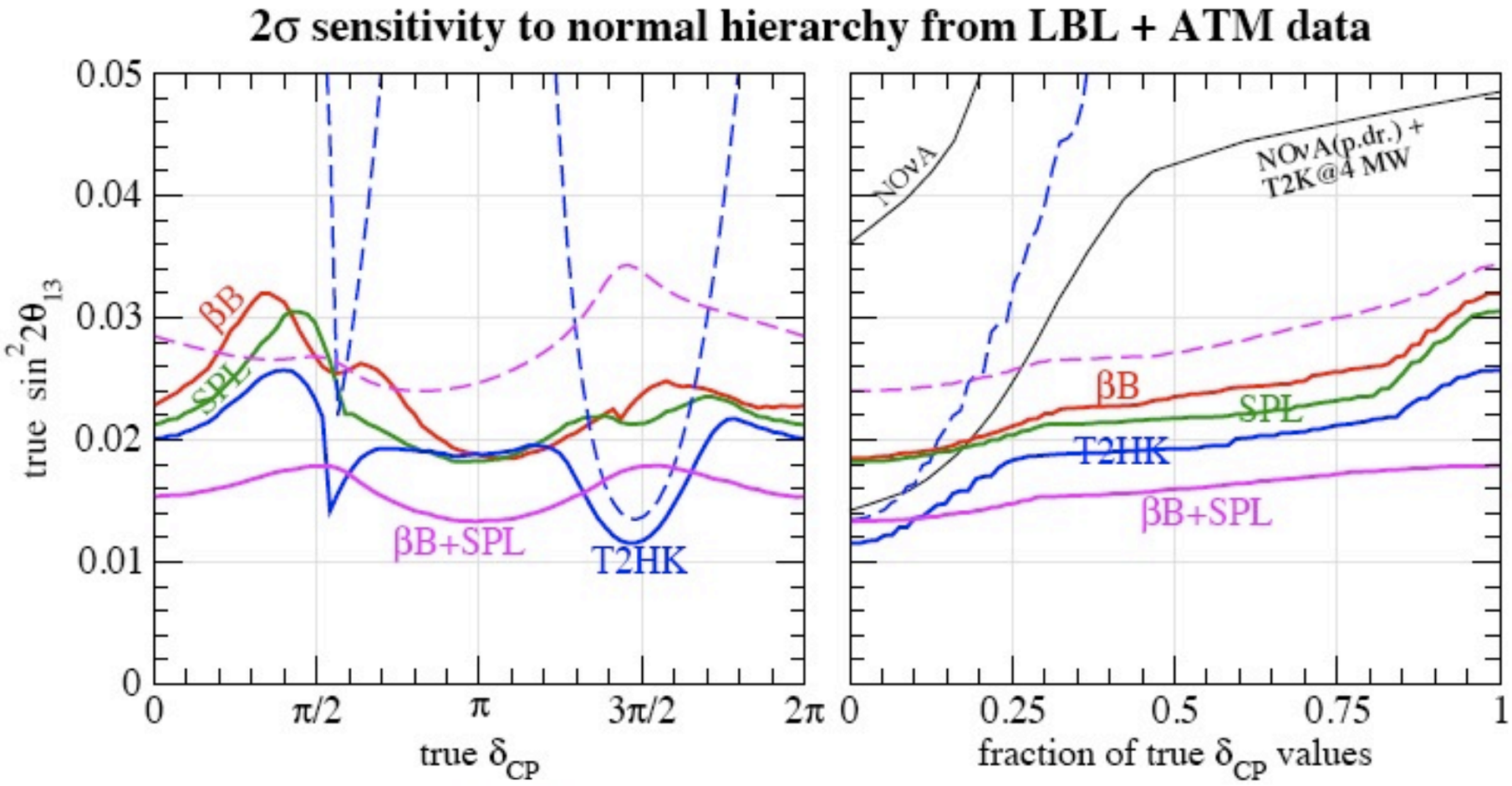
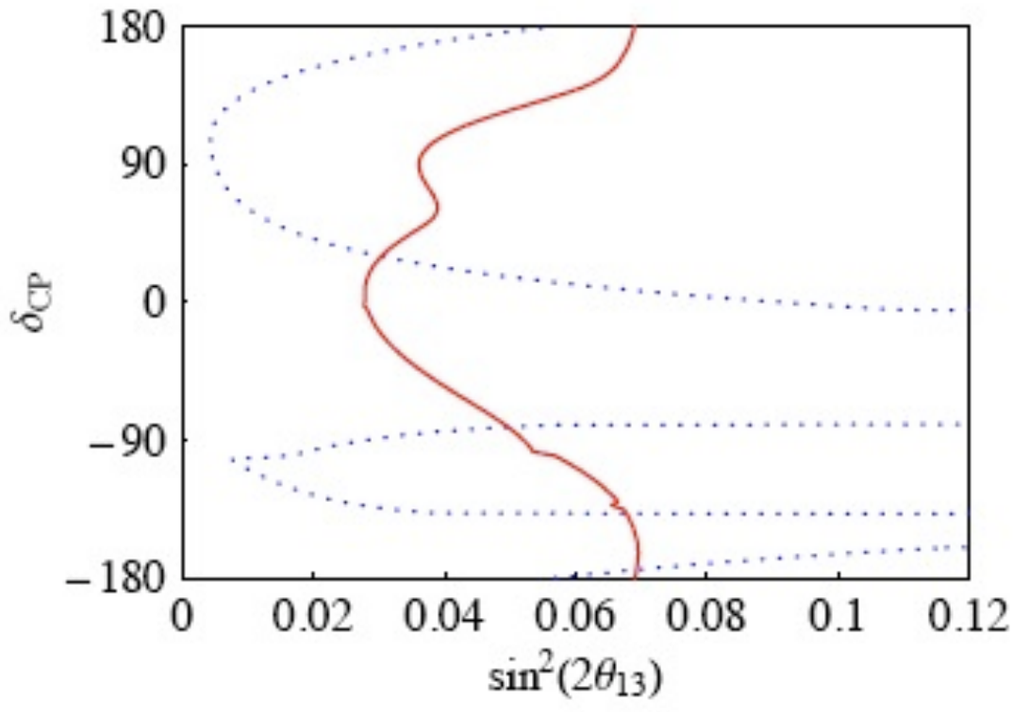


Option A

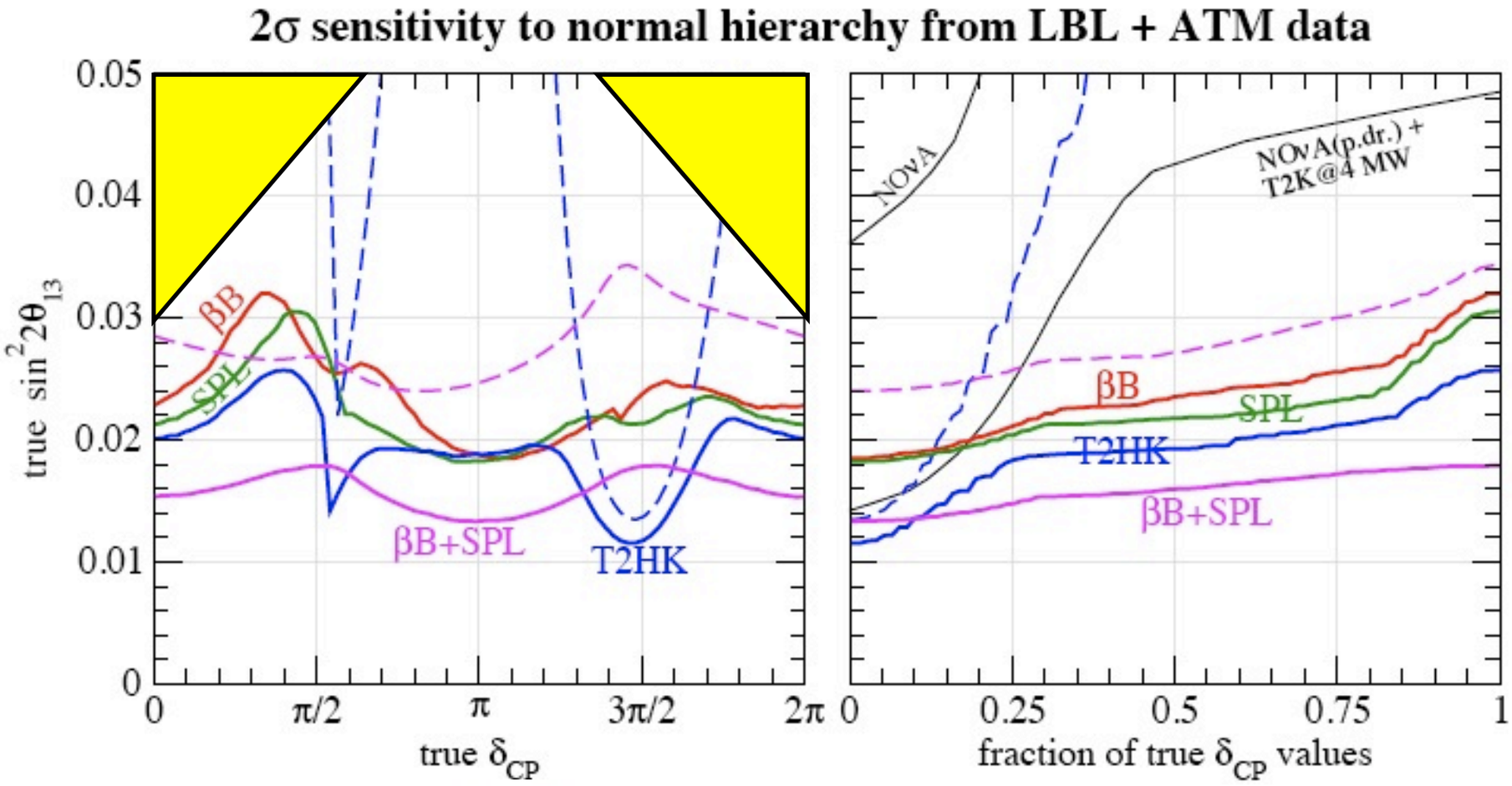


Option B

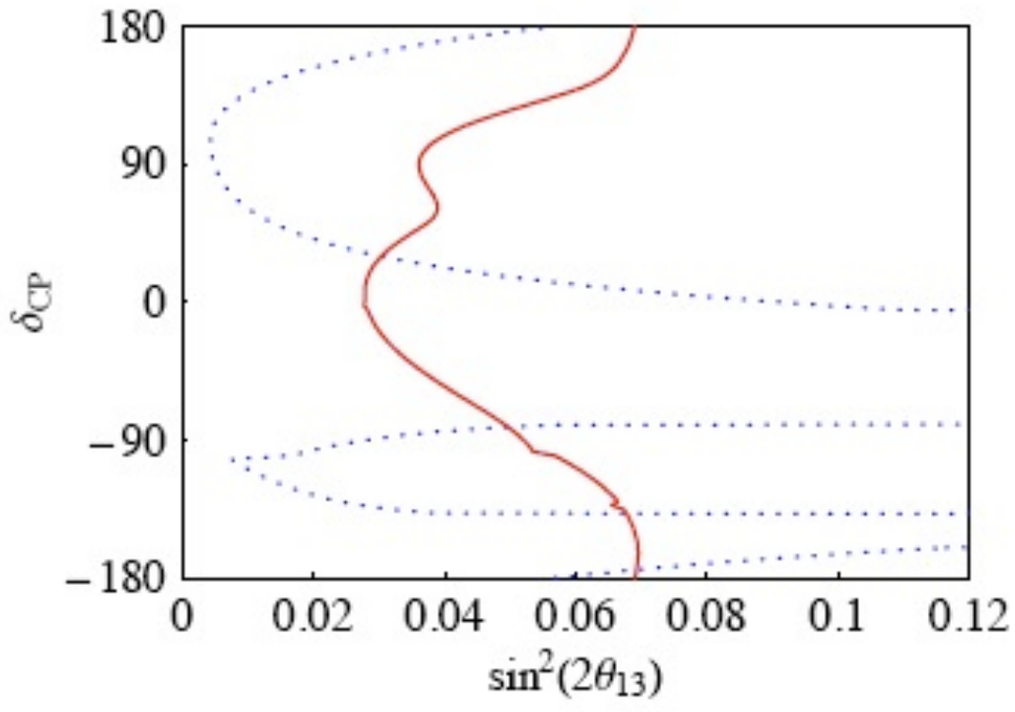
No atm data

flux = $O(10^{18})$

Example: determine the mass hierarchy



Option A



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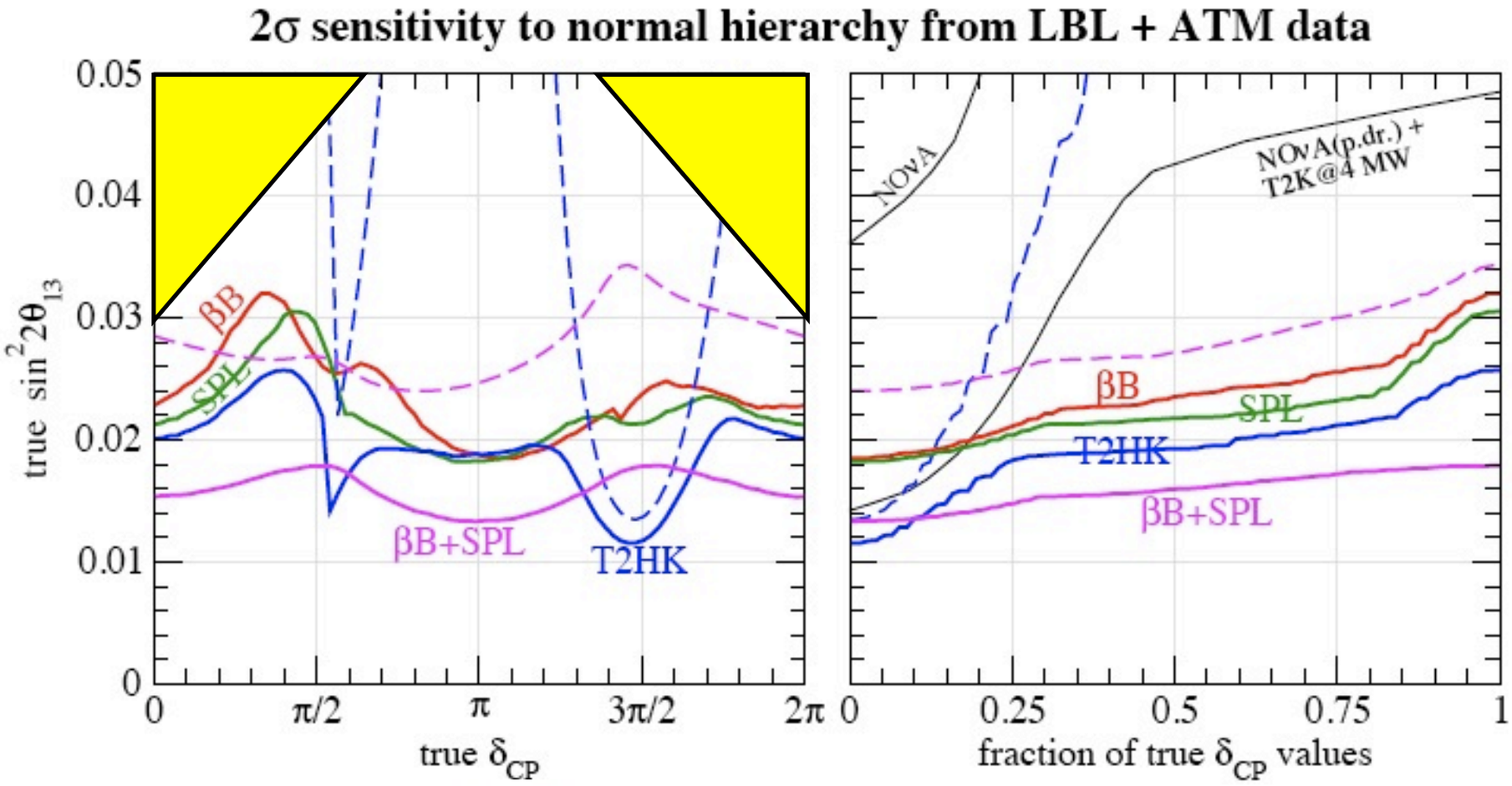

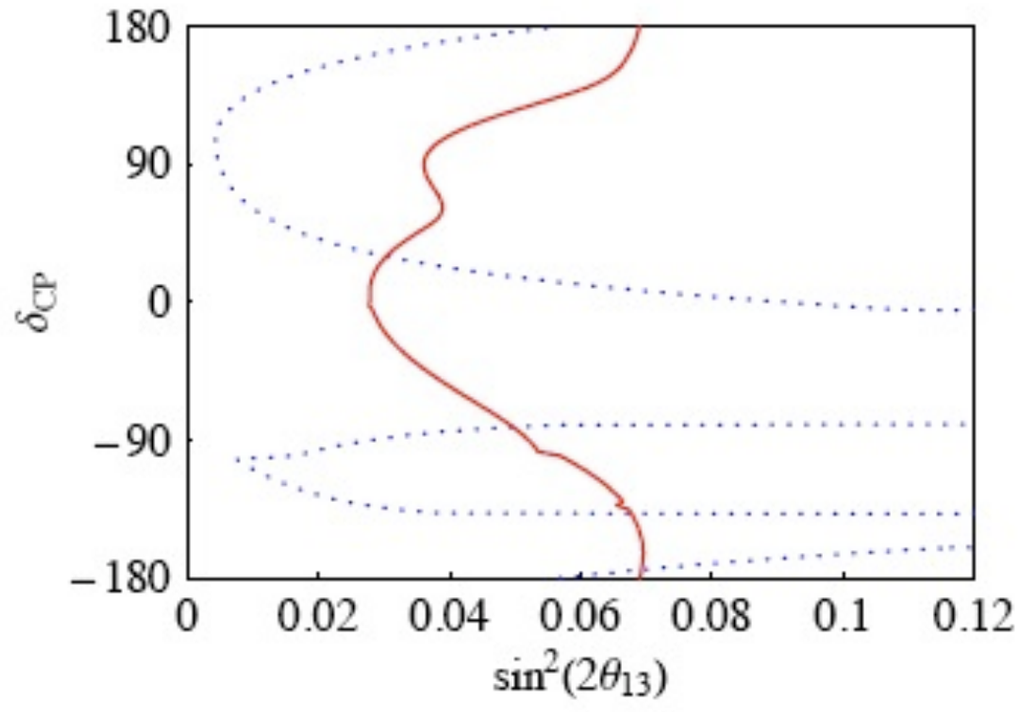

Option A

Option B

No atm data

flux = O(10^{18})

With more flux,
better results.
Best option, would be
to increase γ

W. Winter, arXiv:0804.4000