

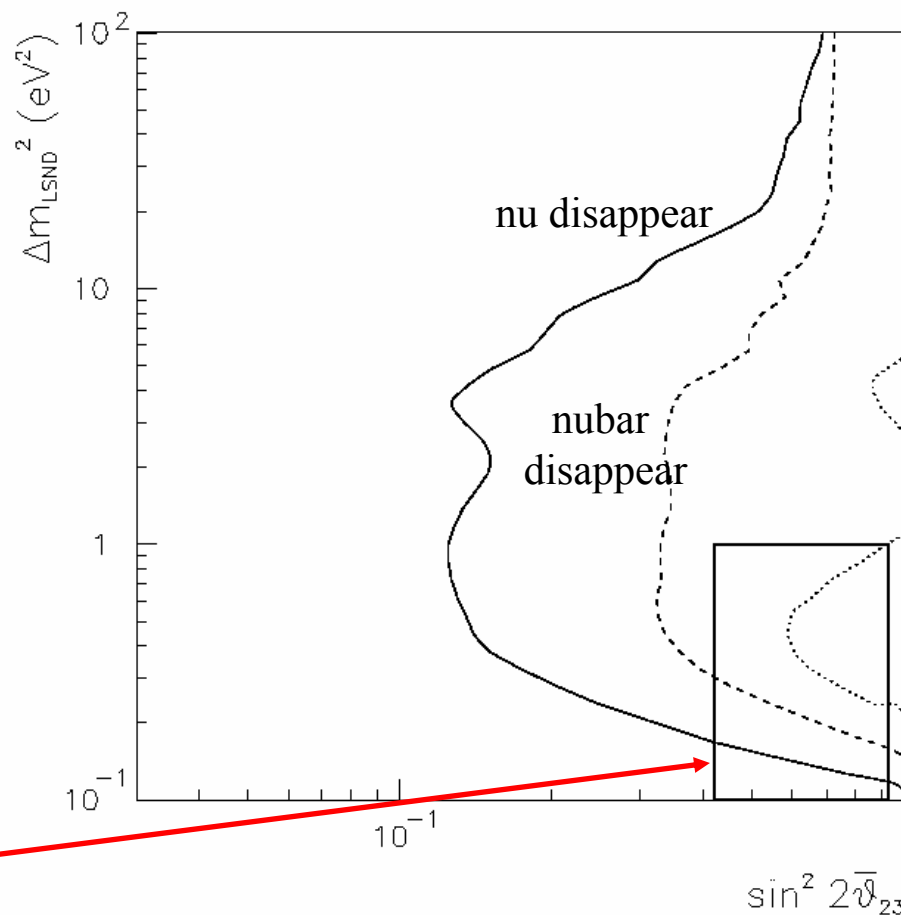
Nubar Disappearance Sensitivity with a 3 month nubar run

Sensitivity to $\bar{\nu}_\mu$ disappearance in neutrino running and CPT violating models

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- Michel wrote memo on using nubar during nu running to make a nubar disappearance measurement.
 - Assumes that you can identify nubar events by capture gamma
 - 10%(20%?) normalization error
 - 5% (10%?) bin-to-bin energy error



Barenboim, Borissov, and Lykken
hep-ph/0212116

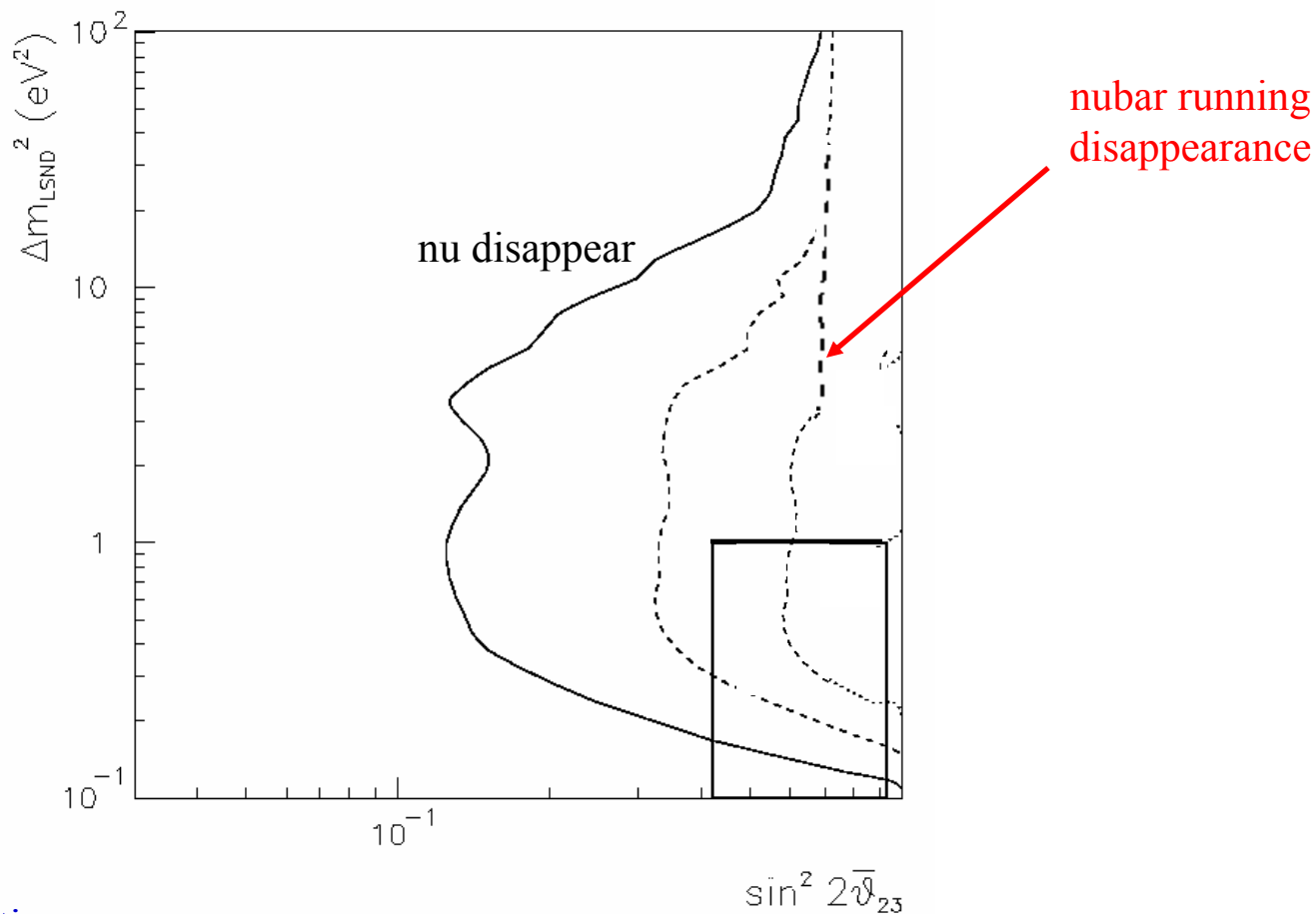
Scale Michel Result to 3 month nubar run

- Michel = $5e20$ pot with 5% nubar and 100% efficiency.
 - Using Sam's estimate of 272,000 numu/ $5e20$ times 5% gives
⇒ 13600 nubar events in Michel's memo
- For a $5e19$ pot of nubar running
 - Sam's estimate gives
⇒ 5672 nubar events with 2881 nu contamination
- Scaling of Michel's results
 - Less events ⇒ $\sqrt{13600/5672} = 1.54$ worse sensitivity
 - numu contamination ⇒ $\sqrt{(2881+5672)/5672} = 1.2$ worse sensitivity

Overall gives factor 1.9 worse sensitivity

Note: Could also be worse systematics for modeling additional wrong-sign contamination

Numu Disappearance Sensitivity for a 5e19 nubar Run



10% (20%?) normalization error

5%(10%?) bin-to-bin energy error