

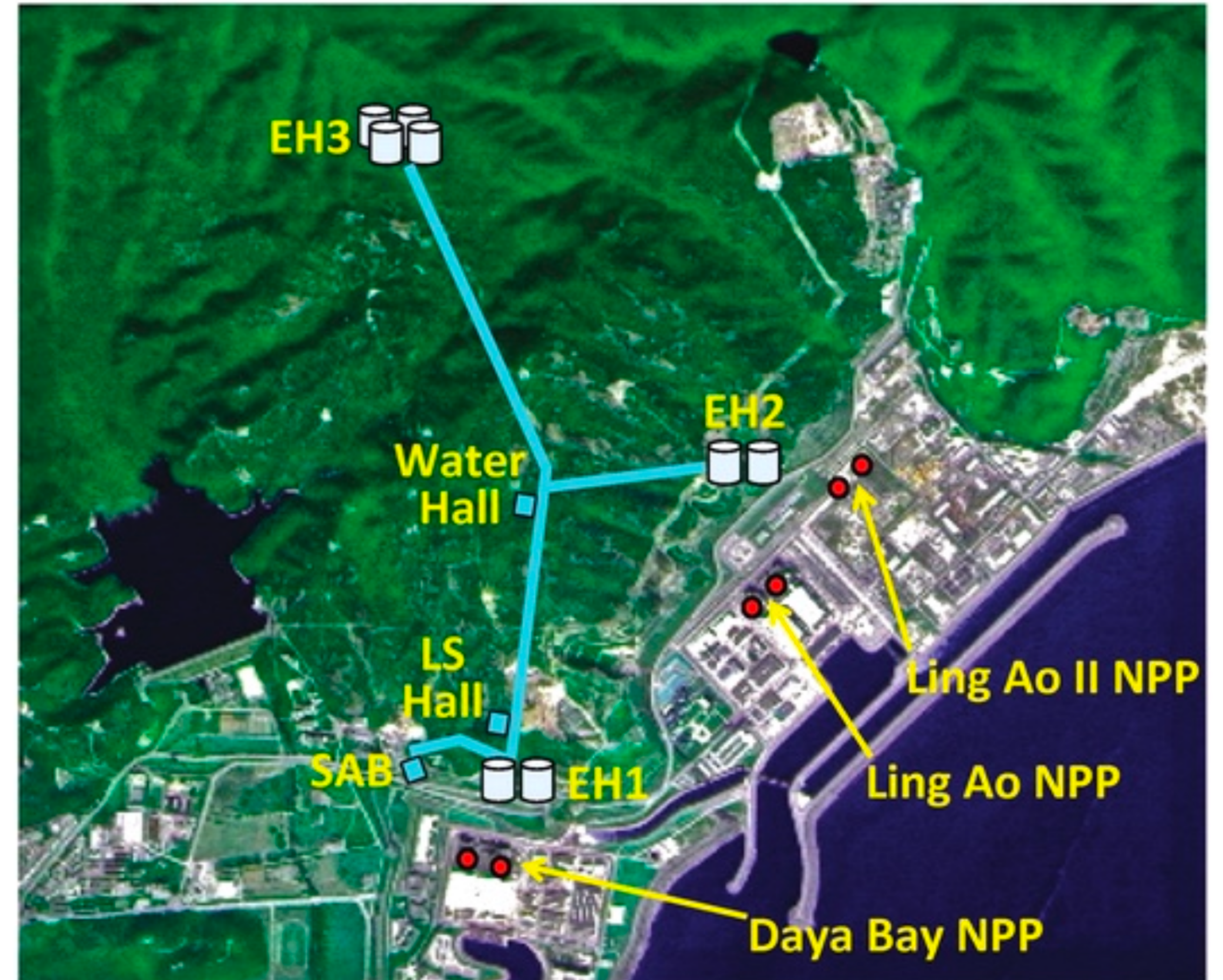
Reactor Neutrinos

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2026-07-10

1 Daya Bay Experiment

- 6 reactors
- 3 experimental halls (EH)
- 4 near detectors (in EH1, EH2)
- 4 far detectors (EH3)



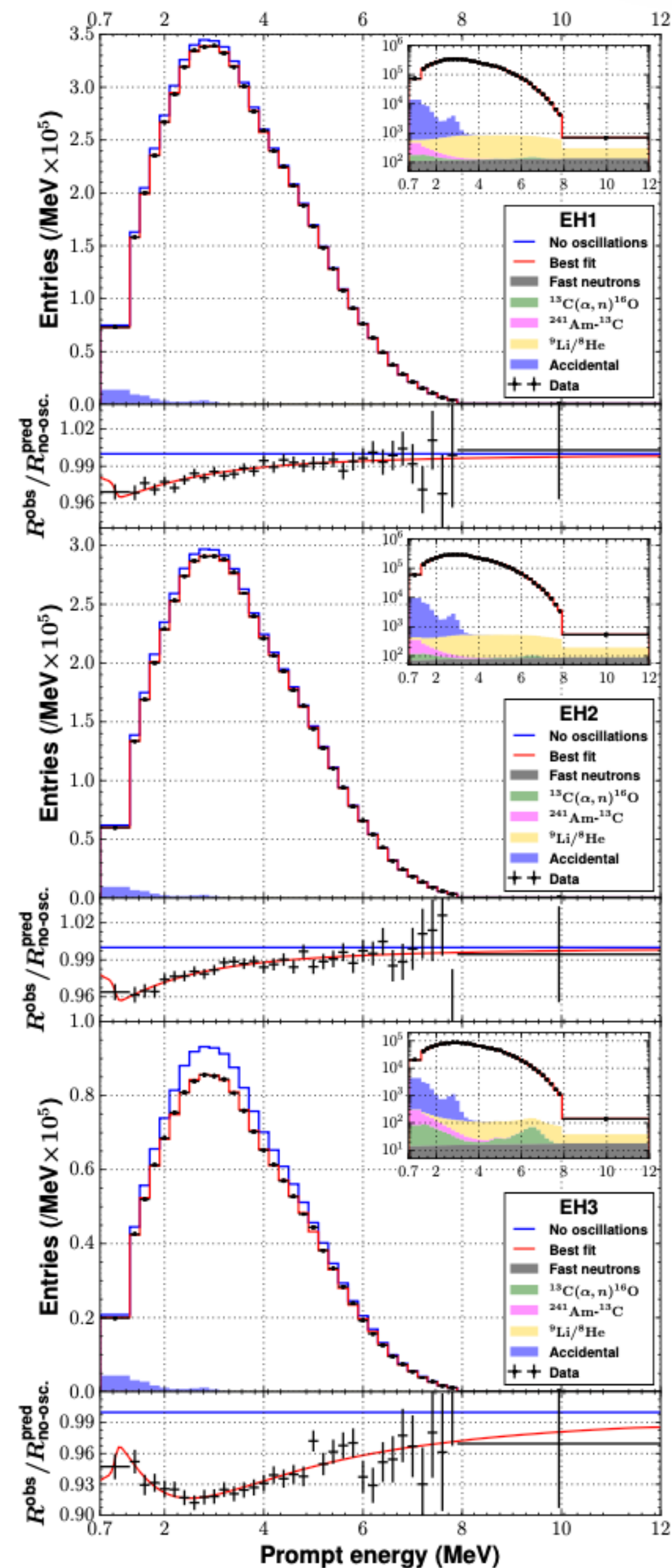
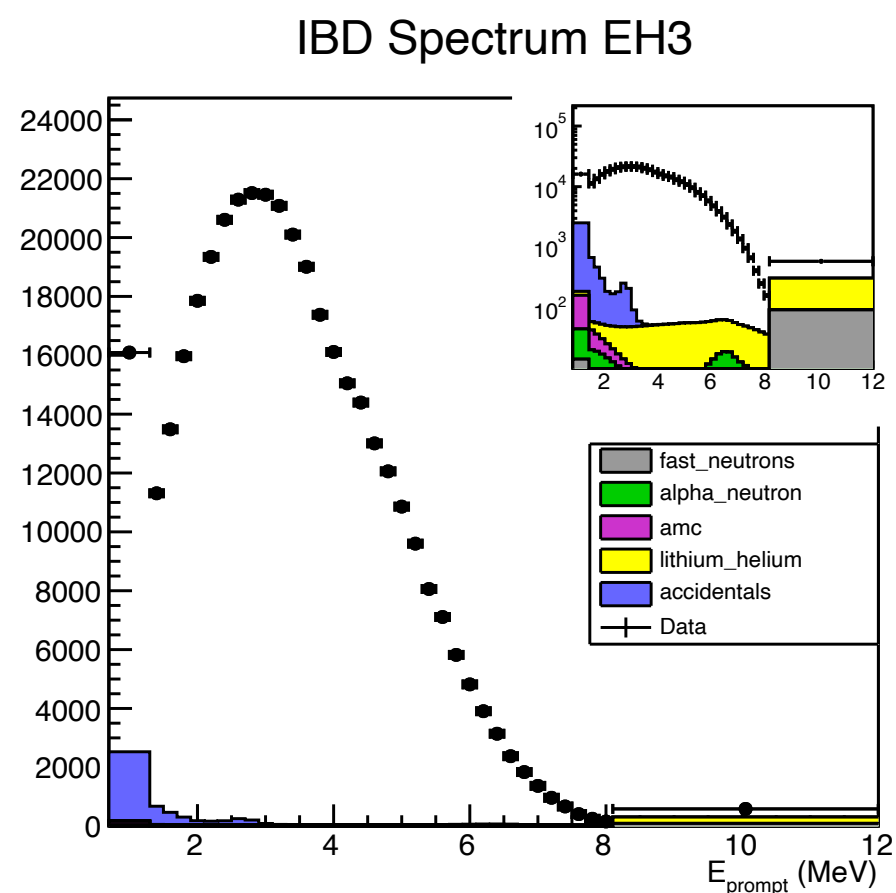
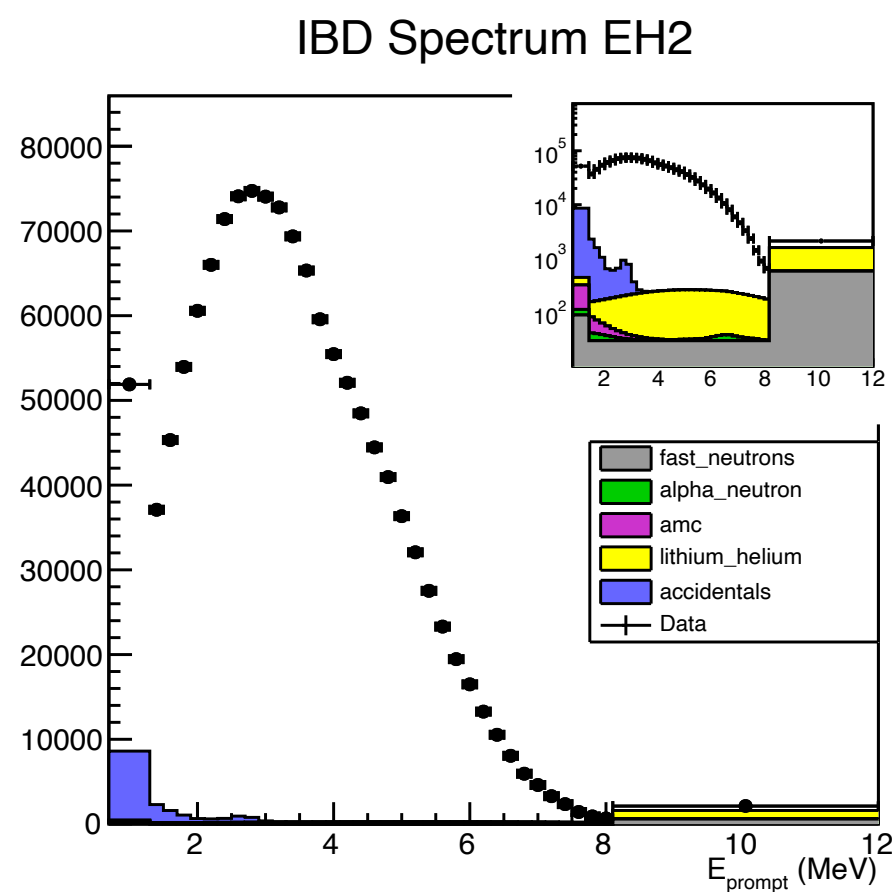
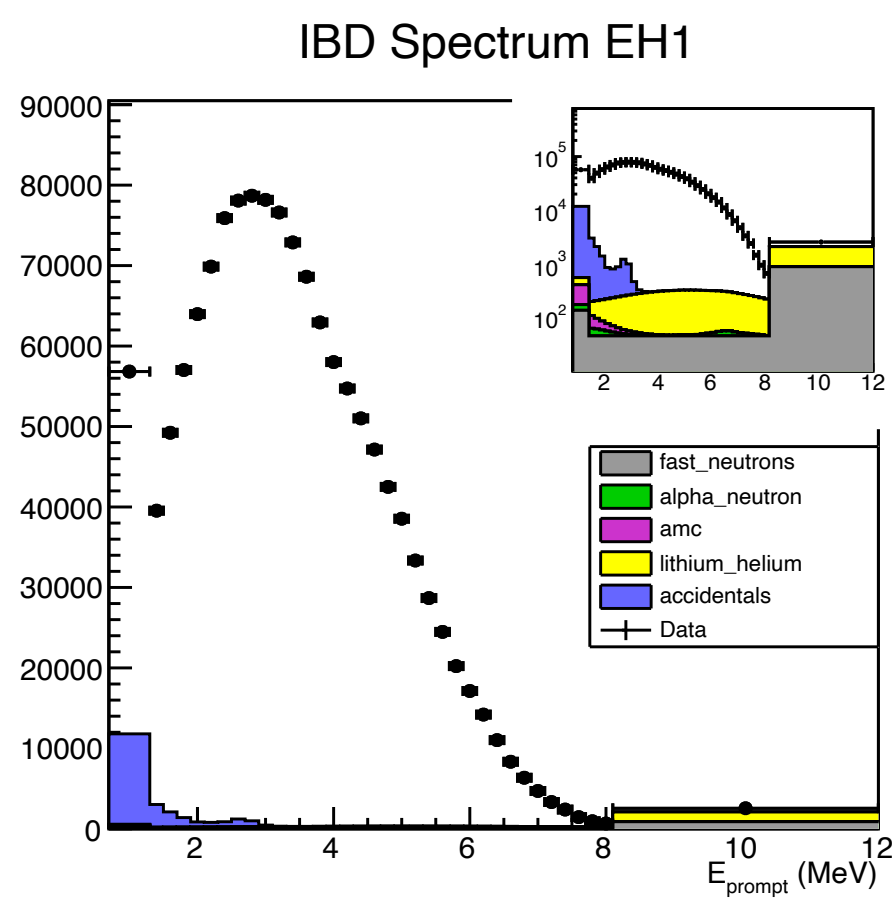
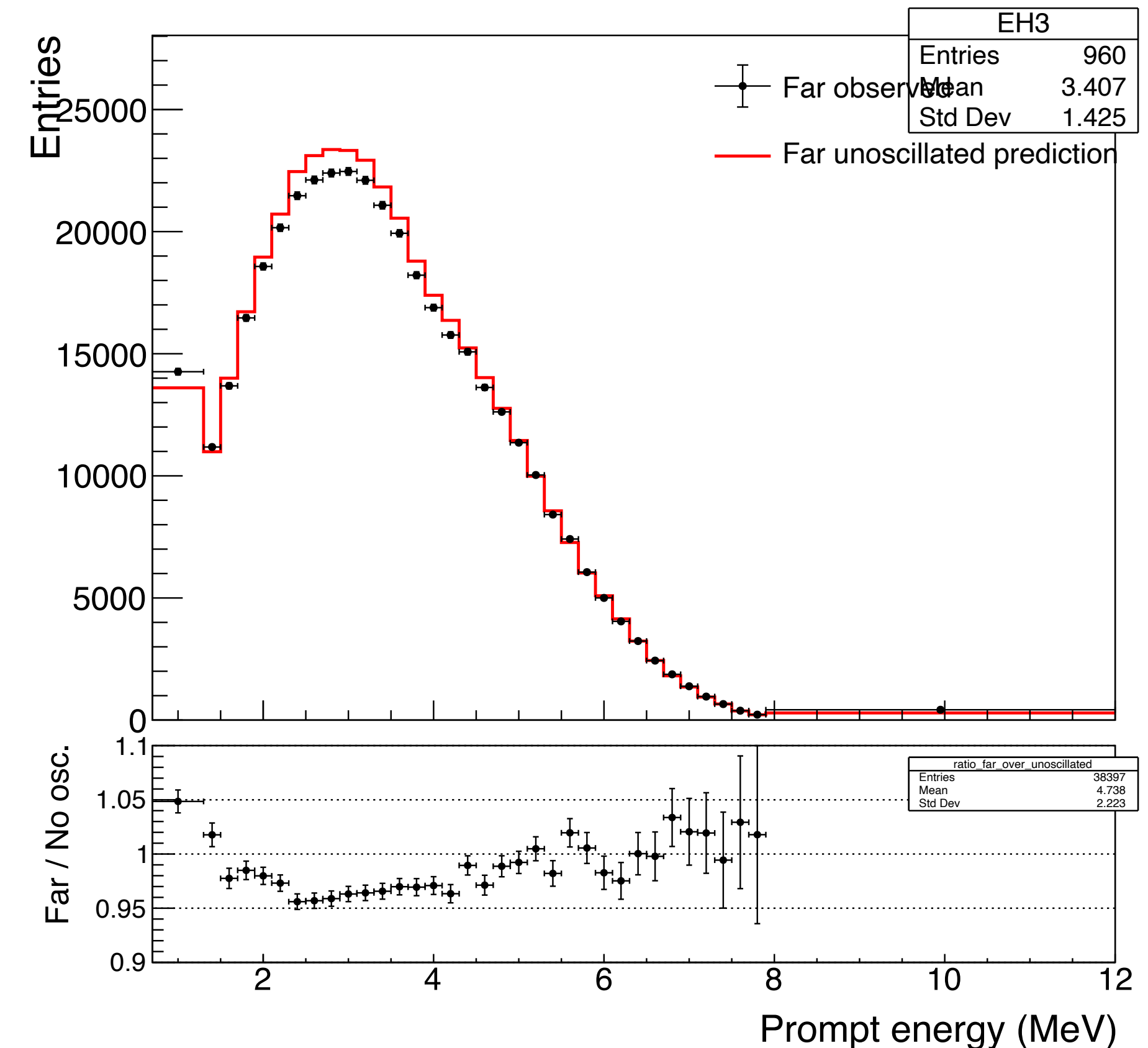


FIG. 38. Reconstructed positron energy spectra for the $\bar{\nu}_e$ candidate interactions (black points). The spectra of the detectors in each experimental hall are combined: EH1 (top), EH2 (middle), and EH3 (bottom). The measurements are compared with the prediction assuming no oscillation (blue line) and the best-fit three-flavor neutrino oscillation model (red line). The inset in semi-logarithmic scale shows the backgrounds. The ratio of the background-subtracted spectra to prediction assuming no oscillation is shown in the panel beneath each energy spectrum.

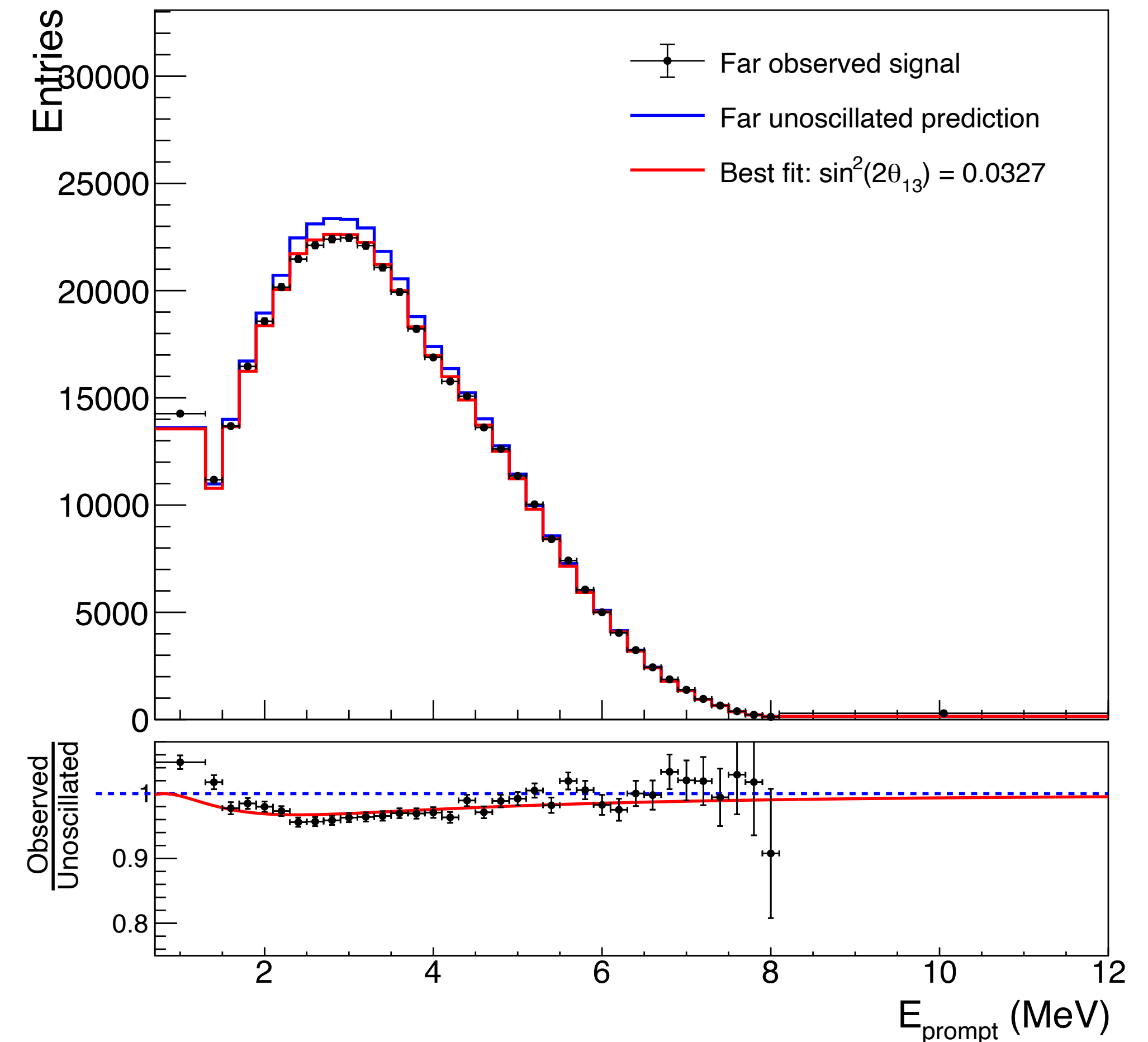
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- Extract background from all spectrums, scale by each EH efficiency
- Assume EH1 and EH2 are unoscillated, extrapolate to EH3 given the distance of ND and FD → far unoscillated



4 fit!

- Not taking systematics into account
- fixed m_{ee} at best fit value, 1D scan $\sin^2(2\theta_{13})$
- We assumed ND as unoscillated (non physical results where observed/unoscillated >1 in some bins)



4 fit

• $\sin^2(2\theta_{13}) = 0.0326828 \pm 0.00193268$

