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THE GLOBAL PROGRAM

KEY POINTS

Complementarity of T2K/HK with Other Longer Baseline Experiments for CP (diff. Baselines/energies)

NOVA: first results expected in a day!

- routinely running at 400 kW → 700 kW next year
 - aim to 2-3x data by Neutrino 2016 in neutrino mode
 - PINGU/ORCA: impressive ν_{μ} disappearance results already from IceCube
 - θ_{23} competitive with T2K/NOvA possible with ~ 3 years DeepCore exposure
 - 3σ resolution of MH with ~ 3.5 year exposure
 - Projected start of \sim early 2020s
 - INO/ICAL: funded by Indian government!
 - Unique magnetized capability with atmospheric data
 - 3σ MH sensitivity alone, significantly improves T2K/NOvA combination
 - Detectors operational in ~ 5 years
 - Reactors:
 - Ultimate precision on $\sin^2 2\theta_{13}$ of 3-4%
 - Many SBL experiments to examine reactor anomaly, result by 2020?
 - JUNO: $3-4\sigma$ determination of MH in 6 years, $<1\%$ precision on $\sin^2\theta_{12}$, Δm^2_{ee} , Δm^2_{21}
 - DUNE:
 - Aiming for 4×10 kT LAr TPCs with single phase as reference, dual phase as alternative
 - 1st module in 2024 with beam starting in 2026 with >1 MW beam, 3σ for 75% of δ_{CP} w/ 40ktons in ~ 15 y (CDR design).
 - Lots of complementarity with WC for many topics (atmospheric, proton decay, SN neutrinos, etc.)
- Note:
FNAL SBN not covered

DISCUSSION:

- how much coordination is needed for global analysis? when? Who?
 - It's a good idea
 - Reactor neutrino experiments: planning combination soon.
 - NOvA: it needs to accumulate statistics before combining.
 - Experiments need to provide enough information for combinations.