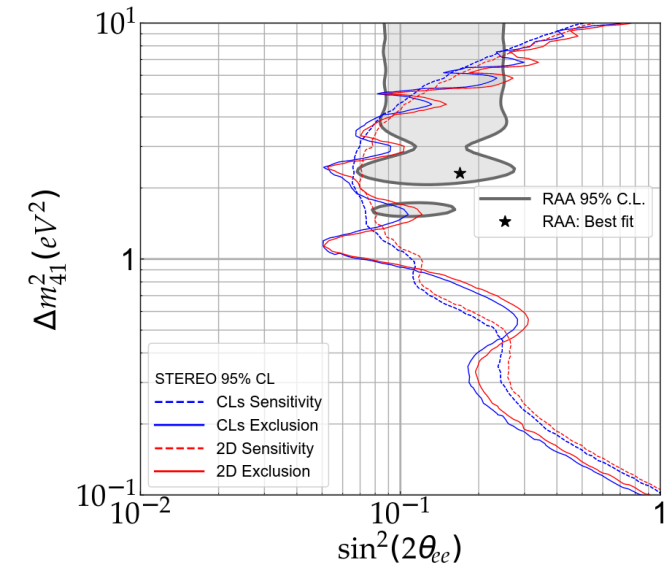
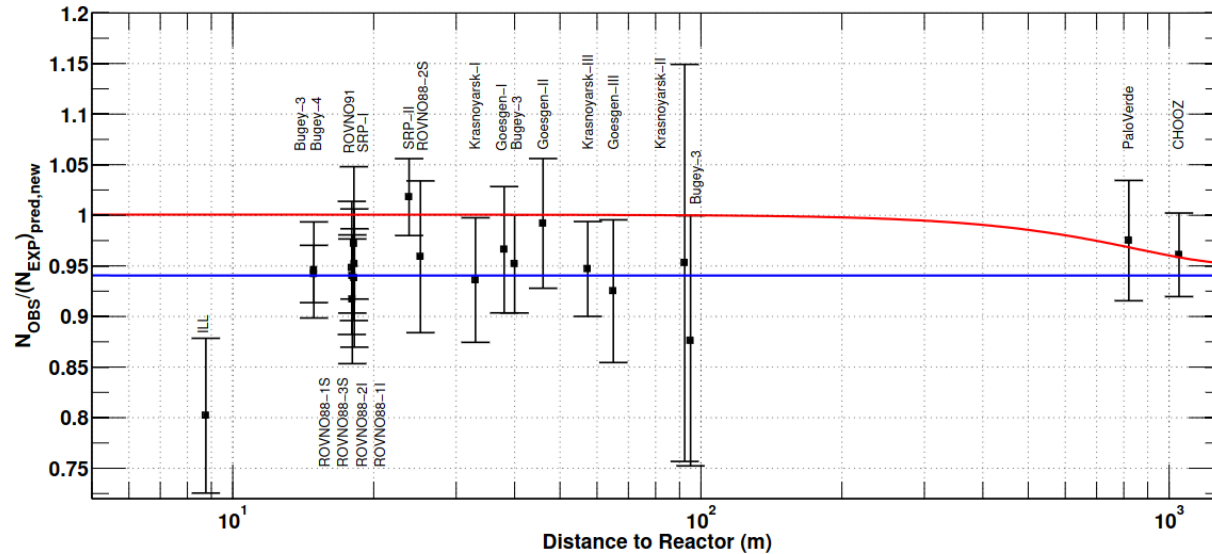

Recherche d'oscillations induites par un neutrino stérile utilisant les données des expériences STEREO, PROSPECT et Daya Bay. Développement de l'analyse de physique des neutrinos sur l'expérience DUNE.

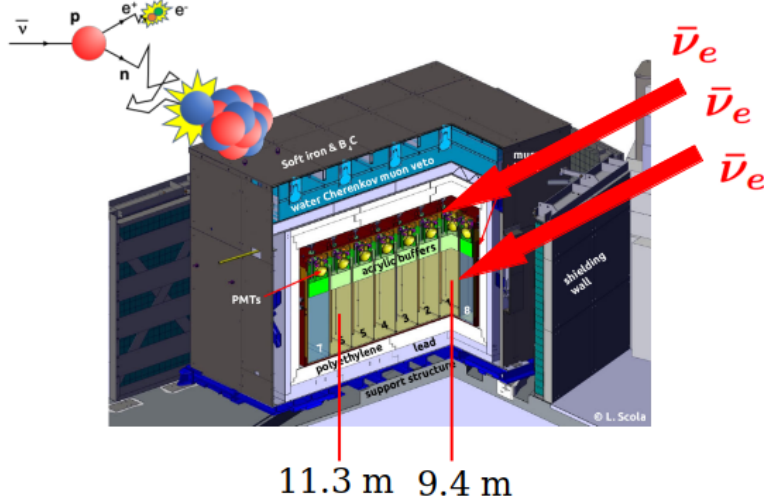
IDPASC 2025, tuesday 15 july 2025.

Yann Querlioz

Supervisor: Pablo Del Amo Sanchez



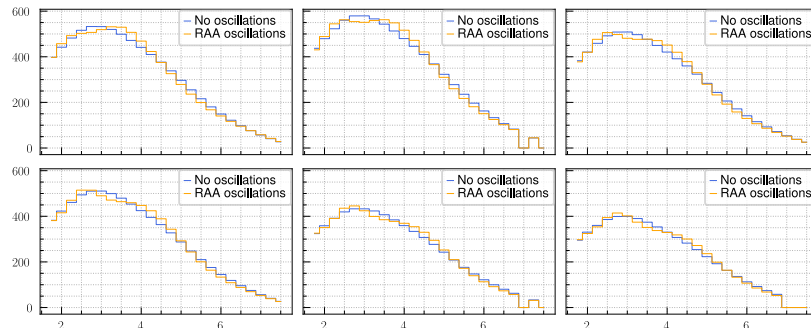
- [1] G. Mention and all, **The Reactor Antineutrino Anomaly**, *J. Phys.: Conf. Ser.* 408 012025
- [2] STEREO collaboration, **STEREO neutrino spectrum of ^{235}U fission rejects sterile neutrino hypothesis**, *Nature* 613 (2023) 7943, 257-261



$$\begin{pmatrix} \nu_e \\ \nu_\mu \\ \nu_\tau \\ \nu_s \end{pmatrix} = \begin{pmatrix} U_{e1} & U_{e2} & U_{e3} & U_{e4} \\ U_{\mu1} & U_{\mu2} & U_{\mu3} & \vdots \\ U_{\tau1} & U_{\tau2} & U_{\tau3} & \vdots \\ \dots & \dots & \dots & \ddots \end{pmatrix} \begin{pmatrix} \nu_1 \\ \nu_2 \\ \nu_3 \\ \nu_4 \end{pmatrix}$$

Additional oscillations parameter must induce spectrum modulations over different baselines.

- **blue** No sterile oscillation, expected nominal neutrino spectra.
- **orange** Expected neutrino spectra with sterile oscillation.



Merci !

Backup...