

Code comparison

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Benchmark point

The oscillation parameters were decided to be

$$\Delta m_{31}^2 = 2.4 \times 10^{-3} \text{ eV}^2, \quad \Delta m_{21}^2 = 7.9 \times 10^{-5} \text{ eV}^2,$$

$$\sin^2 \theta_{23} = 0.44, \quad \sin^2 \theta_{12} = 0.3.$$

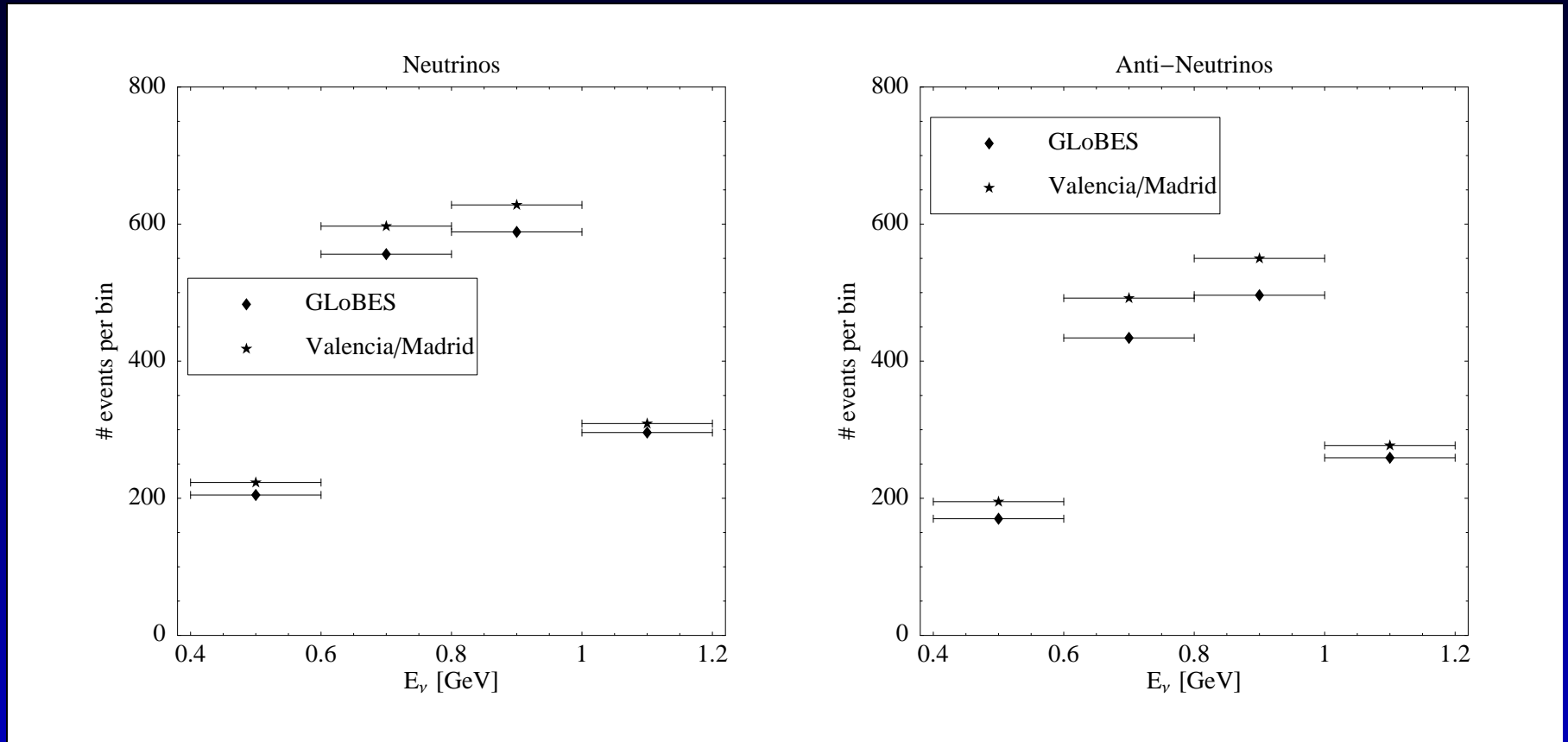
G. L. Fogli, *et al.*, arXiv:hep-ph/0506307.

Goal: compare event rates at $\sin^2 2\theta_{13} = 10^{-2}$ for one precisely defined setup

Test setup

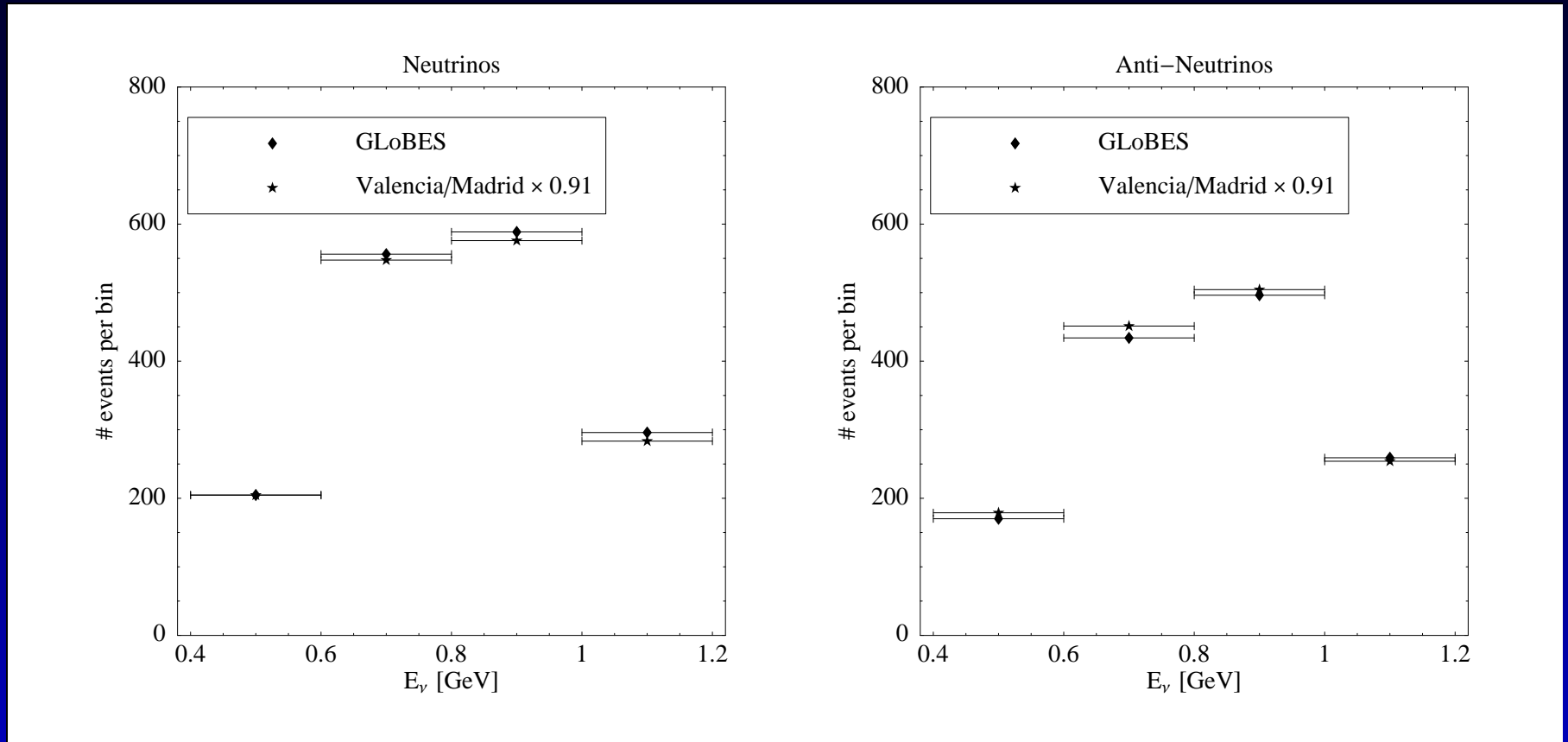
- T2K, phase 2
- 2.5 and 7.5 years of running
- flat efficiency of 0.5 for ν and $\bar{\nu}$
- NC fraction 0.0018 of the total number of ν_{μ} CC
- 4 bins from 0.4 – 1.2 GeV
- no systematics
- no resolution function

Rates



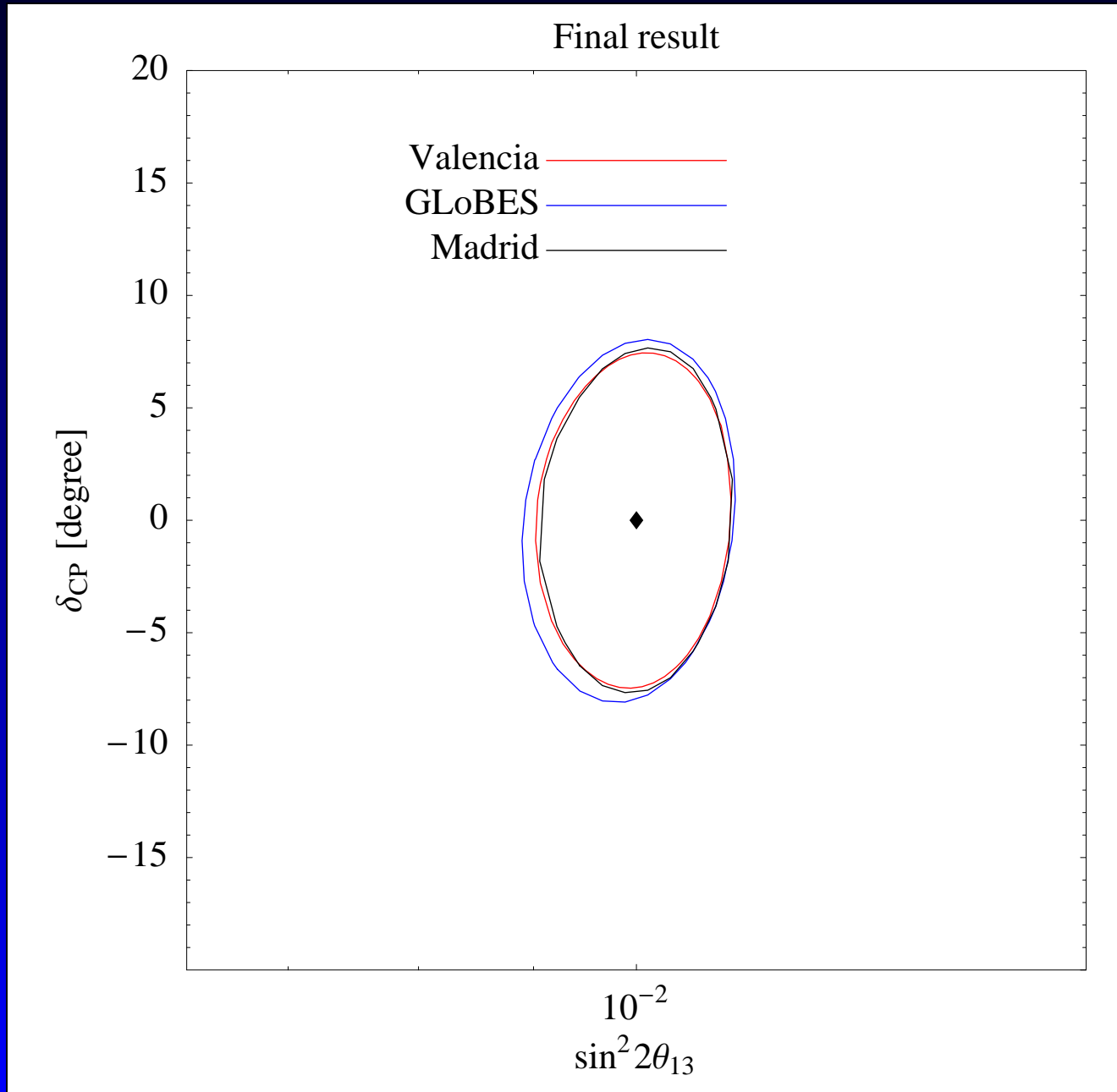
- Valencia and GLoBES used the same x-section

Scaled rates

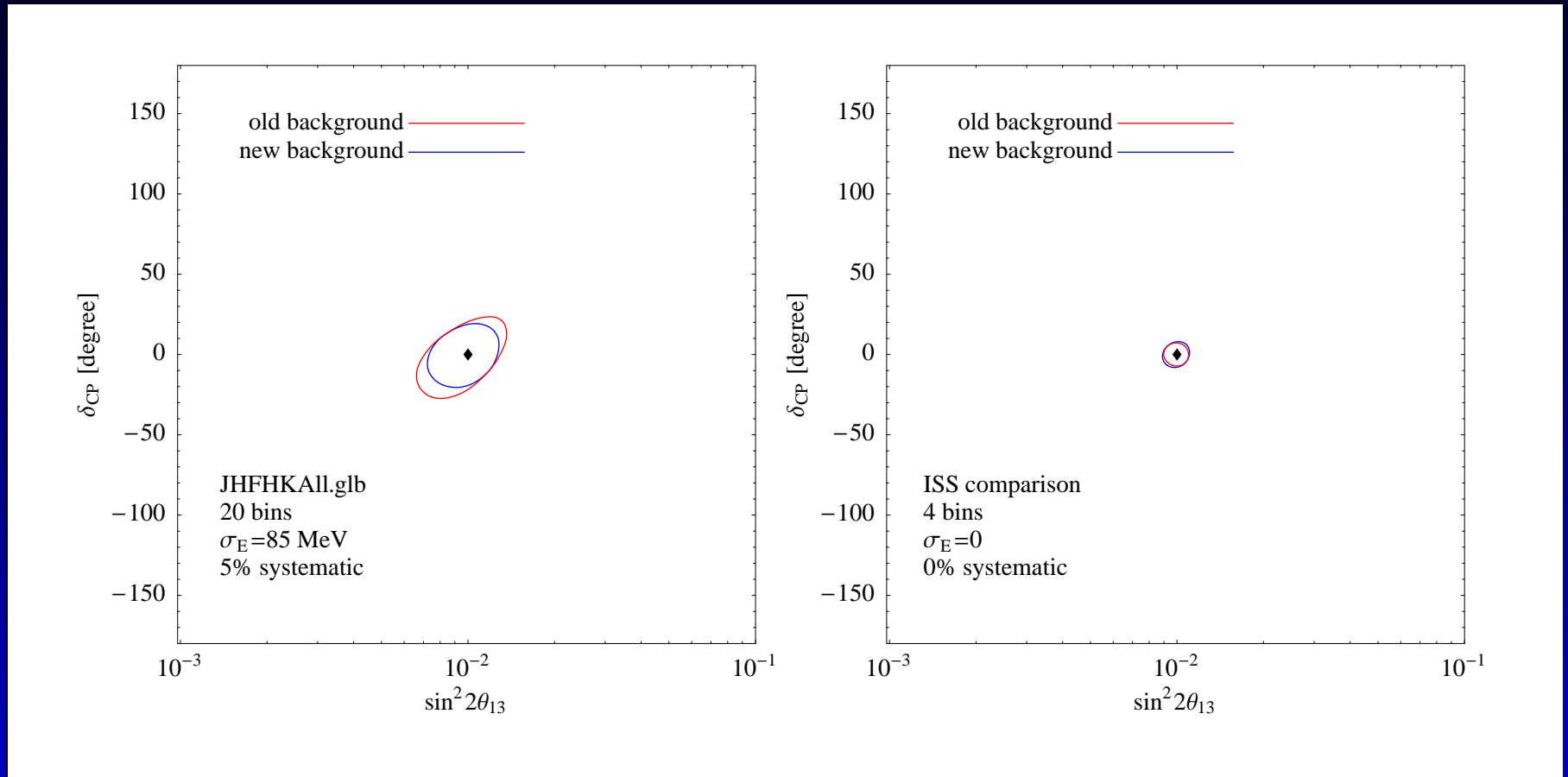


- slight differences in the overall normalization
- if taken into account, excellent agreement

Fit



Source of initial discrepancy



- GLoBES input file
- ν_e and $\bar{\nu}_e$ beam backgrounds for π^- focusing switched \Rightarrow 30% too large background in that case

Summary

The performance/analysis result depends on many factors, once the different codes really use the same input, they agree very well!