

Physics implications of recent Dresden-II reactor data

Thursday 23 March 2023 10:00 (15 minutes)

Very recently, the Dresden-II Collaboration has reported a suggestive piece of evidence pointing to the first ever observation of CEνNS using reactor $\bar{\nu}_e$ [1]. The new Dresden-II data have prompted phenomenological analyses that resulted in complementary constraints on various parameters within and beyond the Standard Model (SM). In this talk I will briefly discuss our findings from our recent work [2], where prompted by this Dresden-II reactor data we examine its implications for the determination of the weak mixing angle, and also determine the resulting constraints on the unitarity of the neutrino mixing matrix, as well as on the most general type of nonstandard neutral-current neutrino interactions using CEνNS.

References

- [1] J. Colaresi, J. I. Collar, T. W. Hossbach, C. M. Lewis, and K.M. Yocum, “*Measurement of Coherent Elastic Neutrino-Nucleus Scattering from Reactor Antineutrinos*“, **Phys. Rev. Lett.** **129** no. **21** (2022) **211802**, [arXiv:2202.09672 \[hep-ex\]](#).
- [2] A. Majumdar, D. K. Papoulias, R. Srivastava, J. W. F. Valle. “*Physics implications of recent Dresden-II reactor data*“, **Phys. Rev. D** **106** no. **9** (2022) **093010**, [arXiv:2208.13262 \[hep-ph\]](#).

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