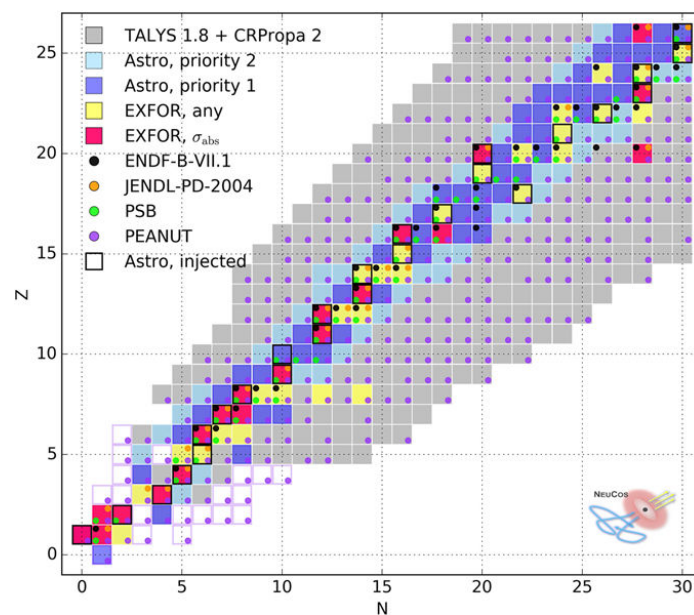


The impact of nuclear physics on the UHECR and neutrino production

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The Ultra High Energy Cosmic Rays (UHECRs) interact with the photon fields of the sources in which they are produced and with the background photons of the extragalactic space. We show[1] the experimental situation on photo-nuclear cross section data and demonstrate that the available measurements are sparse in the relevant mass range for the UHECRs. Moreover, the theoretical models that describe the photo-nuclear interactions show differences with respect to the available measurements. We also discuss the impact of different photo-nuclear models in the emitted cosmic-ray nuclei and neutrinos from candidate sources. We also emphasize the need of new inputs from nuclear physics in order to reduce the current uncertainties.



References

- [1] D. Boncioli, A. Fedynitch, W. Winter, Scientific Reports **7**, Art. No. 4882 (2017)