

Deconstructing neutrino mass constraints from galaxy redshift surveys

The upper limit on the sum of neutrino masses is provided by cosmology. Massive neutrinos modify the expansion rate of the Universe and the growth of matter perturbations in ways that can be measured using galaxy redshift surveys. However, as we demonstrated in our recent paper, the constraints extracted are heavily dependent on the cosmological model assumed. Most such constraints are presented in the context of a flat Universe with a cosmological constant, but are significantly degraded if changes in curvature or the nature of dark energy are allowed. We have deconstructed the various ways in which the neutrino mass can be probed using future galaxy surveys (e.g. DESI, Euclid) and how sensitive the constraints from various probes are to cosmological assumptions. Importantly, we have identified a cosmology-independent method of constraining the neutrino mass from galaxy survey data, which will allow us to extract much more reliable neutrino mass constraints in future analysis.

Session and Location

Monday Session, Poster Wall #32 (Robert-Schumann-Room)

Poster included in proceedings:

yes

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Track Classification: Poster (participating in poster prize competition)