

Review of: "A simple direct empirical observation of systematic bias of the redshift as a distance indicator"

Martín López-Corredoira¹

¹ Instituto de Astrofísica de Canarias

Potential competing interests: No potential competing interests to declare.

The author tells us that difference of average redshifts rotating in different sense is significantly different. Assuming the numbers derived from the statistics are correct, the author needs to explain why these numbers suppose an anomaly in tension with the expectation. If the galaxies were totally independent, with no covariance terms, the probabilities associated to the differences of redshift would be those calculated in the paper. But in large scale structure at scales of few hundreds of Mpc, there is place for correlated structures of densities and velocities and possibly also rotation direction.

The author discusses the influence of alignment of galaxies at some scale within large scale structure at sect. 5, parag. 2, but not explicit calculations are given and not comparison with some literature with "standard cosmological model" indicating some alignment of galaxies (e.g., Varela et al. 2012, ApJ, 744, 82; d'Assignies D. et al. 2022, MNRAS 509, 1985; Kraljic et al. 2020, MNRAS, 493, 362) or correlation of rotation curves with environment (e.g., Whitmore et al. 1988, ApJ 333, 542). Some revision of the literature of this type is suggested here.

Nonetheless, a qualitative discussion of the literature would not be enough. More importantly, numbers of theoretical predictions are necessary to be compared with the putative anomalous excess of redshift. If the author cannot find these numbers in the literature, he should obtain them from comparison with N-body simulations of large-structure (there are several of them publicly available).

Minor suggestions:

- Sect. 2: although some references are given, it is not clear in this text what clockwise or counterclockwise rotation means. "the same direction relative to the Milky Way", it is said, but some specific definition would be helpful for the reader.
- Sect. 3, parag. 1: the numbers you give are for the NGP, are not they?
- Table 2: indicate the units of the flux. It is not clear what these numbers represent. Average flux per galaxy?

