The Zeldovich Universe: Genesis and Growth of the Cosmic Web
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The place of the Local Group in the cosmic web

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Abstract. The place of the local group in the cosmic web.

Keywords. cosmology: large-scale structure of universe; cosmology:dark matter; cosmology: simulations; Galaxy: formation

1. Introduction

Forero-Romero et al. (2009)

2. Finding the cosmic web in numerical simulations

3. Local Groups in cosmological simulations

4. Halo alignments with the cosmic web

5. The place of the Local Group in the Cosmic Web

6. Conclusions

Here we have summarized results on the expected place of the Local Group in the cosmic web. Our results are based on cosmological N-body simulations and the tidal web method to define the cosmic web. We constructed different Local Groups samples from dark matter halo pairs that fulfill observational kinematic constraints.

We found a tight correlation of the LG pairs' total mass with the scalar web properties (overdensity, ellipticity and prolateness). For the LG pairs closer to the observational constraints their total mass is in the range $1 \times 10^{12}\mathrm{M}_{\odot} < M_{LG} < 4 \times 10^{12}\mathrm{M}_{\odot}$ preferred overdensity value is constrained to be in the range $0 < \delta < 1$.

We also found a tight aligment of the pairs with the cosmic web. The vector joining the two LG halos is aligned with the lowest eigenvector and antialignned with the highest eigenvector. This means that pairs are aligned along the filaments and lie along sheets. These alignments are tighter as the pairs' kinmeatic conditions are closer to observations.

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