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Erratum

Halo concentrations and weak-lensing number counts in dark energy cosmologies

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In this paper, we used spherical-collapse parameters computed using formulae provided by Łokas & Hoffman (2002), i.e. the mean overdensity within virialised haloes, Δ_v, and the linear overdensity for collapsed haloes, δ_c. We became aware only after the paper was published that these formulae are incorrect because it was implicitly assumed in their derivation that the spatial curvature within overdense regions was constant, which is not the case in dark-energy models. Dropping this assumption and computing the parameters Δ_v and δ_c correctly causes our results to change substantially.

As detailed in the paper, haloes form earlier in dark-energy models, parameterised here by the constant ratio w between pressure and energy density. Thus, they tend to be more concentrated than in cosmological-constant models. This is counter-acted by the increasing Sachs-Wolfe effect, which leads to a decrease in the power-spectrum normalisation σ_8 as w increases. In the paper, we found the increase in halo concentrations to dominate, leading to an increase in weak-lensing halo counts for $w \lesssim -0.6$, followed by a steep decline as w increased further.

While the statement that haloes are expected to be more concentrated in dark-energy models remains qualitatively correct, the accurate computation of Δ_v and δ_c reduces the increase in the halo concentrations with increasing w such that now the decrease in the normalisation σ_8 dominates (cf. Fig. 1, replacing Fig. 6 of the paper). Consequently, the number of haloes detectable by weak-lensing techniques is almost flat for $-1 < w \lesssim -0.6$ and drops for further increasing w. This is illustrated in Fig. 2, which replaces Fig. 9 of our paper.

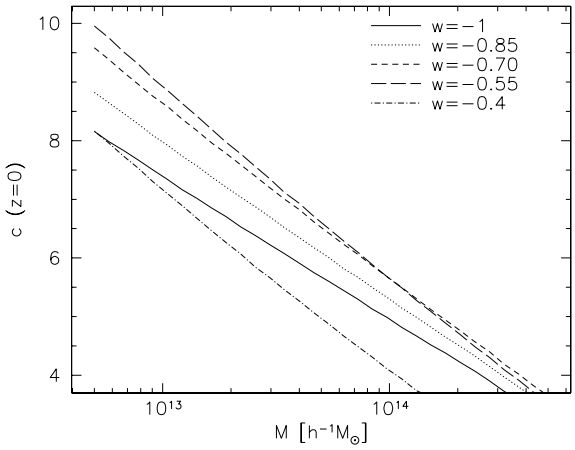

Fig. 1. Halo concentrations as functions of halo mass M_{200}; replaces Fig. 6 of the paper.

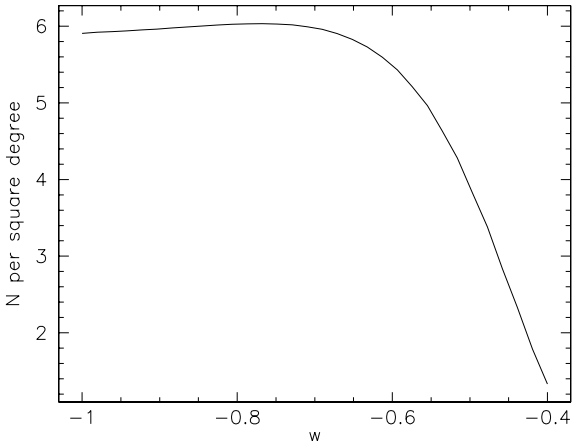

Fig. 2. Number density of significant weak-lensing haloes as a function of w; replaces Fig. 9 of the paper.

References

Łokas, E. L., & Hoffmann, Y. 2002, MNRAS, submitted, preprint [astro-ph/0108283]

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