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Erratum: density profiles of CDM microhalos and their implications for annihilation boost factors

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The paper “Density profiles of CDM microhalos and their implications for annihilation boost factors” was published in JCAP, Issue 04, 009 (2013) [1]. The simulation parameters of Halos 1–3 in the realisation with cutoff in the initial matter power spectrum are erroneous (see table 1 in [1]). The corrected values for $M_{200}$ and $r_{200}$ (and therefore as a consequence also $c_{200}$ and $c_{NFW}$) are listed in table 1. Furthermore, the changes in $c_{200}$ also cause changes in the $z = 0$ concentration estimates, given in section 3.2. They now read: $c_{200} = 74.6, 83.8$ and 56.6. We want to stress that all our physical conclusions remain unaltered.

Finally, we would like to report a typo in the axes labeling in figure 2 in [1]. The spherically averaged density profiles are plotted at $z = 31$, not at $z = 0$ as indicated in the figure. An updated version is shown in figure 2.

Acknowledgments

We thank Adrienne Erickcek who helped us finding these mistakes.

References

[1] D. Anderhalden and J. Diemand, Density Profiles of CDM Microhalos and their Implications for Annihilation Boost Factors, JCAP 04 (2013) 009 [arXiv:1302.0003] [INSPIRE].
Table 1. Halo parameters of the Level 1 simulation at redshift $z = 31$. $M_{200}$ and $r_{200}$ are measured as 200 times the critical density, $\alpha$ is the inner density slope of the measured density profile (see eq. (3.1) in [1]), $\alpha = 1$ corresponds to the NFW profile. Distances are given in physical units.

| Cutoff Type | Halo | $M_{200}$ [$10^{-7}$ $M_\odot$] | $r_{200}$ [10$^{-3}$ pc] | $r_s$ [10$^{-3}$ pc] | $c_{200} = r_{200}/r_s$ | $c_{\text{NFW}}$ | $\alpha$ |
|------------|------|---------------------------------|---------------------------|---------------------|----------------------|-----------------|--------|
| Cutoff     | Halo 1 | 0.79                           | 4.26                      | 1.84                | 2.33                 | 3.89            | 1.4    |
|            | Halo 2 | 2.08                           | 5.89                      | 2.25                | 2.62                 | 3.72            | 1.3    |
|            | Halo 3 | 2.18                           | 5.99                      | 3.38                | 1.77                 | 2.96            | 1.4    |
| No Cutoff  | Halo 1 | 1.94                           | 5.78                      | 1.94                | 2.97                 | 2.97            | 1      |
|            | Halo 2 | 2.93                           | 6.63                      | 2.22                | 2.98                 | 2.98            | 1      |
|            | Halo 3 | 3.81                           | 7.22                      | 3.47                | 2.09                 | 2.09            | 1      |
Figure 2. Panels 1–3: spherically averaged density profiles of the three largest collapsed microhalos at \( z = 31 \), with (red triangles) and without (black squares) cutoff. The red solid lines refer to the best fit according to eq. (3.1) in [1] with \( \alpha = 1.4 \) (Halo 1 & Halo 3) and \( \alpha = 1.3 \) (Halo 2), the black solid lines refer to a NFW fit respectively. The radial distance is plotted in physical units, densities in units of \( \rho_{\text{crit}} \) at \( z = 31 \). Panel 4: density residuals between the Level 1 run and three convergence test simulations, each varying one simulation parameter.