Structural Differences between Cold Dark Matter and Self-Interacting Dark Matter Models Throughout Time RENATA KOONTZ[1], PETER CREASEY[2], HAI-BO YU[3], Univ of California - Riverside — We investigate fundamental structural differences as a function of time between the Cold Dark Matter and Self-Interacting Dark Matter $\sigma_x = 1$ models of dark matter halos using N-body simulations at scales of 30 Mpc. To examine differences in structural formation of dark matter halos for both models, we compare the time $t_{\frac{1}{2}}$ at which a dark matter halo achieves half of it's mass for masses ranging from $10^8 \sim 10^{12}$ $M_\odot$. Furthermore, we also compare mass-concentration parameter c with $t_{\frac{1}{2}}$ and $z_{\frac{1}{2}}$ for these same masses ranges to find statistically significant differences. Once these differences are statistically significant, we investigate dark matter halo density and velocity dispersion profiles closest to the median using the Navarro-Frenk-White Profile.

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