Abstract Submitted
for the APR16 Meeting of
The American Physical Society

Preliminary results of cosmological simulations with flavor-mixed dark matter and baryonic physics KEITA TODOROKI, MIKHAIL MEDVEDEV, Univ of Kansas — A number of dark matter (DM) candidates are flavor-mixed particles, yet the standard cosmology does not account for flavor-mixing of CDM. In our earlier DM-only N-body simulations, we have found that DM with more than one flavor-mixed component (the "2cDM" model) simultaneously resolves small-scale problems (the substructure, core/cusp and too-big-to-fail problems) while keeping the large-scale structure intact and being with agreement with observational constraints on DM-self-interactions. While DM-only simulations are crucial for unraveling the nature of DM, baryonic physics (star formation, feedback, outflows, etc.) plays an important role and also affects observational predictions. Here we present preliminary results of N-body simulations of the 2cDM with star formation and baryonic feedback. The results indicate that 2cDM model is generally superior than CDM in a number of respects. For instance, it can reconcile the simulated and observed star formation rates without much tuning.

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Date submitted: 08 Jan 2016 Electronic form version 1.4