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Hunting for the Dark Matter Wake Induced by the Large Magellanic Cloud

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ABSTRACT

TBD

Keywords: Large Magellanic Cloud – Milky Way Halo

1. INTRODUCTION

2. COMPUTATIONAL METHODS

2.1. *Explanation of BFE*

2.2. *Time evolving potential interpolating coefficients.*

2.3. *The combined potential of the MW and the LMC: using two expansions*

How to include the LMC in the potential. Which particles from the LMC we need to use in order to compute the expansion on the LMC.

2.4. *The Python library to compute orbits:*

2.5. *How to choose the right number of terms in the BFE*

How many terms should we need in the expansion.

3. RESULTS

3.1. *The shapes of the Milky Way DM halo density & potential in the presence of the Large Magellanic Cloud*

- Contours of the DM density/potential.
- Use the inertia tensor to try to fit ellipsoids to the DM halo shape.

3.2. *Can we disentangle contributions from the Local and Global Wake and the disk motion?*

3.3. *Test case: orbits of GCs and Satellite Galaxies*

4. DISCUSSION:

- choose the right scale radius for the DM halos, the expansion is sensitive about this.

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Software: Astropy (**??**), pygadgetreader **?**, matplotlib **?**, numpy **?**, scipy **?**, ipython **?**, scikit-learn (**??**), jupyter **?**, healpy **?**, reproject https://github.com/astrofrog/reproject, pyh5 http://depsy.org/package/python/h5py. ADS, Arxiv.