[main] All-sky dynamical response of the galactic halo to the Large Magellanic Cloud.

The most basic concepts required to begin understanding the ideas on the paper are:

1. To be familiar with the scales and anatomy of the milky way.
   1. Disk: h=0.7kpc, R=25kpc
   2. Bulge: R=4kpc
   3. Stellar halo: R=100kpc
   4. DM halo: R=230kpc
2. Understanding of gravitational interactions.
3. Poisson statistics.
4. Photometry bands:
   1. J H Ks from 2MASS (old)
   2. WISE band W1. WISE photometry
5. Correct for dust extinction.
   1. Reddening coefficients

Notes on the paper:

Intro

* **What are the ‘disequilibrium phenomena 1-7? Care 2**
* The data is from giant stars (#1301). Why this specific population? I think it was to determine the distances with a better estimate using photometry.
* The galactocentric distance of the analysis ranges from 60 to 100 kpc.
* **Chandrasekhar dynamical friction wake. 14**
* Equilibrium condition of the outer halo of the MW.
* **How is the mass of the milky way and the LMC measured. 16, 17**
* **The formation of the wake is a resonant process. 19**
* In this work, the simulations began with a smooth stellar halo. *Further work might be done with more realistic initial scenarios.*

Methods

* **Previous work with different datasets. 34, 35**
* Pressure-sensitivity of continuous opacity sources?
* New method:
  + Handling dust presence. 37, 38 (newer)
  + Quality. BP and RP flux excess factor C\*? Overview 39
  + Parallax range limited with Gaia.
  + Handle precision on WISE using W1 band.
  + Using cross-matched sources from Gaia and WISE, the stars from the giant branch in a BP-RP vs RP-W1 plot were selected to further refine the selection. Suposing Fe/H = -1.5, these set of sources are K giants.
  + Using MIST stelar isochrones with age 10Gyr and the metallicity of -1.5 the distances were calculated.
    - This method for calculating the distances es subject to many errors. They are discussed in detail in the paper. They are not insignificant, but it is what it is.
    - The good thing is that this error in the distances is not significant for the purpose and conclusions of the paper according to the autors. (I am not so sure about this yet)
* Mapping…
  + Analyzing the procedure stated, the number of stars on the map goes down to 1000.
  + **I’m doubting about the importance of the center of this map being on the sun.**
  + How does the selection of the stars in the blue circle remove disk stars, LMC, SMC, etc.
* RR Lyrae probe…
  + RRab subtype?
* Simulation details
  + Both DM halos follow a Hernquist profile. See 55
  + Isotropic halo kinematics?
  + Radially biased kinematic profile?
  + See GalIC 56.
  + See P-gadget3
  + Regarding the method used to find the initial conditions for the orbit of the LMC… Do this initial parameter space converge to a point or some kind of line/surface/hypersurface on the phase space.
* A tilted halo?
  + Other possible line of work.