20 de Junho

Teste com o Bluetooth Low Energy 4.0, criaÃ§Ã£o de um app que o acessa em iOS

Bluetooth Low Energy 4.0 - Testes

Inner radius

The density profile follows an $r^{-3/2}$ power law. To avoid a singularity at the center, an interpolation is done over a radius. This inner radius is defined in the parameter file. It should follow the prescription of a singular isothermal sphere (see Binney & Tremaine p.305), which is also the definition of the King radius:

$$r_0 \equiv \sqrt{\frac{9\sigma^2}{4\pi G\rho_0}} \tag{1}$$

where σ is the velocity dispersion and could be estimated as $\sigma = \mathcal{M}c_s$, where $c_s = \sqrt{\gamma P/\rho} = \sqrt{\gamma k_B T/\mu}$ is the sound speed.

The isothermal sound speed in our simulation was estimated

$$c_s = \sqrt{\frac{k_b T}{\mu m_p}} \tag{2}$$

I'm unsure why a factor of γ was not included. For 30 K, this gives a sound speed of about 34000 cm/s or 0.34 km/s. At a Mach number of 5, this gives a supersonic dispersion of $\sigma = 1.7$ km/s

This gives an inner radius of $r_0 \approx 1.595\text{e}17$.

Rotation

Set the same ratio of rotational to gravitational energy β as in Peters et al. 2010a. According to Goodman et al. (1993), this is given by (see equation 6):

In practice we can probably use the central density ρ_c instead of determining an average density ρ_0. Looking at the numbers from other simulations, we could use an ω of 1.3e-14.

The link to the Goodman et al. (1993) paper:
`http://adsabs.harvard.edu/cgi-bin/bib_query?1993ApJ...406..528G`

We want to complete our simulation with a similar β to check if disks form in the turbulent environment.