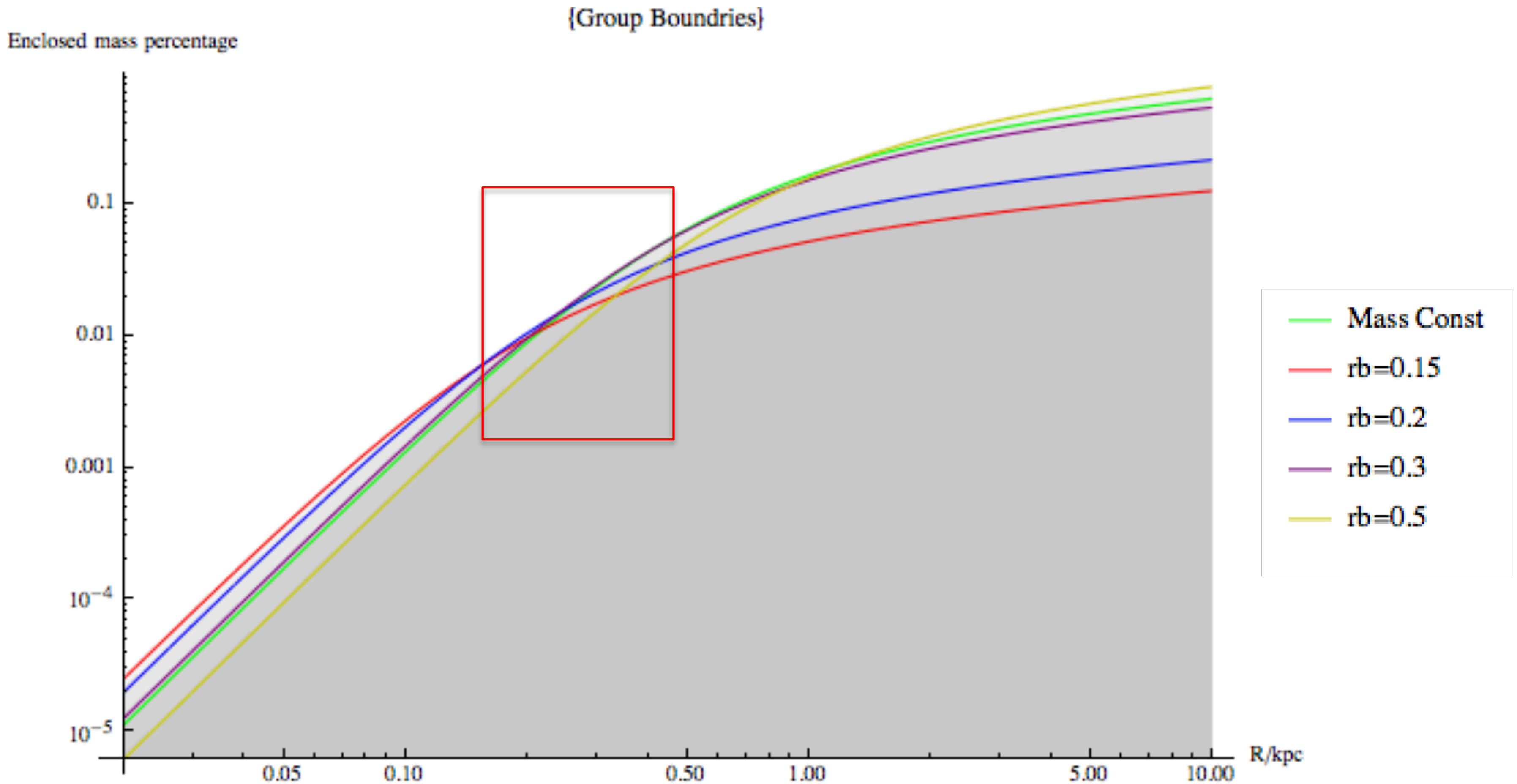
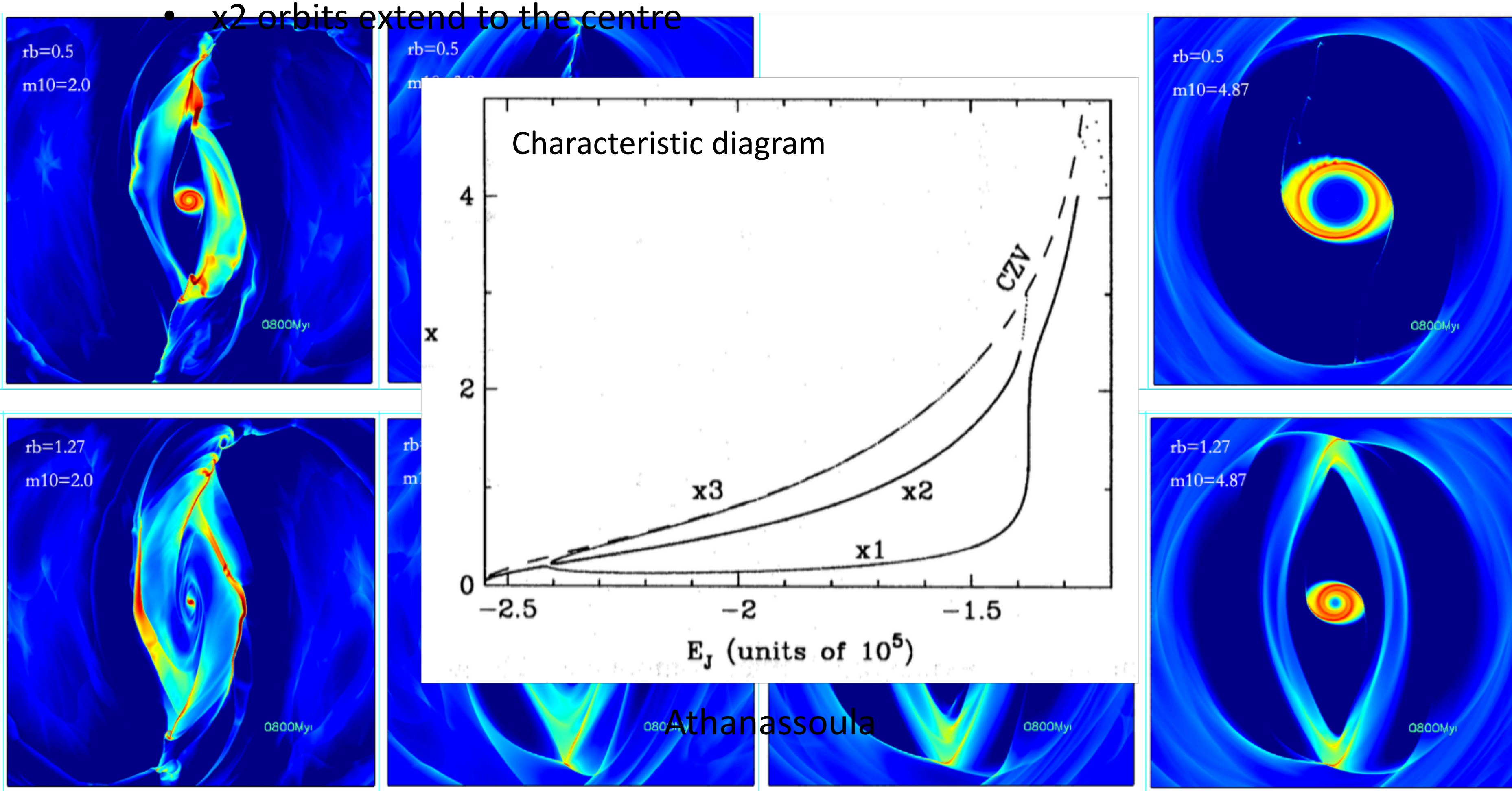
- Writing my report
- Do more research on the enclosed mass criteria
- Explore the double ring phenomenon

- Log-log plot

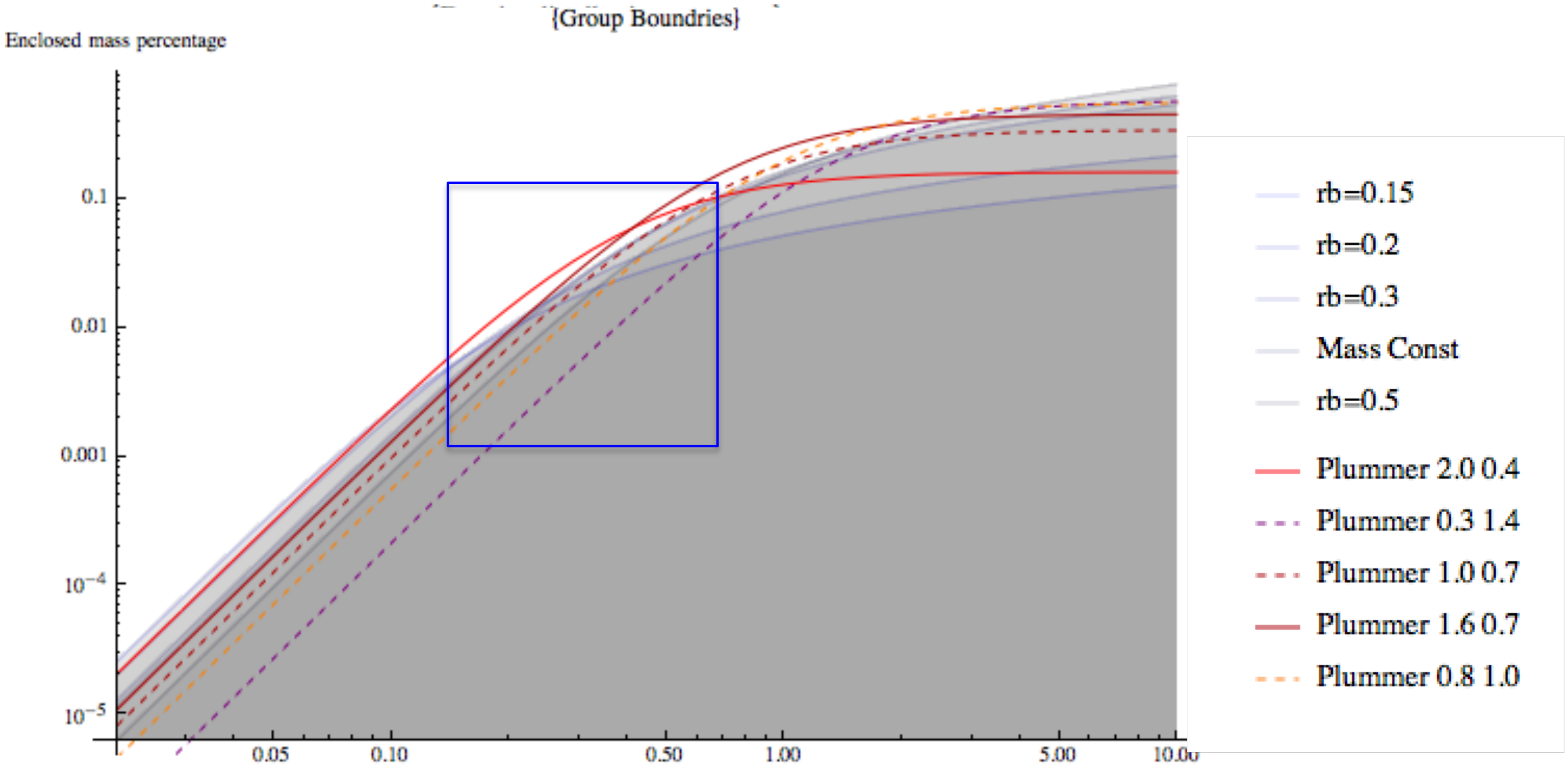

{Group Boundries}
Enclosed mass percentage
0.1
0.01
0.001
10^{-4}
10^{-5}
0.05
0.10
0.50
1.00
5.00
10.00
R/kpc
Mass Const
rb=0.15
rb=0.2
rb=0.3
rb=0.5

- Hernquist model
  - An infinite central density
  - x2 orbits extend to the centre

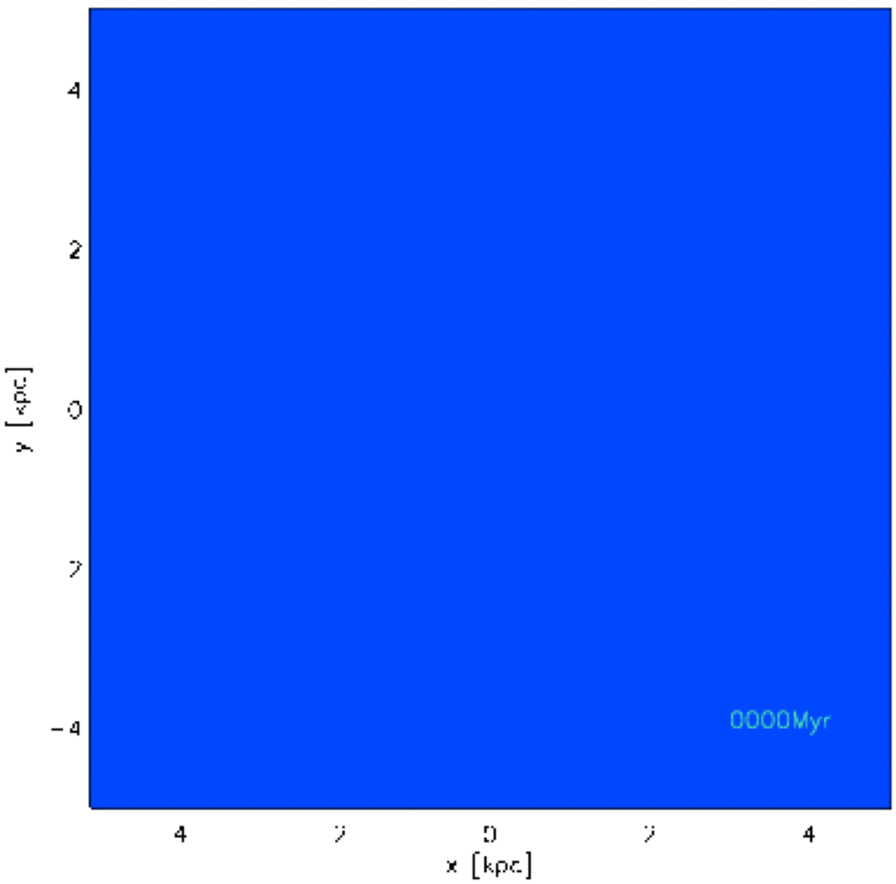


Athanassoula

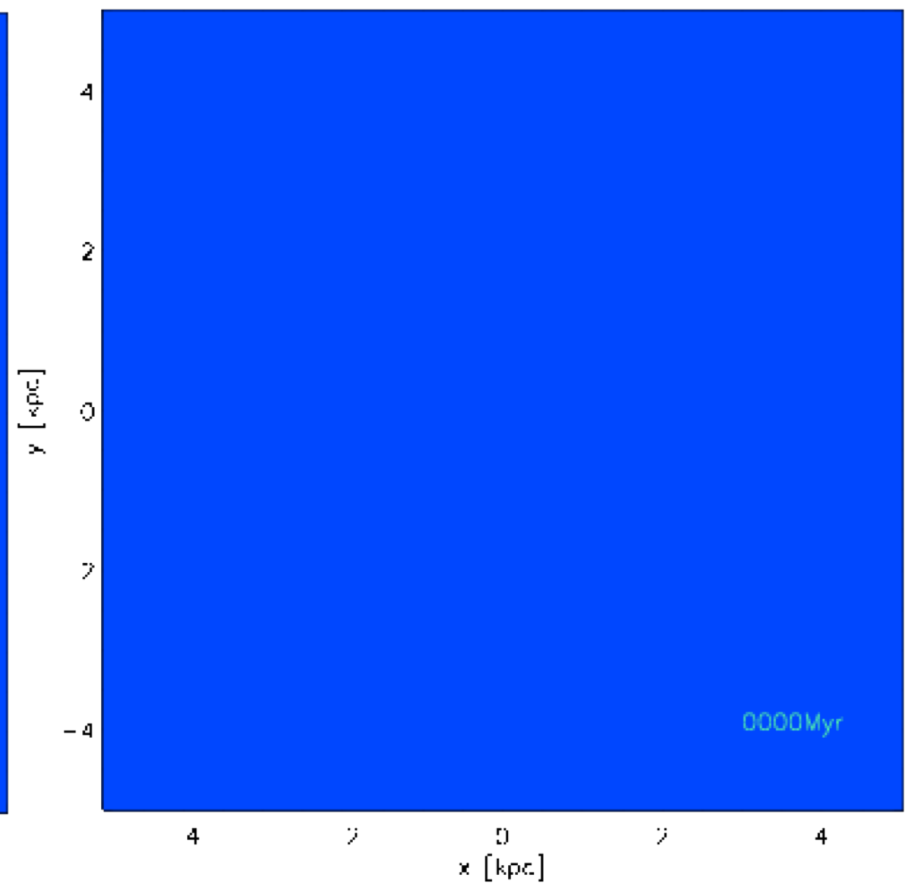
- Plummer model



- Double ring



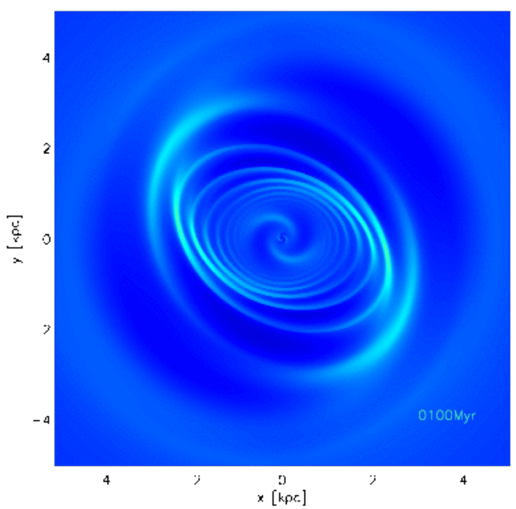
rhob=1.8 rb=0.6



rhob=1.5 rb=0.7

- Possible explanation

- Density wave and Primal gas residual



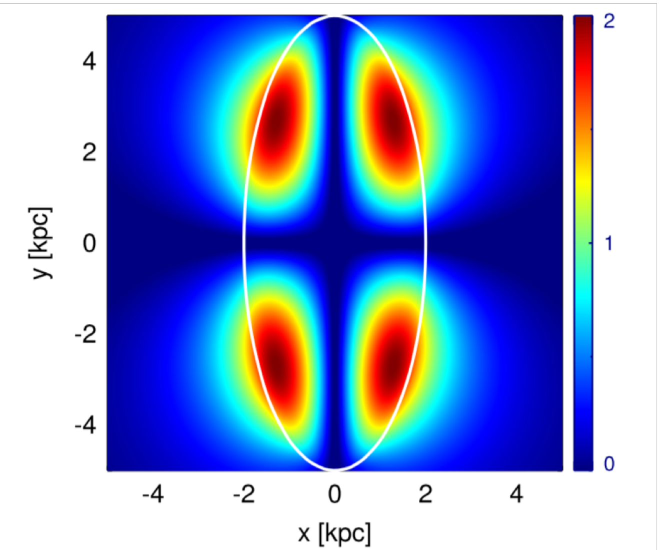
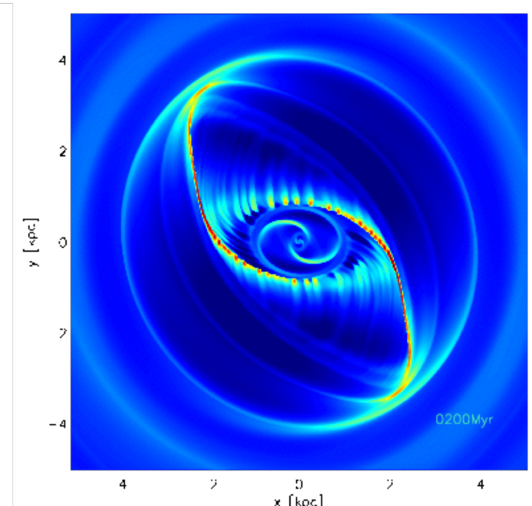


Figure 8. $|\boldsymbol{r} \times \boldsymbol{F}|$ for our Ferrers bar model. The white ellipse denotes the bar outline. We see that the region where the largest $|\boldsymbol{r} \times \boldsymbol{F}|$ occurs is mainly at the inner edge of the bar.

Lizhi

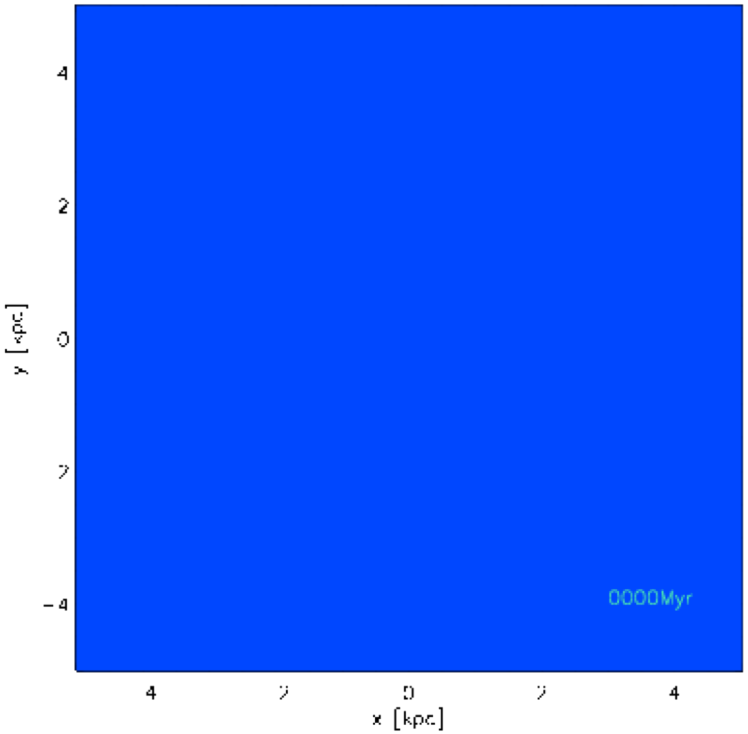


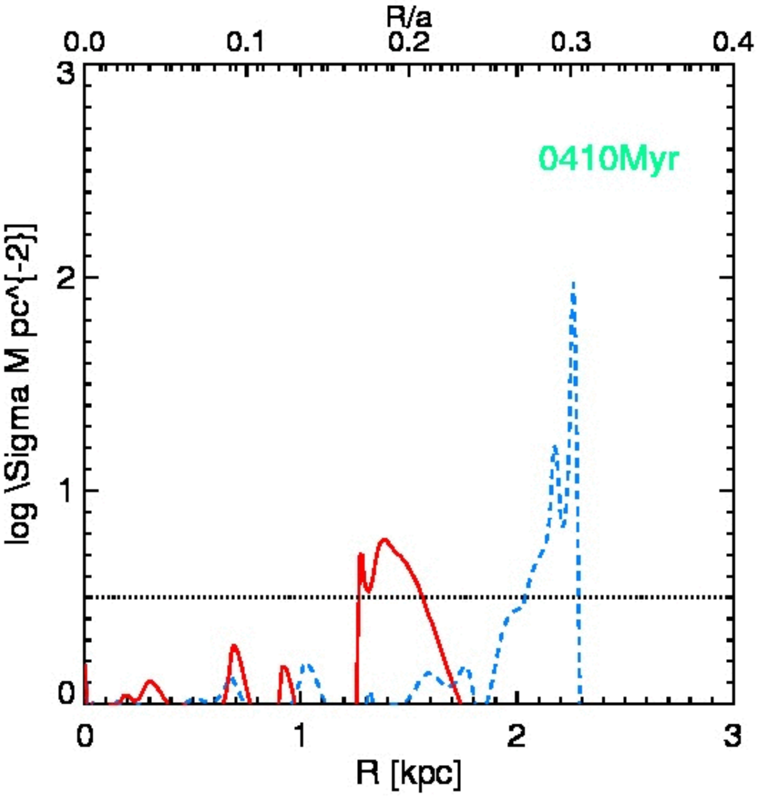
- Interaction with the ring

- Add a massive black hole

  --> More gas survives around the center

  --> Clear interaction with ring --> The ring's average A.M. decreases





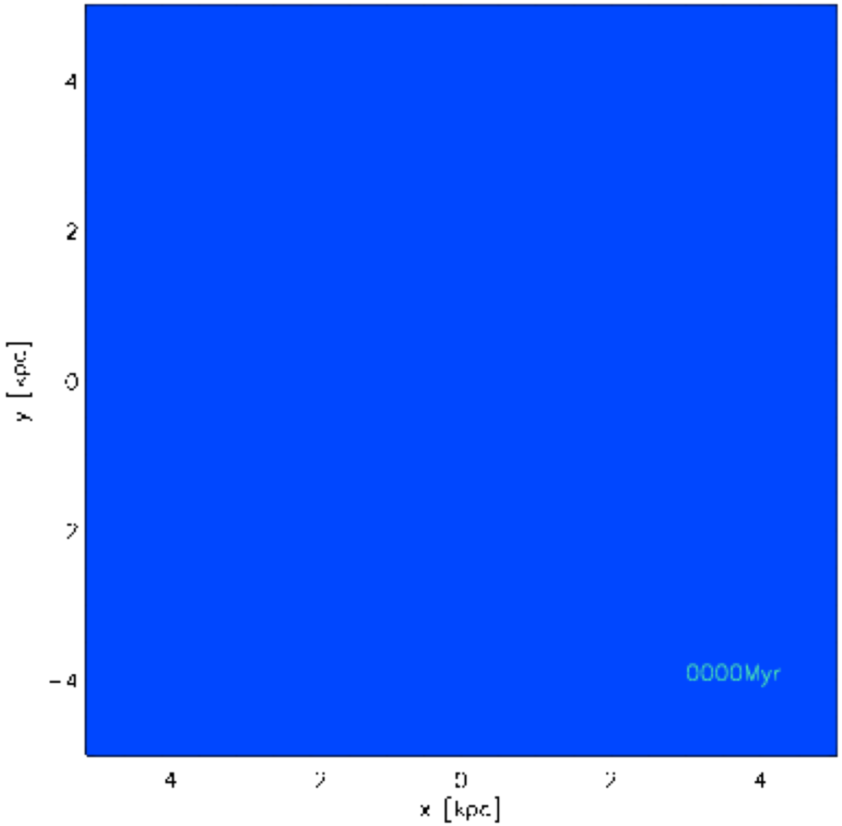
rhob=1.8 rb=0.6 BH=400(10^6 Msun)

- 1^{st} situation:

A relatively small ring --> Strong interaction with ring

--> Nuclear spiral arms

--> Merge with the ring



rhob=1.5 rb=0.6

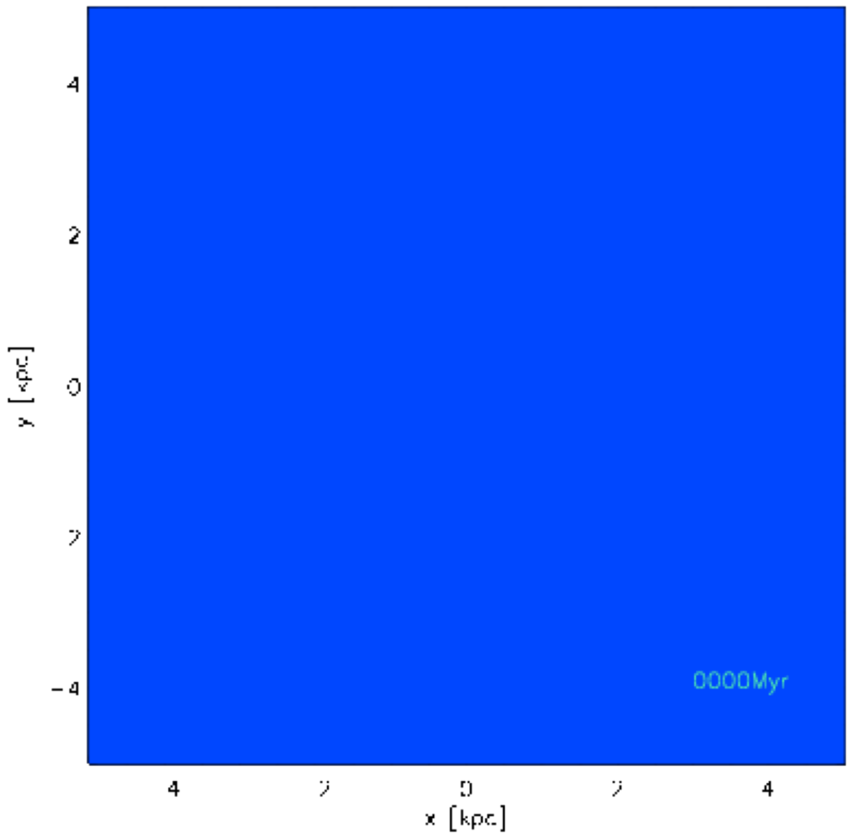
- 2nd situation:

A big ring --> Density wave dissipates

--> Isolated gas in a periodic orbit

Why a x1 orbit?

- There isn't a x2 orbit at such a central position
- The early interaction with ring slightly increases the inner gas's A.M.



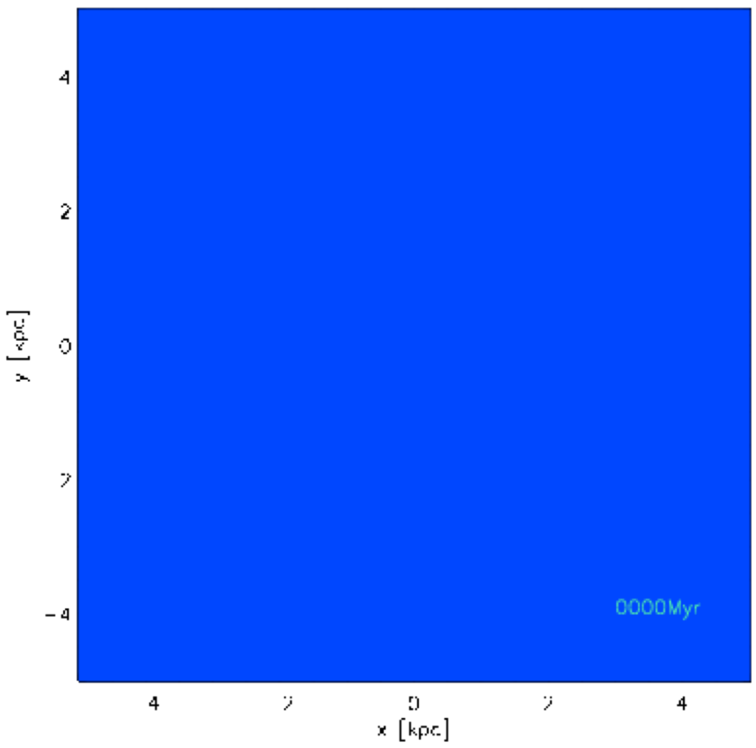
rhob=1.8 rb=0.6

- Both 1st & 2nd situations

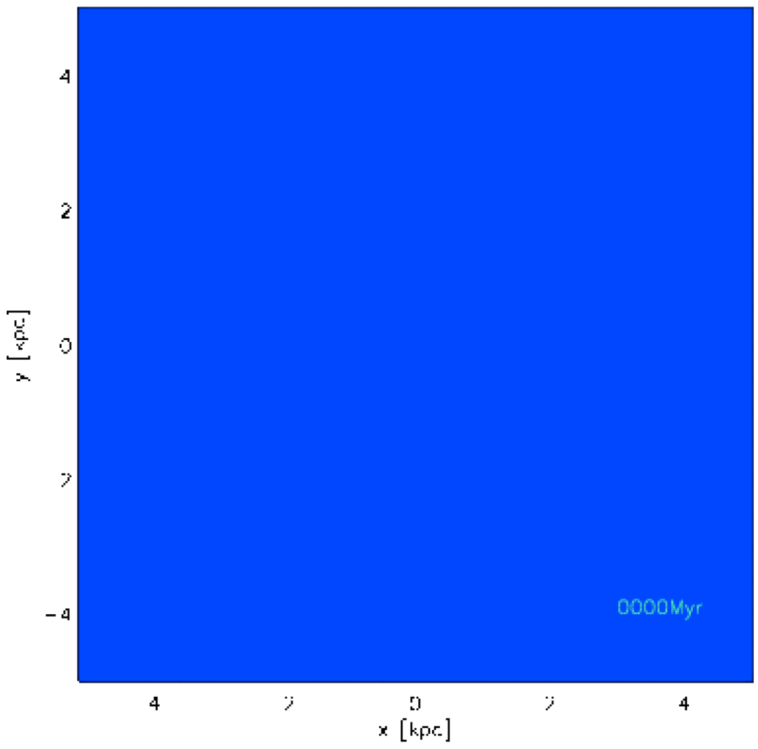
The inner ring's procession

--> Later interaction with nuclear ring

--> A transient inner ring

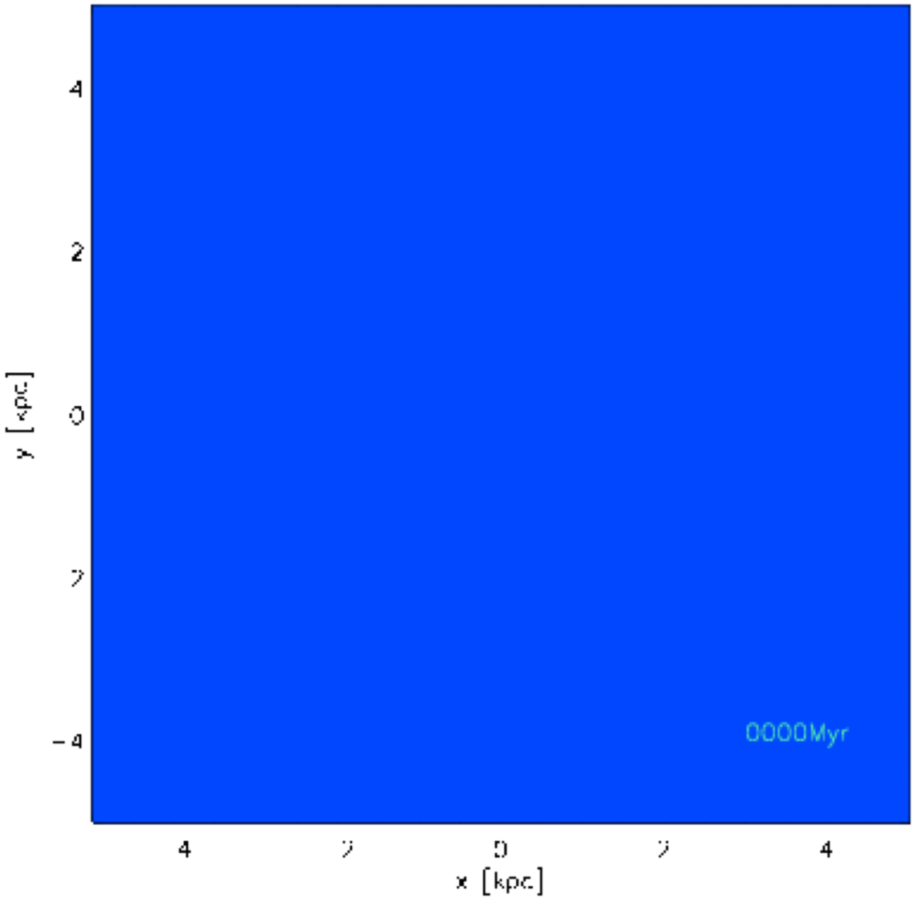


rhob=1.6 rb=0.6



rhob=1.7 rb=0.6

- An interesting circumstance



rhob=1.7 rb=0.33