Section 2 A very big box

50 x 50 x 50 needs units(Mpc)

Section 3 Particle Mesh code

We create initial conditions for particles in the system. Dividing the system into boxes can give us a particle density per box. Using this density, we can find the potential. The code we wrote goes through each particle, determine which box it is in and increment that index by one until we have gone through all the particles so we can get the density of each cell. WE can get the perturbation of the density per cell from the normal. Taking the fast Fourier transform of the perturbation we can get the fast Fourier transform of the potential so to get the actual potential we must do the inverse fast Fourier transform to transform it back. From the potential, we are able to get the acceleration associated with each cell, then update the positions of the particles in those cells based on the accelerations.

Doesn’t have to be this just giving ideas for how to say it and what to say.

Section 4 A **More** Realistic simulation

I am pretty sure we just multiplied the initial conditions by our box size/his box size this way they are normalized then set to our values.

Spelling – It can clearly be seen that there are regions \*\*where\*\*

In this simulation how was it set up initially? – It was more organized than our random initial coniditons but less organized than our perfectly organized placing.

How did the simulation look compared to our randomly placed simulation?  
  
Section 5 FoF  
LASTRO (University of Geneva), which can be found here. Just need to specify here.

This software provides us with the groups’ mass, center of mass and size.   
  
Seciton 6 Gadget

Take out GADGET at the beginning

\*\*We need a lot more time\*\* instead of \*\*it needs\*\*

Or changing the snapshot files \*\*so that they can be read by our program\*\* (I think there should be some commas in that sentence as well )

Gadget filer viewer should be in all caps

\*\*It opens the file to a GUI screen where the image can be manipulated by changing\*\* the color scheme depending on the particle type.

Take out the part about the video, doesn’t really need to be said I don’t think.

Reference the image at the end once it has been added to the file

\*\*Now that we have the ability to view the snapshots, we now want to run Gadget with our initial conditions that we used for our particle mesh code. This way we can compare our results to the results of Gadget. \*\* Instead of the first line of the second paragraph

Unfortunately, after many attempts the program was still giving errors about the unit mass in grams \*\*we were\*\* giving it.

The initial velocity needs to be different \*\*to incorporate the expansion\*\*.

I tried to put star around what I think needs to be worded differently or added.

Change the ending as needed you guys worked with dnc I was trying to lead up to it so it flowed a little.

Figure 1: As expected because there was only one particle per box they changed the same relative to each other so there are no systems forming. The system is static.

Figure 2: If we can add the initial state of the system. This way we get a good idea about what happens.

Figure 3: Be consistent with plot labeling, this one has an a and b but the previous one doesn’t I would try and pick one doesn’t matter which to me. What does it mean control simulation? Was this Joes conditions?

Figure 4: Do we reference this plot? IF not It would be good to reference it in the particle mesh part to say we had issues where the acceleration but were ableto overcome it.

Figure 5: Just need to make sure this is referenced in the correct question so this makes sense. In the answer to the question it should say that the number of cells was halved(pretty sure it was half)

Figure 6: Same thing as figure 5

Figure 7: Same thing as figure 5

Figure 8: Same thing as figure 5

Figure 9: Looks great! Referenced well in the document